



PASCAL SAMFOGA DOH

The Responses of the Higher Education Sector
in the Poverty Reduction Strategies
in Africa

The Case of Cameroon



ACADEMIC DISSERTATION

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List of Abbreviations

ADB/ADF	African Development Bank/African Development Fund.
AGIR	Appui à la Gestion des Initiatives Rentables/Support for revenue-generating activities
AL	Assistant Lecturer
ANAFOR	Agence Nationale D'Appui au Développement Forestier/National Forestry Development Agency
AP	Associate Professor
ASTI	Advanced School of Translation and Interpretation
AUF	Agence Universitaire de la Francophonie
BAC	Baccalauréat
BMP	Bachelor, Master, Ph.D
BU	Business Unit
BUN	Buea University Newsletter
CDC	Cameroon Development Corporation
CD-ROM	Compact Disc Read-Only Memory
CEMAC	Communauté Economique de l'Afrique Centrale
CF	Central Funding
CIA/WFB	Central Intelligence Agency/World Fact Book
CIRCLE	Centre for Innovation, Research and Competence in the Learning Economy
CIS	Community Innovation System
CL	Corporate-Led (Model of Entrepreneurship)
DAC	Development Assistance Committee
DEUG	Diplôme d'Etudes Universitaires Générales
DFB	Discretionary Funding Bases
DFP	Differential Fee Payment
DOCE	Document de Stratégie pour la Croissance et l'Emploi (the GESP)
DSC	Doctoral School Concept
DTI	Department of Trade and Industry (UK)
DUI	Doing, Using and Interacting
DVC	Deputy Vice-Chancellor
EC	European Commission

ECAM	Enquête Camerounaise Auprès des Ménages/National Household Survey in Cameroon
EDP	Enhanced Developmental Periphery
EFA	Education for All
ENSET	Ecole Normale Supérieure d'Enseignement Technique/Advanced School for Technical Education
ESAF	Enhanced Structural Adjustment Facility
EURYDICE	Information Network on Education in Europe
FCFA	Franc Communauté Financière Africaine
FOL	First Official Language
FUM	First University Magazine (University of Yaoundé 1)
G.C.E.	General Certificate of Education
GDP	Gross Domestic Product
GESP	Growth and Employment Strategy Paper
GICAM	Groupement Interpatronal du Cameroun/Federation of Business Organisations in Cameroon.
GP	Government-Pulled (Model of Entrepreneurship)
HE	Higher education
HEG	Higher Education Group
HIPC	Highly Indebted Poor Countries
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HND	Higher National Diploma
HYB	Hybridisation
ICT	Information and Communication Technologies
ID	Institutional Diversity
IEC	Integrated Entrepreneurial Culture
IMF	International Monetary Fund
IND	Independence
INT	Interdependence
IP	Intellectual Property
IPD	Internal Programme Diversity
IPR	Intellectual Property Rights
IPSCIT	l'Institut pour la promotion des Services, de la Créativité, de l'Innovation et des Technologies/ Institute for the Promotion of Services, Creativity, Innovation and Technologies
IRIC	Institut des Relations Internationales
IS	Innovation system

IUT	Institut Universitaire de Technologie
KC	Knowledge Capitalisation
KEI	Knowledge Economy Index
L	Lecturer
LGU	Land Grant University
LMD	Licence, Mastère, Doctorat
MBA	Master of Business Administration
MDG	Millenium Development Goals
MINEPAT	Ministère de l'Economie, de la Planification et de l'Aménagement du Territoire/Ministry of the Economy, Planning and Regional Development
MINESUP	Ministère d'Enseignement Supérieur/Ministry of Higher Education
MINRESI	Ministère de la Recherche Scientifique et de l'Innovation/Ministry of Scientific Research and Innovation
MIT	Massachusetts Institute of Technology
MOU	Memorandum of Understanding
NASE	National Advanced School of Engineering
NEPAD	New Partnership for Africa's Development
NIS	National Innovation System
NPS	National Production System
NRIS	National Research and Innovation System
NUGP	New University Governance Policy/Nouvelle Gouvernance Universitaire
OECD	Organisation for Economic Cooperation and Development
OPP	Opportunities
P	Professor
PASE-MINESUP	Programme d'Appui au Secteur de l'Education, Support Programme to the Educational Sector. Ministry of Higher Education
PBF	Performance-based Funding
PCA	Président du Conseil d'Administration
Ph.D	Doctor of Philosophy
PHEI	Private Higher Education Institution
PRO-ACTP	Programme d'Appui à la Composante Technologique et Professionnel
PRSP	Poverty Reduction Strategy Paper
PREMU/WBAR	Poverty Reduction and Management Unit/World Bank, Africa Region
RAP	Regionally Applied Programme
R & D	Research and Development
REF	Reflexivity

RF	Registration Fee
RIM	Research and Innovation Management
RMG	Research Modernisation Grant
RPMG	Research Policy and Management Guide (of the University of Buea)
RRA	Rate of Return Analyses
SAH	Strong Academic Heartland
SAP	Structural Adjustment Programmes
SDG	Staff Development Grant
SL	Scientist-led (Model of Entrepreneurship)
SME	Small and Medium Size Enterprises
SNH	Société Nationale d'Hydrocarbure/National Hydrocarbon Corporation
SOC	Strategic Orientation Committee
SOL	Second Official Language
SONARA	Société Nationale de Raffinage/National Petroleum Refinery Corporation
SONEL	Société Nationale d'Electricité/National Electricity Corporation
SPD	Sectoral Policy Document (For Higher Education in Cameroon)
SPTPCHE	Support Programme to the Technological and Professional Components of Higher Education (French Acronym; PRO-ACTP above)
SSA	Sub-Saharan Africa
SSC	Strong Steering Core
SSP	System Strategic Plan
S & T	Science and Technology
STI	Science Technology Innovation
TAP	Traditional Applied Programme
TH	Triple Helix
TP	Technology Poles
TTO	Technology Transfer Office
UB	University of Buea
UCICT	University Centre for Information and Communication Technologies
UD	University of Douala
UDTP	Urgent Development Tailored Programme
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme

UNESCO	United Nations Educational Scientific and Cultural
UNFPA	United Nations Populations Fund
UniYao I	University of Yaoundé I
UP	University Pushed (model of Entrepreneurship)
US	United States
USA	United States of America
VR	Vice Rector
VR/RCB	Vice Rector in Charge of Research, Cooperation and Relations with the Business World
WDHE	World Declaration on Higher Education

Abstract

This study analysed recent transformation processes that have followed a commitment by the Cameroon government to use higher education (HE) as a driver of its poverty reduction strategies and to become an emergent industrialised economy by 2035. It was a theory-driven qualitative study; a country case study of HE which took a constructivist-interpretive approach to understand the perceptions of the use of HE in poverty reduction. The theoretical framework was built from the literature on the integration of HE in economic development with the major aim being to examine the links and missing links between the practices and the theoretical framework. The study relates to the strand of research which reveals that universities are going through a second revolution of the socio-economic relevance of their mission, thus suggesting an entrepreneurial paradigm encompassing a third mission. Participants in the study express belief in HE as a strategic sector in the sense where HE can intervene to develop all the sectors of national life. HE possesses the potential to address countries' specific contexts of poverty depending on the way it embraces the societal preoccupations into its operations. This involves teaching, training, promoting and researching the problems of poverty and in general, that the university should be in the business of understanding what poverty is and tailoring knowledge to build capacities for poverty reduction.

The broad approach of a "national innovation system" (NIS) that was used to depict the systemic environment of HE suggests that the university's contribution to socio-economic development in Cameroon could be more direct than it is supposed to be if given a strong macro support system with linkages. Some significant results can and could always emerge from the universities but are hardly moved to their logical conclusions because of lack of macro linkages. The NIS makes it possible to understand that there is as yet, no status for university research in Cameroon and that the university is not sufficiently recognised and integrated into its national research, innovation and production systems. These translate into a conspicuous absence of a national strategic plan and no central (system) funding for university research. This lack of system status and recognition implies that a large portion of the country's knowledge potential is being neglected, which is a serious weakness given that it is no longer clear from which knowledge organisation, major innovations and technological breakthroughs emanate. In any case, they are either deeply enmeshed or parasitic upon the university. We also note the general absence of bridging structures to link the university to societal problems.

Although the broad national innovation system (NIS) was used as a starting point, it was difficult at one point to escape the spirit of the triple helix because of the involvement

of the university as the organisational configuration of higher education. Besides, it could be seen from a recent university-industry charter in Cameroon that, it was along the government-university-industry nexus (triple helix) that the socio-economic role of the university was being conceived. The triple helix was therefore seen to provide a readymade framework from which analyses about the university in the Cameroonian NIS can transit from simple to complex situations. From another perspective, the triple helix was seen to be unrealistic and narrow in the sense that it fails to reflect developing countries, where much of their production capacities may heterogeneously be in the informal sectors. It can only be realistic from the perspective, where as confirmed in the current study, universities mostly go after major industries to the neglect of much in their environments. The adoption of a community innovation system in combination with small business and technology incentives was seen to be capable of solving this general weakness of universities going after major industries and would be most appropriate for developing countries' universities to enable them connect directly into smaller businesses with the poorer segments of the population.

The use of an entrepreneurial framework makes it possible to observe that autonomy is well affirmed and devolved to Cameroonian HE institutions and operational units, which is important for them to become more market-smart and interactive with socio-economic operators. It is also possible to assert that the HE system in Cameroon is composed of a relatively strong academic heartland which is an important prerequisite for entrepreneurship. Similarly, very significant efforts were observed to have been made in creating internal interface structures which are important to connect or open up the university to its external socio-economic environment. Where one of the most strategic areas for transformation lies is "cultural". This includes changing the mindset of the people and putting in place more appropriate incentive systems to promote entrepreneurship. For instance, there seemed to be no status for the funding of exploratory socio-economic and poverty reduction activities and no performance based mechanisms to achieve results. Finally, the use of the third mission framework suggests that Cameroonian universities are mostly involved in the social dimension of third mission. The innovative dimension crucial for a knowledge economy was lacking.

Keywords: *University, System, Development, Poverty, Innovation, Entrepreneurialism & Third Mission*

Abstrakti

Kamerunin hallitus on sitoutunut vähentämään köyhyyttä korkeakoulutuksen avulla ja tekemään Kamerunista nousevan teollistuneen talouden vuoteen 2035 mennessä. Tässä tutkimuksessa analysoidaan sitoumuksesta alkunsa saaneita viimeaikaisia muutosprosesseja. Tutkimus on teoriapainotteinen laadullinen tapaustutkimus yhden maan korkeakoulutuksesta, ja se pyrkii selvittämään käsityksiä köyhyyden vähentämisestä korkeakoulutuksen avulla. Näkökulma on konstruktivistis-tulkinnallinen. Teoreettinen viitekehys koostuu korkeakoulutuksen ja taloudellisen kasvun yhdistämistä käsittelevästä kirjallisuudesta. Tutkimuksen pääasiallisena tarkoituksena on tarkastella teorian ja käytännön yhteyksiä – niin olemassa olevia kuin puuttuvia. Tutkimus liittyy suuntaukseen, jonka mukaan yliopistojen toisen vallankumouksen aiheena on yliopistojen tehtävän sosioekonominen merkitys. Tämä viittaisi siihen, että yliopistojen kolmanneksi tehtäväksi olisi muotoutumassa yrittäjyyden paradigma. Tutkimukseen osallistuneet pitävätkin korkeakoulutusta strategisena sektorina, sillä korkeakoulutus vaikuttaa koko yhteiskuntaan. Korkeakoulutuksen kautta on myös mahdollista tarttua maakohtaisiin köyhyyden konteksteihin ja tarkastella sitä, miten maa ajaa tärkeäksi katsomiaan yhteiskunnallisia asioita ja toimii niiden puolesta. Näihin kuuluvat köyhyyden ongelmien opettaminen, tunnetuksi tekeminen ja tutkiminen sekä ongelmiin liittyvä koulutus. Ylipäänsä yliopistojen pitäisi pyrkiä selvittämään, mitä köyhyys on, ja karttunutta tietämystä pitäisi hyödyntää kehittämällä köyhyyttä vähentäviä valmiuksia.

Kansallisten innovaatiojärjestelmien (NIS) lähestymistapaa käytetään tutkimuksessa kuvaamaan korkeakoulutuksen systeemistä ympäristöä. Tämän lähestymistavan mukaan yliopiston panos Kamerunin sosioekonomiseen kehitykseen olisi välittömämpi, jos makrotason tukirakenteiden väliset yhteydet olisivat paremmat: yliopistoissa saavutetaan kyllä merkittäviä tutkimustuloksia, mutta teoriaa ei siirretä käytäntöön heikkojen makrotason yhteyksien takia. NIS osoittaa, että yliopistotason tutkimuksella ei ole vielä vakiintunutta asemaa Kamerunissa ja että yliopistoa ei pidetä osana kansallisia tutkimus-, innovaatio- ja tuotantjärjestelmiä. Tämä tarkoittaa käytännössä sitä, että Kamerunissa ei ole kansallista strategiasuunnitelmaa tai keskitettyä yliopistotutkimuksen rahoitusjärjestelmää. Korkeakoulutuksen vakiintuneen aseman ja arvostuksen puute puolestaan tarkoittaa, että suurta osaa Kamerunin osaamispotentiaalista ei hyödynnetä. Tämä on haitta jo siksi, että ei tiedetä, mikä taho tekee tärkeimmät innovaatiot ja teknologiset läpimurrot.

Nämä tahot ovat joka tapauksessa tiiviissä yhteydessä yliopistoon tai käyttävät sitä hyväkseen. Juuri mikään ei myöskään yhdistä yliopistoa yhteiskunnallisiin ongelmiin.

Vaikka kansallista innovaatiojärjestelmää käytetään tutkimuksen lähtökohtana, kolmoiskierteen (triple helix) välttäminen käy ennen pitkää mahdottomaksi, koska yliopisto on korkeakoulutuksen organisaatiomuoto. Tuoreesta kamerunilaisesta yliopistojen ja elinkeinoelämän välisestä peruskirjasta käy myös ilmi, että yliopiston sosioekonominen rooli sijoittuu julkisen sektorin, yliopiston ja elinkeinoelämän akselille (kolmoiskierre). Kolmoiskierre on siis valmis malli, jonka perusteella analyysit yliopistoista Kamerunin kansallisessa innovaatiojärjestelmässä voidaan siirtää yksinkertaisista tilanteista monimutkaisiin. Toisaalta kolmoiskierremalli on epärealistinen ja rajoittunut, sillä se ei ota huomioon kehittyviä maita, joissa suuri osa tuotantokapasiteetista saattaa tulla yksinomaan epävirallisesta taloudesta. Kolmoiskierremalli voi olla realistinen vain, jos yliopistot tavoittelevat yhteistyötä yksinomaan tärkeiden teollisuudenalojen kanssa ja jättävät suuren osan ympäristöstään huomiotta. Tutkimuksen mukaan näin onkin. Yhteisöllisen innovaatiojärjestelmän yhdistäminen pienille yrityksille ja teknologiaan suunnattuihin kannustimiin vaikuttaa ratkaisevan edellä mainitun ongelman. Uudenlainen malli sopiikin parhaiten kehittyvien maiden yliopistoihin, sillä siinä yliopistot voivat olla suoraan yhteydessä pieniin yrityksiin ja väestön köyhempiin osiin.

Tällaisen yrittäjyysmallin soveltaminen osoittaa, että Kamerunin korkeakoulut ovat hyvin autonomisia. Autonomian ansiosta korkeakoulujen ja sosioekonomisten toimijoiden vuorovaikutus voi olla tiivistä ja markkinasuuntautunutta. Voidaan myös todeta, että Kamerunin korkeakoulujärjestelmällä on melko vahva akateeminen ydinalue, mikä on tärkeä edellytys yritystoiminnalle. Myös sisäisten rajapintojen kehittämiseksi on nähty paljon vaivaa. Rajapinnat ovat tärkeitä, kun halutaan luoda yhteyksiä tai avata yliopisto ulkoiselle sosioekonomiselle toimintaympäristölle. Yksi strategisesti tärkeimmistä alueista muutoksen kannalta on kuitenkin kulttuuri. Ihmisten ajattelutapaa onkin siis muutettava ja yrittäjyyttä tuettava paremmalla kannustinjärjestelmällä. Sosioekonomisten ja köyhyyttä vähentävien toimien tutkimuksen rahoitusta ei nyt pidetä tärkeänä eikä tulosten saamiselle ole mitään suoritusperusteisia mekanismeja. Kolmannen tehtävän mallin soveltaminen viittaa siihen, että kamerunilaiset yliopistot ovat pääasiassa mukana kolmannen tehtävän sosiaalisessa ulottuvuudessa ja että tietotaloudelle elintärkeä innovaatioulottuvuus puuttuu.

Avainsanat: *yliopisto, järjestelmä, kehitys, köyhyys, innovaatio, yritystoiminta, kolmas tehtävä*

Africa's competitive advantage to move away from poverty to enter prosperity requires marrying knowledge, learning and innovations to its main resources... (Muchie et al. 2003, 59).

Chapter One

Introduction

1.1 Background and Overview

Despite mounting evidence of the correlation between a country's productivity and the quality of its (higher) education, including the performance of its national production and innovation system (Bloom et al. 2006; Freeman 1987; Dalman and Nelson 1995), higher education (HE) in Africa has unfortunately been subjected to distrust in terms of developmental priorities, relevance and funding allocations. Rather than apportioning blame to international development agencies especially the World Bank for breeding this distrust as it is the case with most write-ups and speeches, it is either the African governments who should bear the greater part of the blame¹ or it is a collective responsibility which involves international development agencies and bilateral development partners. The example of transformation processes in higher education which this study describes suggests that national governments cannot remain prisoners of donor prescriptions for their development paths when in practice they are the drivers and masters of their own destinies. The transformation processes would be seen as a result of a combination of an institutional revolution plus negotiations with development partners and the proactive and sensitising efforts of the HE policymakers in Cameroon about the current dynamics of economic development and HE.

Until the 1980s, most Sub-Saharan African (SSA) governments portrayed unflinching support and trust in higher education (HE); trust which can be seen within a general

¹ To an extent, there is a cultural trend that governments in developing countries continue to be sceptical and risk averse to investment in knowledge infrastructures in general, including in higher education. Is it either that their structural obstacles put the risk threshold on knowledge activities too high or the policymakers are simply realistic that the countries' demands for knowledge are weak (Arocena and Sutz 2010; Rodrik 2007)? This study also reveals a certain degree of a risk-averse culture with a lack of social capital from productive sectors and poor understanding of the importance of knowledge activities, including the population.

atmosphere of trust in their knowledge infrastructures, including research. The level of investments and incentives may attest. Budgetary and infrastructural investments in HE and research and development were prioritised and mainstreamed in the countries' plans. In many African countries, HE was fully subsidised with non-reimbursable bursaries and many other incentives to facilitate access and develop the sub-sector. HE was seen as an indispensable instrument to build strong knowledge bases, human resources and generally, independent economies to replace the colonial administrators who had controlled the economies in the previous decades. Besides HE, we note, for instance, that by the 1980s the salary scale for researchers in a developing low income country like Cameroon was comparable to that of France (among many incentives) (Gaillard and Zink 2003). Again, we note that by the mid 1960s, African governments had pledged to dedicate 0.5 per cent of their GDP to research and observing further benefits from the ventures by 1980, they committed to increase it to 1 per cent but somehow, the situation was reversed (Mouton 2008).

Over the last three decades higher education suffered a gross neglect from its sponsors, the Sub-Saharan African governments and international development partners. The consequences were enormous; from degraded quality, sheer neglect in access to a near collapse of some of the most important higher education institutions which had existed in Africa before. Irrespective of circumstances like the economic crises of the late 1980s, shrinking public funding, massive unemployment of university graduates and brain drain, there were related theoretical underpinnings that HE was not productive; its social rate of return was insignificant in developing countries. Rates of return analyses (RRA) (Psacharopoulos 1981; Psacharopoulos & Woodwall 1985; Psacharopoulos 1994; Asworth 1997) suggested that the social returns on investment in the lower levels, especially primary and secondary education significantly outweighed those in higher education. The RRA corroborated or conveyed those of the human capital theorists (Schultz 1961; Becker 1994; Blaug 1965) who suggested that HE was more of a private than a public good. An example of a collective short-sightedness² that might have followed from these theoretical underpinnings is that higher education seems to have been consequently excluded from major international agendas like the *Millennium Development Goals* and *Education for All* (2000). As a *fait accompli*, most bilateral development partners of the North followed suit by emphasizing mainly primary or secondary education for the development of education in developing countries.

However, the recent years have seen a gradual deviation from the mid 1980s to the 2000 stances of the international development and bilateral partners and national governments about higher education, which suggests a return of trust. The World Bank later acknowledged, on several occasions, its rediscovery of the potential of HE to enable developing countries to leap frog in their development efforts (World Bank 2000; 2002;

² And which is not unconnected to the theoretical underpinnings.

2009)³. By the mid 2000, most of the bilateral development partners began adjusting their development policies to include HE as well⁴. This doctoral research was therefore motivated by one of those instances of a returning trust in HE for Africa's development, the fact that some African countries mainstreamed their HE in their economic development strategies. These were the cases in early 2000 of Malawi, Cameroon and Zambia which highlighted the use of their higher education in their Poverty Reduction Strategy Papers with Ethiopia and Cameroon⁵ envisaging a significant increase in their HE budgets (Bloom et al. 2006, 6; IMF 2003; 2006). Given the necessity for choice, the researcher resolved to undertake a study on one of the countries, Cameroon. It is important to state that in Cameroon, the perspective gradually improved and culminated in higher education being affirmed as a leading strategic sector in the country's development and subsequently mainstreamed in its current development document, the Growth and Employment Strategy Paper (GESP) of 2009⁶. Two sides of contradictory thinking present.

On a light note, one can imagine that if the sectors in Cameroon were to be classified according to government priorities in general, funding and direct relationship to poverty reduction, the higher education sector which is represented by a ministry and universities would hardly feature among the first score of priority sectors⁷. Worth citing are a few of the thirty-seven ministries in Cameroon with which HE competes for public funding as a subsector besides competing with three other subsectors in the education sector⁸. Paradoxically, it will be shown in this study that HE is the most strategic sector that can transform all the sectors and thus give Cameroon, from a national perspective, a new development facelift. Higher education is the only sector that can comparably claim to be

³ Also see World Bank Plan of action for 2006–2008.

⁴ A close example from where this research was conceived is the recent development programme of Finland which later re-emphasised that; “the development of education in developing countries should embrace all its related sectors”, thus reinstating higher education in the development agenda (Development Policy Programme 2007, 14).

⁵ Cameroon's, from 3.8 per cent to 5.8 per cent (Bloom et al. 2006, PRPS 2003 & 2006).

⁶ It is consequently on this GESP that most of the analyses of the study would be based.

⁷ See website with list of Ministries in Cameroon and the Growth and Employment Strategy Paper for Related Statistics.

⁸ Ministries like 1. *Agriculture and Rural Development* and 2. *Small and Medium Size Enterprises* related to the nearly 70 per cent of the population who depend on agriculture and the informal sectors with SMEs and private retailing businesses 3. *Water and Energy* for nearly 50 per cent of the population who do not have access to electricity and portable water. 4. *Public Health* also presses because of maternal health issues, child mortality and the traditional and recent diseases such as malaria, cholera and HIV/Aids. 5. *Women and Family Protection* has recently been given an important boost because of the necessity for the empowerment of the rural women who constitute 52 per cent and 55 per cent of general and rural-agrarian population, respectively and who are important vectors for the elimination of poverty 6. *Basic Education* and 7. *Secondary education*: for the nearly 42.4 per cent of the population requiring literacy and alphabetisation. 8. *Public Works* and 9. *Transport* also puts pressure on the government because of the traditional developmental characteristics of lack of road infrastructure to speed national economic activities, link the urban to the rural areas as well as farm to market roads. 10. *Plan and Regional Development*.

second only to the state government (Fuller 2005). Although it is simply an educational sub-sector, it is paradoxically the only sector that is omnipotent and omnipresent in the development of all the other sectors. It is a *passé par tout*. It fits and intervenes to develop every sector. The example of the known multiple roles of the sector are that higher education has been traditionally assigned to produce human capital for national development, widen access, provide citizen education, drive national social inclusion policies, develop the agricultural sector, mining, health, women's emancipation and gender equality, national defence, the lower educational cycles and many other sectors through embodied knowledge, research, training and capacity-building. Globalization and changes in the structure of economies have introduced new pressures for it to provide quality education and research for innovation and competitiveness of nations and at the same time, respond to its immediate regional development needs. The connection of HE to related sectors in fostering research, science and technology and industrial innovations which have higher potentials to drive knowledge based economic development and society remains as direct as possible.

On a serious note, it can be imagined that when Bloom and colleagues in the famous working paper "*Higher Education and Economic Development in Africa*" (2006, 6) stated that only three countries highlighted the use of their HE in their Poverty Reduction Strategy Papers, they were implicitly surprised as to why it was only those few countries. This is because HE has become a cornerstone for economic development in recent times with impact on poverty reduction. Irrefutable evidence exists that economic productivity, national wealth and competitiveness in developed and emergent nations over the past two decades have increasingly relied on the production, application and management of new knowledge, hence, the knowledge economy (Powell & Snellman 2000; Drucker 1987; Gibbons et al. 1994; Castells 2000). In a knowledge economy, the generation and exploitation of knowledge plays the predominant part in the creation of wealth (UK Department of Trade and Industry, DTI 2000, 27). The OECD reinforces this position by stating that "*knowledge and the creation of knowledge are perceived to be the essential generators of material benefits for individuals and nations...*" (Hazelcorn 2005, 18). Knowledge becomes a cardinal intrinsic and comparable factor in a production system as agriculture, manufacturing and capital once were. Knowledge is the key driver of economic and technological development and competitiveness and is associated with knowledge based societies and their correlation to development. With knowledge as a territory of higher education, higher education and the university as a knowledge subsystem and institution gain a new strategic position on the development agenda of nations.

In all the above policy processes, the important role the university, higher education or advanced education is playing or can play can be observed in all the different meanings of "knowledge", the knowledge economy and knowledge societies. The UK Department of Trade perceived the universities in knowledge economic development as the "*dynamos*" and "*major agents of economic growth*" (DTI 2000, 27). They are the sources of the basic

sciences for sophisticated technologies, as national and critical institutions for their alternatives and where oppositional ideologies emerge (Scott 2005, 110). Marginson and van der Wende (2007) also describe the university as the foundation of knowledge; the source of the technologies that drive the processes, cross-border association and in sustaining complex societies. Manuel Castells (1993) observed that if knowledge is the electricity of the new informational economy, then institutions of higher education are the power sources on which the new development process must rely.

It is important to highlight that our case study⁹, Cameroon is a country with comparatively enormous endowments in natural resources and primary commodities but has remained one of the poorest over the past three decades. There are difficulties to understand why it has not been able to attain any significant economic growth rate and to translate it into poverty reduction. At the end of the last decade, many new and heavy structural projects began to be launched in Cameroon amidst a more favourable financial climate resulting from recent debt relief measures offering new glimpses of hope. While economists and other development scholars continue to ponder about the previous failures and the prospects of the new projects, this work relates to the body of literature which suggests that the prioritisation of knowledge into the fabrics of the economy and society, can provide both a breakthrough and economic sustainability for Cameroon, including the deriving advantage from its endowments.

We would take the *corn* example cited in this study that when you plant corn, it is corn that you harvest. It is not the immediate harvest (resource) that matters for the future and continuous (sustainable) provision of the corn, as the harvest will either be consumed or perish. The continuity in the sowing and harvest as well as quantity and quality will be based on the skills and competences which remain after each sowing and harvest. The stress here is that what remains to sustain the sowing and harvesting are the skills and competences and not the corn (resource); this reinforces the importance of learning and competence building. A similar example in the study concerns the prevalent dependence on natural mineral resources, whereby it is suggested that rather than depending on oil wells and wealth, it should already be imagined that since the oil wells will normally run dry after fifty years, they are dry already. A palpable illustration from Cameroon is that just recently, a capitalisation on its oil revenues did not sustain or survive the economy from falling from its average GDP of 3.5 per cent over the past three decades to 2.8 per cent in 2010, due to a serious decline in oil prices.

The stance taken in the study is that even if Cameroon were to solve its traditional developmental problems of poverty and related factors and those of national economic competitiveness in current global economy, knowledge based development may remain the dominant paradigm for both breakthroughs. While there may be other competing knowledge institutions in developed countries, universities remain the main knowledge institutions, for the transition of developing countries like Cameroon to knowledge

⁹ On higher education and economic development and poverty reduction.

economy. A new leading role of higher education (HE) in the socio-economic development of Cameroon would necessitate a re-examination of its functions, processes, structures, cultures and exploitation of the material (knowledge) with which it works and around which it is organised. Through various theoretical frameworks in higher education studies and knowledge economic development, this study examined the recent transformation processes that are taking place in Cameroon higher education as a result of stronger emphases on a leading role in socio-economic development, with focus on poverty reduction and for the country to become an emergent nation by 2035.

1.2 Policy Context of the Study

Higher education (HE) in Cameroon is steered by policies and conditions which overlap at the national and international levels. As an active member of the international community, Cameroon is a signatory of many international cooperation and solidarity conventions, including those related to education. As a poor and therefore, borrowing and aids dependent country, its HE has been subjected to prescriptions, regulations and re-regulations from international development agencies. These include the World Bank, the United Nations Development Programme (UNDP), the International Monetary Fund (IMF) and the African Development Bank (ADB), which have been significant in shaping Cameroonian HE in recent years. As implied earlier, the financing of HE in Cameroon as most of Africa, was for about two decades relegated to the background in favour of other sectors and educational subsectors based on prescriptions from international institutions. However, the recent changes being observed in the current study would be seen partially to be attributed to the recent rediscovery of the importance of higher education as a driver of economic growth at the various levels.

It appears in the study that most of the recent transformation processes in Cameroon higher education (HE) are direct or indirect impact and pressures of the international cooperation agreements relating to or involving Cameroon. These are the cases of the *Millennium Development Goals* (MDG 2000) and those involving education like the *Education for All* (EFA 2000). Although, it may regrettably turn out that the MDG or EFA did not emphasise HE, HE would be seen as the sector that is strongly affected by the impacts of such undertakings and has a significant role to play in their accomplishments. In hindsight, it could be argued that there were some weaknesses in the MDG and EFA with regard to perceptions about HE. There seemed to have been the failure and short-sightedness to anticipate the impact and relatedness of the different cycles of the educational system. For instance, after several years of exponential increase in enrolment in the lower levels of the educational system, the HE sector in Cameroon would be seen to face pressures and capacity imbalance in terms of infrastructure, staffing, quality and funding. In addition to the incapacity to accommodate the massive increase in student numbers from the lower education cycles, there would seem to have been the utmost and

most pressing necessity for the HE system to respond to increased demands for secondary and high school teachers amongst other skills and competences. These weaknesses suggest the importance of a holistic approach in the policymaking and funding of the educational sector.

Even if the roles of higher education were limited to enhancing the other educational levels and subsectors following the MDG and EFA, poverty remains a multidimensional and thus multisectoral issue. Higher education would play a direct and perhaps leading role in the achievement of the other items of the MDG such as women's empowerment; provide educators to reduce illiteracy as well as being involved in the design of equitable opportunities and training for women's economic empowerment. Through research, training and education, higher education would have been one of the strategic subsectors to find solutions to child mortality and diseases such as HIV-Aids and malaria, environmental sustainability and the development of the partnerships which are constituted in the MDG. As such, most, if not all, the policy orientations in Cameroonian higher education are coping mechanisms in response to global undertakings such as the MDG and EFA. Nevertheless, some convergence would be noted in the study which draws on the international environment of HE that should have reinforced its service orientation in Cameroon.

Although the 2000 international frameworks (MDG and EFA) did not emphasise HE, the leading role of HE in socio-economic development through its service function was signalled earlier in the 1998 World Declaration on Higher education (WDHE). In its preamble and mission statement, the WDHE stated that there was an absolute necessity for the involvement of stakeholders "*including students and families, business and industry*" and for HE through research to "*provide as part of service to the community, relevant expertise*". Article 6 of the declaration emphasises on "*long term orientation based on relevance*" and operationalises relevance as the "*fit between what the society expects of institutions and what they do*" (6a). The WDHE called for HE to reinforce its role in society, including the development of the whole education system. There is the importance of cooperation following its Article 7 whereby the declaration highlights the necessity to strengthen the relationship between HE, the world of work and other parts of society. Framed by multiplying evidence of the use of higher education in the economic development of emergent nations in the preceding decade as well as the "*transition from information to knowledge society*", the 2009 Conference on Higher Education that followed was unequivocal about the status of higher education as a public good thus calling for relentless investments in the sector. Of particular importance is the special attention the conference paid to Africa. The objective was that "*no nation or region falls behind*" given the importance of knowledge and higher education (UNESCO 2009).

On a more positive note, there is the important role played by new conditions and avenues of resources (notably funding from the international financial agencies) in the

transformation processes of higher education in Cameroon. In several public speeches between 2005 and 2010, Cameroonian authorities recurrently reassure the public that

The current financial circumstances surrounding the launching of the current major project are more favourable than they were a few years ago...with relatively substantial financial resources to invest in the social sectors, notably in education and infrastructure (President's Message to the Youth, 10 February 2007).

It is noted that most of the transformation projects within the past five to six years in Cameroon higher education continue to be accomplished partially and significantly thanks to the completion of the Highly Indebted Poor Countries' Initiatives (HIPC) in 2006. The Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE) which is championing the professionalisation policy and strategy for a drastic transformation towards increased relevance and socio-economic involvement of HE in Cameroon, is a result of the fallout of the HIPC. The SPTPCHE improves and enlarges the higher education component of the Support Programme to the Educational Sector with sponsorship from the World Bank, termed *PASE-MINESUP*. There is the Support Programme for the Management of Income-Generating Initiatives of HE, called *Appui à la Gestion des Initiatives Rentable (AGIR)* which the Cameroon government counts on to spur income-generating activities as well as an entrepreneurial culture for the HE system. There are the recently emerged distance learning programmes and centres with financing from the World Bank. There are also three University Institutes of Technology, being the most applied higher education establishments in Cameroon, which were set up with similar sources of funding and co-funding.

In terms of the national frameworks, it is apparent that the transformation and reorientation process of HE towards poverty reduction and economic development in Cameroon follows a convergent and overlapping objective of the international and national commitment which guide and perhaps exert pressure for responses from the higher education system. For instance, the current economic development document guiding the economic focus of the HE system in Cameroon is the Growth and Employment Strategy Paper (GESP) and which is a revised and a more focussed version of the two Poverty Reduction Strategy Papers of 2003 and 2006. This GESP describes "*the country's progress towards achieving and realising*" Cameroons economic development goals and also commits and reaffirms the government determination to realise the MDG in its entirety (see GESP 2009, 14). The GESP represents the first strategic plan focusing on a ten-year period from 2010 to 2020 to translate the first sets of development goals and shared vision of Cameroon becoming an emergent nation by 2035 which involves i) reducing poverty to a socially acceptable level ii) becoming a middle income country iii) acquiring the status of a newly industrialised country, reinforcing national unity and consolidating the democratic process.

More elaborately related to the above, are government plans to i) “*reduce poverty to the point where not more than 1/10 Cameroonians will live below the poverty levels*” or “*increase the living standards and ameliorate the living conditions of the population*”. ii) “*Contextualise the national industrial policies to reflect the national and international realities of the time*”, with special emphasis on the “*transformation of natural resources*”. iii) Modernise the economy by creating “*the necessary conditions for the rapid development and popularisation of the use of the new information and communication technologies*”, to all sectors and segments of society¹⁰. Seen as the most and imminent strategic springboard for the implementation and realization of the long term vision up to 2035, the GESP envisages that within the period 2010–2020 the focus would specially be on growth, employment and improvement of state governance and strategic management (see GESP 2009, 17).

With respect to the internal policy and regulatory framework guiding the societal service function of higher education in Cameroon reference would, first and foremost, be made to the 1993 university reforms. Although these reforms seem to have focussed mostly on addressing the acute access situation at the time through the creation of five extra universities as well as addressing their related funding challenges, it can nevertheless be said that the societal problem solving component was implicit in the reforms, though less articulated than recently. The 1993 reforms devolved steering and financial autonomy to those newly-created universities and empowered them to engage with external stakeholders with a view to supplementing the inadequate government funding for their burgeoning enrolments. Although the societal service function has been variously interpreted by the universities over the years, some, if not, most of the universities designed the use of the university’s competences for solutions to the problems of the society, especially with socio-economic operators in exchange for extra cash flow.

The societal service function of the HE system in Cameroon was later added and codified in the 2001 Law on the orientation of higher education in Cameroon. In addition to the production, organisation and dissemination of scientific, cultural and professional knowledge, the HE system in Cameroon has the fundamental mission of “*providing support for national development efforts and human progress*” (2001 Orientation Law, Article 2). A more elaborate and consistent framework later followed in October 2005 called the New University Governance Policy (NUGP) (*Nouvelle Gouvernance Universitaire*). It is apparent through the NUGP that there have been changes in the perceptions about the roles of higher education. The proactive efforts of the policymakers also seem to mark a difference from previous perceptions. This NUGP presents a strategy path to transform Cameroonian HE from “*its actual state of inefficiency to its materialisation*” (NUGP 2009). It establishes a five multi-dimensional but mutually exclusive package which is to be consistently implemented and envisaged to drive the long term reorientation processes

¹⁰ Plan of Action, *The Great Ambitions* 2004–2011 (for seven year Presidential mandate) .Visit website of the Presidency of Cameroon (referenced below).

of HE, amongst which: 1. *academic governance* (of the core missions of universities; teaching, research and service) 2. *Managerial governance* (capacity building for modern governance and administrative practices) as well as resources 3. *Financial management* 4. *Digital governance* (of ICT in higher education) and 5. *Social governance* (of living conditions, financial and communication support systems for students and staff). It is the NUGP that guides most of the support programmes and transformation processes observed in this study (NUGP 2009). While the NUGP represents the current subsectoral framework conveying the economic development focus of the HE system, it is worthy of note that there was also a 2006 sectoral strategy for education which conveyed the conceptualisation of NUGP within the broader framework for Cameroonian education in general.

While the reforms, laws and policies represent conscious political efforts to improve the direct service function of higher education in Cameroon, it is necessary to state some of their related factors¹¹ which include: the accountability factor; greater calls for the HE system to show proof its direct societal contributions with regard to the use of the taxpayer's money amidst a high graduate employment rate since the late 80s. The low growth rate and the need for HE to be involved or lead in economic development policies. There is also, the general call for higher education to champion the ambition for Cameroon to become an emergent nation by 2035. There are changes in the economic and production dynamics, especially the increasing transition to a service economy which contribute to intensify the involvement of higher education in the economic development of Cameroon. There is financial insufficiency. Given the surging enrolment in HE and government incapacity to cope with the funding of the system, there are calls for universities to search for alternative funding sources. The search for these alternative sources is leading the Cameroonian universities to involve with other stakeholders and third parties. Globalisation and international technological advances reinforce the role of higher education in Cameroon. There are the urgent needs to bridge the development gaps that are posed by the advances brought by these recent phenomena.

1.3 General Orientation and Scope of the Study

For a greater understanding of the orientation of the study, it is necessary to summarise the boundaries of the study and clarify the use of certain terms that dominate the study. This study focussed solely on the higher education (HE) system in Cameroon and which

¹¹ Which may explain how different emphases and calls from the external (national) socio-economic environment may affect change in the vision and perceptions of the internal participants in a subsector like higher education and how and why the actors and policy makers in Cameroon may have become keener and more proactive about their role in socio-economic development in recent years (see Chapter five).

comprises of a ministry¹², the universities, policymakers and actors. The empirical aspect (especially the interviews) did not include participants of the external environment of higher education or other sectors of the national system. Whereas, calls for more direct involvement of HE and universities in socio-economic development may come from the external environment of the universities (government, the parliament and industries among others), it was deemed more appropriate to focus on the views of the internal actors in HE by analysing the sense they make of their roles in response to calls to lead in the poverty reduction strategies of Cameroon. The choice was premised on the fact that HE is an expert, professional and bottom-heavy system or institution. It is difficult for outsiders to understand what is happening within, especially in the basic units. The university and its professionals handle the knowledge that is needed for socio-economic development and poverty reduction and know better than any outsider.

Also, because the advent of private higher education institutions makes the HE system in Cameroon a dual system, the study focussed only on the public sector consisting of the ministry and 8 state universities and which represents about 85 per cent of the student and staff bodies in Cameroon (SUP INFOS 2010a). The study was therefore a national case study of HE. The time frame covered in the study is about five years from 2005, when the new governance policy calling for a new orientation of HE in Cameroon and the debate about HE in their development policies began to intensify. The empirical aspect ends in December 2010, prior to which came the publication of the Growth and Employment Strategy Paper (GESP 2009), within which was the leading role of HE, for implementation from 2010 to 2020.

The theoretical framework began with the National Innovation System (NIS) to characterise the external (national) socio-economic environment of the universities. The use of this NIS as a systemic framework for HE in knowledge based economic development draws on the notion that universities are increasingly operating in an open environment. This systemic environment constitutes an important influence and pressure that triggers organisational transformations, as such, a starting point for understanding and effecting organisational changes in universities. Having looked at the external surrounding, the focus of the study was actually on the adaptation, innovation and transformation processes that take place in the HE system and institutions in Cameroon with regard to changes in its external environment and national system. For reasons associated with the origin of the NIS (see section 4.2.1 and Lundvall 1992) and an observed theoretical convergence with the “*National Production system*” (NPS) of Friedrich List (1841) both terms are sometimes used interchangeably for the systemic perspective, especially given the context of a developing country. The challenges and characteristics of innovation in developing countries and the correlation between NIS levels and the country’s development level leads to the necessity to connect perspectives of the NIS to the level of a country’s economic structural and institutional development (Gu 1999; Arocena &

¹² As an overseeing structure for the Cameroonian higher education system and universities.

Sutz 1999). To this effect, the NIS could only be employed in this study in the context of socio-economic development. The use of the NIS for socio-economic development draws on the perception that innovations co-evolve with economic structure and supporting institutions (Nelson 1994). It is for similar reasons that innovation system (IS), knowledge economic development and socio-economic development to which HE is expected to contribute, are used interchangeably.

It is concluded in the dissertation that a broadened National Innovation System which includes a socially-inclusive or pro-poor Innovation System (IS) in the form of a Community Innovation System (CIS) makes it possible for poverty at the grassroots to be tackled more quickly, including enhancing the university's direct involvement with the poor segments of the population. However, this perspective does not ignore the trickle down effects of national innovation, economic development policies and growth, especially the importance of national innovations in long term economic development and overall importance in sustainable poverty eradication. To this effect, poverty reduction was also used interchangeably with socio-economic development. The integration of HE in national economic development strategy is also used with poverty reduction. Observing and acknowledging that "poverty" may be fluid and multidimensional in its definition, it was necessary to frame the definition being dealt with. In the study, it is the term "*economic poverty*"¹³ that was adopted. Economic poverty translates into "*income poverty*" and is reflected in the lower living standards of a particular class of the population called the "poor" (Friedman 1965; Barker 1995). This poor population segment lives below the poverty line (income-levels). The economic and income dimension of poverty translates into the poor segment of the population being unable to afford certain basic necessities (in absolute cases) such as decent food, health care, housing, education and an absence of their related services.

The perspective on economic (income) poverty was also consistent with the perceptions from which poverty is defined in the context of the case study, Cameroon. According to several consultations carried out in Cameroon, its people generally perceive poverty as the lack of material or financial resources to satisfy the basic needs of individuals such as those above. The absence of services in some areas also renders those who have the means to acquire them poor (GESP 2009, 41). In Cameroon, the "*poor*" is that segment of the population whose living conditions are worse than the observed average. This perspective on the poor takes into account either the household wellbeing (consumption aggregate), a poverty line which reflects a situation of wellbeing below which a household is deemed to be poor and other poverty assessment indicators (GESP 2009). At the national level, poverty may take the dimension of relatively low national income level characterising the country as a "low income country". It may be reflected in low GDP with a majority living below poverty levels and unable to live decent lives compared to other countries. Finally, Poverty Reduction Strategy Papers (PRSP) are national developmental plans conveying

¹³ Used in the study in the same narrow sense with income poverty.

the country's macro-economic, structural and social policies geared towards growth and poverty reduction as well as their financial implications within a specified period of time and submitted to the country's development partners (World Bank, IMF). In the study, the current PRSP for Cameroon is called the Growth and Employment Strategy Paper (GESP). It is an updated version of the two previous PRSP of 2003 and 2006. It presents Cameroon's long-term development plan up until 2035 with an assessable focus on growth and employment as the first step for the long-term poverty eradication plan between 2010 and 2020. As such the PRSP are either used in addition to or interchangeably with the GESP.

1.3.1 Objective of the Study

The general objective of this study was to analyse the transformation processes taking place in Cameroonian higher education upon the country's advocacy to use higher education (HE) for driving its economic development programme and to eliminate poverty. This analysis was supported by theoretical and conceptual frameworks in HE policy and research studies. The study examined the rationale, perceptions, strategies and theoretical explanations thereof. The second facet of the objective was the relationship between the perceptions and strategies to the theoretical aspects and frameworks in HE, with regard to its integration in economic development. The study also examined scenarios which can strengthen the HE system's capacity and interactions with its socio-economic environment with implications for poverty reduction. Underlying the broad objective are the following specific aims which are to:

1. Contribute to the knowledge on the use and transformation processes in higher education towards socio-economic development and poverty reduction.
2. Examine and establish relationships between the system's engagements and the theoretical and conceptual frameworks in higher education studies.
3. Identify the country's strategies and response mechanisms.
4. Identify and establish the strengths, challenges and weaknesses in the use of higher education in poverty reduction processes?
5. Generate context-relevant knowledge that would strengthen the Cameroonian and African universities' social roles as leading actors in the transformation towards knowledge based economic development.

1.3.2 Research Questions

The conduct of the study was guided by two research questions as follows:

1. *What are the perceptions and accompanying transformation processes in the use of higher education in poverty reduction strategies in Cameroon?*

2. *What are the links and missing links with the theoretical framework and how can the theoretical framework strengthen the transformation processes?*

The first question relates to the meanings which the architects of the higher education system make of their role in poverty reduction. The second dimension of the first question (transformation) is in relation to change, in terms of what has to change, has changed or are in perspective. This notion of transformation drew on the theoretical and conceptual framework that if higher education has to embrace a mission which does not fall in the ambit of its traditional mission of teaching and research, then, there were to be some implications for transformation. The second question was aimed at examining the relationship between the perceptions and transformation processes with the existing conceptual, theoretical frameworks and literature in higher education studies and research. What is the orientation supposed to mean with regard to the theoretical and conceptual framework, more emphatically, with regard to the integration or use of higher education in economic development policies? The objective here was to establish the gaps with the theoretical framework, thereby implicitly contributing to strengthen the involvement of higher education in the poverty reduction strategies. Given that higher education exists in an open national system which maybe supported or marred by that national system, another concept, the national innovation system was employed from innovation policy studies as part of the theoretical framework to provide the system perspective of the study, thereby supporting higher education.

1.3.3 Structure of the Dissertation

This dissertation is divided into nine chapters. While this first chapter already introduced the background, overview and general and technical orientation of the study, chapter 2 presents the country profile, the higher education system and a brief literature review on its socio-economic development context. Chapter 3 describes and discusses the techniques, methods and investigative practices which guided the study. Chapter 4 presents the theoretical, conceptual and analytical framework. Chapter 5 presents the empirical data on Cameroonian perceptions and strategies on the use of HE in the poverty reduction strategies. Chapters 6 and 7 operationalise the theoretical frame within the context of the case study while discerning the links and missing links between the practices and the theoretical framework. This is the case of Chapter 6 which examines the systemic environment under which the higher education system in Cameroon operates and which is depicted and represented in light of the theoretical framework by the national innovation system. Chapter 7 is about the third mission and entrepreneurial practices in Cameroon. These third mission and entrepreneurialism were adopted to represent the internal adaptation and response mechanisms of the university to its national system and thus for integration and interaction of higher education in the socio-economic development

processes. Chapter 8 is dedicated independently and entirely to one of the core and main research problems of the study about how the policymakers perceived the role of higher education in socio-economic development and poverty reduction. The chapter (8) therefore presents a condensed and categorised analysis of the empirical data on the roles, specific lessons and peculiarities of the Cameroonian context. Chapter 9 is the final concluding chapter of the dissertation. It consists of a synthesis of the general findings, perspectives for policymaking and future research, potential pitfalls and downsides on the socio-economic development orientations in general, including observations about how conflicts of academic values and the new socio-economic mission engaged in Cameroon higher education can be resolved.

Chapter Two

Higher Education and the Socio-economic Development in Cameroon

2.1 Description of the Country Case Study and its Higher Education

Cameroon is officially called the Republic of Cameroon. It is a triangular shape covering an area of 475,650 km on the armpit of the map of Africa, between West and Central Africa. It is bordered in the West by Nigeria, in the North East by Chad and in the East by the Central African Republic, to the South by three countries: Equatorial Guinea, Gabon and the Republic of Congo (see map of Africa). Cameroon has a population of 19,406,100 inhabitants with an annual population growth rate of 2.6 per cent (2009 Census; United Nations Population Fund, UNFPA). The country is divided into 10 regions, eight and two of which are respectively French and English-speaking. Cameroon has constantly been termed “*Africa in Miniature*” for several reasons. It exemplifies the diverse African cultures and affiliations. It is characterised by the peaceful coexistence of Christians and Moslems. As a former French and British colony, it runs a bicultural Francophone and Anglo-Saxon educational and administrative systems. It is a bilingual country; its official languages being French and English. Due to these bilingual and bicultural characteristics, Cameroon is a member of two of the world’s largest socio-cultural and linguistic communities, the Francophonie and the British Commonwealth. Cameroon operates within an economic and monetary zone of six countries¹⁴, the Economic Community of Central African States (CEMAC¹⁵).

Historically, Cameroon has gone through annexation and colonisation by three European countries. In 1884, it was annexed by the Germans. After the First and Second World Wars, it respectively became a mandated and trust territory of the League of Nations and United Nations under the French and British. The French-colonised territory of Cameroon (which was about 80 per cent of the entire land surface) gained

¹⁴ This includes Cameroon, Chad, Republic of Congo, Gabon, Equatorial Guinea and Central African Republic.

¹⁵ Communauté Economique et Monétaire d’Afrique Centrale (CEMAC).

its independence in 1960 and was joined with the British territory (20 per cent) in 1961, through a plebiscite for a federal government. In 1972, the territory was totally reunified, became a “United Republic of Cameroon” and in 1984, the “Republic of Cameroon”. Compared to other Central and West African countries, Cameroon has enjoyed relative stability since independence¹⁶ (ADB/ADF 2010). Cameroon is a developing country in the middle range both as an aids-dependent and middle income country (UNDP 2006, 35). It ranked 133 out of 146 countries in the 2009 Knowledge Economy Index (World Bank/KEI 2009). In terms of education, Cameroon is one of the giants in primary, secondary and higher education in the CEMAC sub-region and Sub-Saharan Africa (SSA). It has one of the highest school attendance and literacy rates in the region. In 2007 the school attendance rate stood at 83.1 per cent, the adult literacy rate being 67.9 per cent (GESP 2009). It has one of the highest participation rates (7.2 per cent) in higher education in SSA¹⁷. Pursuant to the *Millennium Development Goals* and the *Education for All* (2000), attendance at state-run primary school in Cameroon is compulsory, generally free and government-subsidized. Its public secondary education is mostly subsidized by government in addition to which, a token and less significant registration fee from pupils’ families. The cost of private secondary education is mostly borne by pupils’ families with a less significant government subsidy and those of the denominational and mission schools borne almost entirely by pupils’ families and the respective organisations.

Despite the preceding two decades of economic hardship, Cameroon has continued to constitute an interesting case of a comparatively better educational system in Africa. It can be observed in the Knowledge Economy Index (KEI) of 2009 that it was 12 positions ahead of some African and Asian countries, which may be generally classified as being ahead but Cameroon’s education is specifically rated as being of better quality¹⁸. The educational sector comprising of four ministerial departments for basic, secondary (general) and (professional/technical) education and higher (university) education receives about 20 per cent of the total budget of Cameroon. However, the logic of the allocation of this 20 per cent budgetary package to the four ministerial departments has been a cause of debates. As noted earlier, one of the consequences of the distrust in HE was in its funding. It implied that for each 100FCFA that was to be disbursed to the educational sector, only 7.5 FCFA (per cent) was allocated to higher education. Although the other subsectors are prerequisites for higher education, the global evolution towards knowledge based economic development raises questions about the potentials of the early levels (literacy and alphabetisation) in driving economic development and paradoxically the funding practice. Also, a population expansion in the preceding education cycles has been seen

¹⁶ Except of the brief coup d’état in 1984 and the recent 2008 riots against rising cost of living.

¹⁷ This is above the general rate of 6 per cent for SSA (UNESCO 2009).

¹⁸ These are the cases of 10 African countries (Burkina Faso, Sudan, Angola, Mali, Tanzania, Madagascar, Benin, Uganda, Mauritania, Senegal) and two Asian countries (Pakistan and Yemen) which are behind Cameroon in education (see KEI 2009)

to seriously affect higher education funding and therefore the system's efficiency and continuity.

2.2 Higher Education in Cameroon

2.2.1 History and Structural Transition

The current university system in Cameroon can be traced from the transformation of the National Institute for University Studies to the Federal University of Cameroon which began in 1962 with 529 students (Njeuma et al. 1999). Until independence in 1960, most Cameroonians pursued HE abroad, especially in Germany, France and Britain during their respective annexation and colonial eras and based on the bilateral frameworks they established. Other frameworks also existed within colonial, ex-colonial, socio-linguistic and cultural networks which made it possible for Cameroonians to receive higher education in other African countries and even continents within the networks. These were the cases of Anglophone¹⁹ and other earlier Francophone universities which hosted Cameroonians for higher education. In terms of structure, the Cameroonian HE system has undergone through a drastic and dramatic structural change (as marked by the 1993 reforms), from a combination of an earlier *dual* and *stratified* (elitist) system (Doh 2007, 6) to a (massified) *open access* system. This drastic or dramatic structural adjustment was a serious deviation from the colonial conception of the higher education system in Cameroon. Earlier, there was only one multi-faculty and comprehensive university in the liberal arts, science and social sciences called the Federal University, which was renamed the University of Yaoundé. The HE system instead developed through specialised faculty-like establishments called centres, schools and institutes which were implicitly stratified and elitist with highly selective entry conditions. Although this type of French system of stratification which was adopted in Cameroon may have been less clear than the American or Anglo-Saxon systems, the establishments were however distinctive in terms of their civil service and strong professional and technical orientations (see Ben-David 1977). Again, although some of the previous faculty-like establishments in Cameroon could be both first and second tier institutions offering the respective degrees, they were mostly teaching and applied institutions without postgraduate and research status.

Almost thirty years after the inception of the HE system in Cameroon, it had become clear that a system characterised by professional and technical civil service-oriented and elitist institutions could not absorb the mass wanting to get into higher education. The lone University of Yaoundé itself had a serious capacity problem. For instance, by 1992 the university had reached a congestion level where there were over 40,000 students

¹⁹ Nigeria hosted many Anglophone Cameroonian students and intellectuals. Most of the teaching staff who came by 1993 to constitute the first teaching corps of the University of Buea were from Nigeria.

on a campus designed for 5000 students (Njeuma et al. 1999, 1). This was coupled with unemployment since the education of the main university was in classical liberal programmes and less employment or market relevant compared to those of the specialised establishments. In addition, those specialised professional and technical institutions seemed to receive more attention from an immediate development perspective and less in terms of the expansion that might take place in the main university. The government had to take serious measures through the 1993 reforms among which was the creation of five full fledged universities to add to the University of Yaoundé. These new universities were developed from some of the existing university centres. For the sake of coordination, the professional and technical HE establishments were all brought into the main university system and granted academic and postgraduate research status to facilitate mobility between non specialised and specialised establishments and to increase their research productivity. With regard to the traditional classical programmes of the main university, the government through the 1993 reforms engaged in professionalisation. Today the HE system in Cameroon presents a unitary structure of eight main institutions: the Universities of Yaoundé I, Buea, Yaoundé II, Dschang, Ngaoundere, Douala and Maroua and Bamenda (the first six universities having been born from the 1993 reforms and the last two established in 2008 and 2010 respectively). In addition to these eight universities, there are two virtual universities, one of which is for the CEMAC sub-region and a centre for telemedicine (SUP INFOS 2010, No. 13, 18).

2.2.2 Population, Language of Instruction and Degree Structure

In 2010, the higher education system in Cameroon had 210,000 students (SUP INFOS 2010a). The trends over the years indicate that the annual average increase in student numbers is about 20 per cent. For instance, in the 2002–2003 academic years, the student numbers stood at 74,105. In 2006–2007 it was about 130,000 students and in 2010 about 210,000 (2004, 2007 Statistical Yearbooks; SUP INFOS 2010a). These increases place the policymakers in difficulties in terms of planning, funding and infrastructure with implications on quality. The languages of instruction in the Cameroonian HE system are French and English. Two of the eight universities (Buea and Bamenda) are conceived in the Anglo-Saxon tradition and are English-speaking monolingual universities. The University of Ngaoundere is a Francophone, French-speaking monolingual university conceived in the respective tradition. Meanwhile the mother institution, University of Yaoundé 1 officially remains a bilingual (French and English-speaking) university. The other four universities are bilingual with a dominant Francophone orientation. As a matter of expertise, lectures can still be delivered in the teachers' first official language (English) in the four French-speaking universities.

The bilingualism in Cameroon implies that teaching takes place in the teachers' first official language (FOL) French or English or second official language as preferred.

Students take notes and do their exercises in their FOL, irrespective of the language in which they are instructed. Since 2007, the degree structure in Cameroon has been based on the Bologna harmonised structure and as implemented in the whole of the CEMAC Zone. It comprises of the Bachelor, Master and Ph.D (BMP) structure of three, two and three years respectively with same and comparable architecture in the Francophone subsystem as *Licence*, *Mastère* and *Doctorat* (LMD). Although Cameroon was earlier involved in the harmonisation of the two degree structures emerging from its French and British colonial history, the country seems to have taken advantage of recent international calls to perfect²⁰ and complete its national harmonisation process and with more development orientation²¹. For instance, the recent harmonisation process lays much emphasis on the rationalisation of the credit system, a new focus on student-centred learning, quality assurance, transparency and transferability. Admission to higher education institutions is based on the *General Certificate of Education* (GCE) Advanced Level and the *Baccalauréat* for Anglophone and Francophone Cameroonians respectively after seven years of secondary education, three and two years of high school studies, respectively.

2.2.3 Funding, Privatisation and Governance

Since the 1993 university reforms, public higher education (HE) in Cameroon has been predominantly funded for about 70 per cent by the state in addition to a token registration fee of 50,000FCFA²², which constitute about 20 per cent of the university's budget. The university budgets are chiefly oriented towards teaching whereas, research in general and postgraduate research remains decidedly underfunded. In addition, most of the research budget in Cameroon has been seen to come from international donor and research agencies, usually applied for by individual researchers and groups. Six types of grants can be identified in the Cameroonian HE system from the Ministry, through the universities and down to basic units. The first four types of grants are paid from the Ministry.

First, there has traditionally been a “*research allowance*” of 200,000 to 300,000FCFA²³ depending on academic rank. These allowances are paid as direct government subsidies for research activities. In 2009 a “*Research Modernisation Grant*” (RMG) was instituted as a quarterly bonus to academic researchers in Cameroonian State Universities (Decree No.2009/121 of 8 April 2009). This RMG increases the academics' salaries by about one third. Thirdly, there are “*Mobility Grants*” which allow teachers, who already have their

²⁰ This has involved changes even in the Anglophone system through the University of Buea which originally had the current Bologna degree architecture.

²¹ Previous harmonisation process for the first forty five years of higher education in Cameroon had been triggered more by difficulties of coordination, the necessity to enhance mobility and transferability between the two systems and also transparency in the two degree structures (see Doh 2007).

²² Approximately 103 US Dollars

²³ Approximately 412 to 618 US Dollars.

research materials to travel to other centres within or outside the country to do research, prepare publications, experiments or analyse samples. Finally at the Ministry, there is again a “*Professionalisation Research Grant*” which supports lecturers to explore issues of partnerships, designs and contacts related to professionalisation and the industry. This grant is won in partnership and there must be a counterpart from the university as a second sponsor. The fifth and sixth types of research grants are paid from the university budgets. These²⁴ include a “*University Grant*” at the central administration of the university for multidisciplinary research teams or individuals to carry out small scale research or supplement externally-received research grants. Finally, there are “*Faculty Research Grants*” whereby each faculty may reserve some minimum amount of money as academic lecturers’ small grant schemes.

With regard to privatisation in Cameroon HE, it could be said that it is the result of three major forces. It was triggered essentially by scepticisms about the government capacity to finance an ever increasing student population and then the related two problems of relevance and graduate employability that surfaced from the Cameroonian HE system since the end of the 1980s. These forces brought in the invisible hand of the market, thus providing grounds for the involvement of the private sector in the provision of HE in Cameroon. Whereas the Cameroonian government had been sceptical for many years about private HE due to quality concerns and coordination constraints (Njeuma 2003), the incapacity of the government to finance the growing number of students and its implications suggested that the government could no longer bear the funding of the HE alone. The deteriorating financial situation of the system led to the approval of many (if not mushrooming) of private higher education institutions (PHEI). In 2010 there were 68 PHEIs but which continue to constitute only about 15 per cent of the entire student population in Cameroon (SUP INFOS 2010a). Students of these PHEIs pay the full cost of their education through tuition fees, which may be as much as 5 to 20 times to those of their counterparts in the public sector. As provided for by the autonomy granted by the 1993 reforms, it is possible nowadays that students of the public universities could pay as much as 20 times their counterparts in the traditional degree programmes for professional and direct job tailored programmes, short courses, MBAs and within some frameworks of contract education with enterprises. The situations indicate a form of disguised privatisation within the public universities. The fees from these professional and tailored programmes and courses could account for one of the main sources of non-government revenues of some universities. In terms of offering, the private institutions seem to claim a monopoly in professional and job relevant programmes. In early 2000, they were observed to offer mainly shorter term degree courses for *Higher National Diploma* and *Diplôme d’Etude Universitaire Générale* (DEUG) of about two years, in areas such as accounting, management, journalism, office management, secretariat duties and information technologies (Njeuma 2003).

²⁴ In the case of the University of Buea.

The evolution towards full cost tuition payment for some programmes in the public universities suggests that the boundary with the private institutions is becoming blurred. It has also been believed in Cameroon that most enterprises in the private sector prefer to recruit graduates from the short degree (HND and DEUG²⁵) programmes from the PHEIs because of cost effective reasons and their professional orientations. However, recent opinions from job markets in Cameroon suggest that graduates from public universities who receive professional components to their liberal training maybe more polyvalent and creative than those of the professional oriented PHEIs. The opinion holds that the job market may increasingly prefer these graduates from the public universities with professional components as it will be possible to use them more flexibly (see section 5.2.3). Also, it seems to be a common phenomenon in Cameroon as elsewhere in Africa that PHEIs seldom engage in research (see Varghese 2004). Most may hardly engage even in teaching programmes like engineering and medicine, which are cost-intensive.

In terms of the coordination and governance patterns, Doh (2007, 14) described the HE system in Cameroon as chiefly characterised by a combination of what Clark (1983, 143) called the “*State*” and “*Academic Oligarchy*”. This was due to its marked centralisation on government and the inevitable strength of academics both through the academic and collegial instances of decision-making and their involvement in the administration of the system. However, because of the stronger economic development focus of the HE system in recent years, the coordination and governance of the system would seem to be orientating not only towards Clark’s (2003) “*Market*” angle but in terms of the conceptualisation by Cloete and Maassen (2002, 19), towards the “*Society*” angle, termed the “*stakeholder society*” (Neave 2002) as follows:

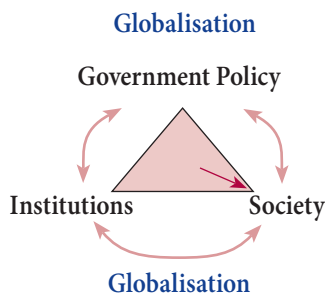


Figure 1: Recent orientation of the higher education system in Cameroon

(Adapted from Maassen & Cloete 2002, 19.)

As indicated by the arrow in the triangle, the new orientation of the HE system result from the recent involvement of socio-economic and political stakeholders in various instances

²⁵ HND for Higher National Diploma; equivalence for the *Diplôme d’Etude Universitaire Générale* (DEUG) (of two years each).

of the university; from the councils to various interfaces and orientation committees. In a previous dispensation, the orientation of the HE system was between University institutions²⁶ and the government (as centralised). It is observed that due to the new economic development focus of HE in Cameroon and the involvement of the stakeholders, the direction of power which used to be either top-down or bottom up (government-university nexus) is gradually moving sideways to involve external stakeholders (society)²⁷. Besides, the involvement of these stakeholders in the top level decision-making instances like the council, these stakeholders may be involved in issues of orientation, programme conception and university partnerships as well as in the financing of some of the university's projects. Finally, note may also be taken of the influence of the global environment as the HE system increasingly scans not only the national environment but a broader global scope for resources, partnerships and practices in HE.

2.2.5 Cameroon in Internationalisation and Transformation Processes

Cameroon is one of the leading nations in the CEMAC sub-region and Sub-Saharan Africa (SSA) in terms of experience in internationalisation and transformation processes in higher education (HE). From the inception of its HE and in recent times, Cameroon has hosted most international and regional HE programmes in Central Africa, the CEMAC sub-region and even SSA. As early as the 1960s, most, especially the early professional institutes that were conceived had international characteristics thus rendering Cameroon attractive as a major direction for international students from the neighbouring CEMAC, SSA and generally, Francophone African countries. These are the cases of the Institutes and Schools of International Relations, Journalism, Translation, Management, Telecommunications, Demography and Statistics, Medicine and Local Community Development. After these professional establishments were absorbed into the main comprehensive university following the 1993 reforms, Cameroon has remained the major direction for students from other countries in the sub region and SSA.

The relative political stability, its central position on the map as well as its bicultural and bilingual nature continue to play in favour of Cameroon, as a suitable site and seat of African and sub-regional higher education institutions. These are the cases of the Pan African Institute of Higher Education Governance (PIHG)²⁸ jointly initiated by the *Agence Universitaire de Francophonie* (AUF) and the Association of Commonwealth Universities (ACU) as well as the governance and social science hub of the Pan African

²⁶ Academic Oligarchy as manifested by the strong influence of the academics and their collegial decision-making organs (Clark 1983).

²⁷ This angle was represented in Clark's (1983) conception as "Market" forces. Because of the recent stakeholder influence in the university Cloete and Maassen (2002) substituted this market angle with the "society".

²⁸ Oriented to Capacity building.

University (PAU)²⁹ which are hosted in Yaoundé³⁰, Cameroon. There are also the sub-regional universities and centres in virtual HE and telemedicine. Cameroon is currently a spearheading giant of the HE harmonisation policies in the Sub-Region. Whereas harmonisation became an ideal construct for facilitating mobility and transparency in HE at the end of the last century following the Bologna Process, harmonisation was traditionally practiced in Cameroon and thus, not a new phenomenon (Doh 2007; 2008). From the system's cultural perspective, the Cameroonian harmonisation of the two (Anglo-Saxon and French) systems would have been valid both for the Bologna Process and the African harmonisation processes since these French and Anglo-Saxon systems represent some of the major systems of higher education in the world (see Ben-David 1977; Clark 1983). Doh (2007; 2008) presented some of the challenges and experiences of harmonisation from Cameroon which could be useful for the recent global harmonisation processes.

In terms of the thrust of this study, Cameroon is one of the few (three) African countries which courageously pioneered the emphasis on the use of their HE as a major driver in their poverty reduction strategies (IMF 2003; 2006; Bloom et al 2006)³¹. Other evaluation studies (Gaillard & Zink 2003, for instance) support the observation that Cameroon is an interesting case of quality higher education within its developing country's context. Gaillard and Zink (2003) show that degrees and graduates from Cameroon are of international standard and the academic and research staff are generally qualified and competitive for international programmes and grants. The bilingualism, the peaceful co-existence of Christians and Muslims and the Francophone-Anglophone cultures usually renders Cameroon a potential place of consensus and convergence to host forums (conferences, seminars) and other programmes at the African and international levels.

2.3 Economic and Developmental Background of Cameroon

In a recent issue of the Poverty Reduction and Economic Management Unit of the World Bank, Africa Region (PREM/WBAR) on the economic situation of Cameroon in 2011, the title reads, "*Time for the Lion to Wake Up...*". The reason for this sensitive title is the comparatively huge endowments in natural resources and other potentials that characterise Cameroon but with which, it paradoxically fails to meet any significant economic growth that can be translated into poverty alleviation. Cameroon is one of the countries in the world that is endowed with a variety of significant natural resources, with vast expanses of uncultivated land, a diversified production base with a variety of soil types and climates. It contains a modest oil resource base and high value timber in

²⁹ Continental institution with an academic orientation which stretches across Africa.

³⁰ The Capital City of Cameroon.

³¹ Amidst reticence from its development partners on the prioritisation of higher education (see Chapter five).

addition to which a favourable agricultural condition for products such as coffee, cotton, cocoa, palm oil and kernels, bananas, sugar cane and rubber, which constitute its exports (Fambon 2010, 83; PREM/WBAR 2011,3). In addition to these products are untapped petroleum, energy and mineral resources such as natural gas, bauxite, diamond, gold, iron ore, hydropower and cobalt. Because of the diversity of its natural resources, Cameroon has been observed to be one of the best primary commodity economies in Sub-Saharan Africa (CIA/WFB 2010). What then explains its relatively poor economic conditions in recent decades?

Cameroon experienced remarkable economic prosperity with considerable social benefits for its citizens and standard of living from independence up until the middle of the 1980s. There are estimates that it had accomplished an average annual growth rate of up to 15 per cent in nominal terms within the 10 years preceding the signalling of the economic crises around 1986 (Fambon 2010, 82). This prosperity was said to be driven by vast investment in the agricultural sector and the exportation of oil and mineral resources. A generally acceptable thesis about the crises of 1986 is the fall in the world market prices of its export commodities and also the over evaluation of the national currency (the FCFA) against the US Dollar as the export currency (Fambon 2010, 82). Following the fall in the dollar and the prices of Cameroon's main export commodities, its economy was seriously affected. An opinion that slightly deviates from or adds to this thesis is that the apparently peaceful transition of power in 1982 and the subsequent *Coup d'Etat* in 1984 partially contributed to these crises (Fambon 2010). Drawing on Baye (2004), the crises led to a serious deterioration in the welfare and living standards of the citizens, especially the lower half of the distribution. A long-term development plan which had been pursued since independence was abandoned in favour of the IMF/World Bank Structural Adjustment Programmes. There were shortfalls in public finances and restrictions in infrastructural plan, deterioration and even withdrawal in the maintenance of some of the infrastructures.

Amidst perceptions that some sectors were not of priority, government funding for social sectors like health and education was reduced, the worst being the knowledge-related areas like research and higher education. There was a huge budget cut in research and HE with no perspectives on university research. Before 1987, the state financed between 85 per cent and 95 per cent of research activities, including salaries. Between 1990 and 1996, most research programmes that depended on government funding were stopped. State financial support to some of the universities like Yaoundé I and II was reduced by almost 90 per cent (Gaillard & Zink 2003, 16). Neoliberal ideologies were adopted to finance health and education, especially HE. For instance, there was a dramatic transition from free tuition which had been accompanied by non-reimbursable bursaries, to the introduction of fees. Many students dropped out of university as they could neither obtain the bursaries with which they sponsored their student living nor cope with and admit a new culture of fee payment.

There was a fall to 40 per cent in per capital consumption between 1985/86 and 1993/1994. There was a very serious rise in foreign debt. Investments declined from about 27 per cent to less than 11 per cent over the same period (Cameroon Government 2003; Baye 2004). The deterioration in the economy and welfare was exacerbated by subsequent inappropriate and futile coping strategies. Among the coping strategies was a 60 per cent cut in civil servants' salaries, an increase in borrowing and external debts, freeze in increments and recruitments in the public service and finally a devaluation of the currency, the Francs CFA in 1994. After the devaluation, a stabilisation and structural reform programme was later followed by another programme called "*Enhanced Structural Adjustment Facility*" (ESAF) to reorganise the public finances, maintain inflation at less than 5 per cent and establish conditions for sustainable economic growth with a view to enhancing the living standard of the population. All of these programmes were undertaken under the guidance of the World Bank and IMF and have been observed to have been successfully implemented by 1997 (Fambon 2010, 83). The successful implementation of the programmes restored the credit worthiness of Cameroon and enabled it to transit to another programme, the *Poverty Reduction Growth Facility* between 2000 to its first Poverty Reduction Strategy Paper of 2003 which qualified it for the Heavily Indebted Poor Country's (HIPC) initiative. It seems generally agreed that both the devaluation of the Francs CFA and the attainment of the decision point of the HIPC enabled Cameroon to attain some level of satisfactory macroeconomic stability (see the PREM/WBAR 2011; Fambon 2010). The devaluation of the CFA is said to have led to improvements in the export sector and public finance. By the attainment of the HIPC, non-oil GDP growth remained robust around 2000–2005, inflation was reduced with most of the growth largely driven by a tertiary sector.

Despite the endowment in natural resources, the various recovery measures since 1986, the recovery resulting from the devaluation of the currency, the Franc CFA, fall out from attainment of the HIPC decision point, the relatively huge human resource pool, Cameroon has stagnated among the last forty of poor countries in the World for close to three decades. The title of the PREM/WBAR (2011, 2) report was therefore articulating the country's difficulties to translate the huge potentials into faster growth. For instance, despite indicators of less financial stress and credit burdens which the HIPC debt relief suggests for Cameroon, the country remains limited to mobilising non-oil resources (PREM/WBAR 2011, 2). Several constraints persist in translating most of these financial relief packages into more significant per capita income, equitable distribution of incomes, let alone trickling down to the poorest. According to the 2010 Human Development Index, Cameroon is ranked 131 out of the 169 countries (UNDP 2010). In 2007, the proportion of the Cameroonian population living below the poverty line was about 39, 9 per cent. Of this 52 per cent were women and 55 per cent living in rural areas (GESP 2009, 14–38).

The average GDP rate for Cameroon has been around 3.5 per cent over the past three decades compared to the target of 5 per cent (African Development Bank, ADB 2010). In

2010, the GDP was estimated at 2.8; having significantly dropped due to a serious slow down in the prices of oil. The unemployment rate in Cameroon is estimated at about 30 per cent. While, oil and agricultural products made up the base of its GDP since independence, the trends over the last decade indicate the dominance of the tertiary or service sector. The percentage recorded from the different sectors of the economy in 2010 was 3, 8 per cent 0, 5 per cent 3, 9 per cent in the primary, secondary and tertiary sectors of the economy respectively (GICAM 2010). According to the PREM/WBAR (2011, 3) report, 44 per cent was for service, 19 per cent for agriculture and manufacturing and 7 per cent for oil and mining. According to its current economic development plan, the Growth and Employment Strategy Paper, Cameroon is not likely to achieve the Millennium Development Goals (MDG) on eight items by 2015 (see MDG) but only two, universal education and gender balance (GESP 2009; PREM/WBAR 2011). In addition to the fact that Cameroon has recently faced difficulties in increasing its GDP and especially given the recent downturn in 2010, it is difficult to alleviate poverty significantly. Between 1998 and 2004, child mortality in Cameroon dropped from 150 per thousand being below the target of 75.8 by 2015. By 1998–2004, nineteen per cent of women still continued to die of maternity-related health problems. A 5.5 per cent HIV prevalence rate could be observed during the 1998–2004 period and 15 per cent for malaria, thus dropping from 40 per cent in 2004. In relation to the 7th item of the MDG termed “*environmental sustainability*”, the GESP highlights the proportion of people using solid fuels at about 42.2 per cent, which is an indication that it may not attain this objective.

There are difficulties to explain why Cameroon, which is endowed with enormous resources and other potential, continues to record insignificant growth rates, at least compared to its pre-1986 level or to the target of 5 per cent. Several reasons have evinced for the difficulties in economic recovery and in significantly reducing poverty. These include: poor infrastructure, unfavourable business climate, weak governance, public service inertia, endemic corruption, a top-heavy public sector and civil service economy (PREM/WBAR 2001; CIA 2010; Nji 2004). Nevertheless, recent measures point to many glimpses of hope with the 2010 launching of many heavy structural projects in mining, energy and infrastructure and the issue of the first government bonds for the projects. Besides, there was in 2011 the launching of the broadest recruitment exercise ever witnessed in the history of Cameroon for 25,000 jobs for applicants of up to 40 years, in addition to a proposed deep sea port at Kribi which was launched in October 2011 for the Central African and CEMAC sub-region. In a note of optimism, the PREM/WBAR (2011, 11) report questions whether these are not signs that the “*lion is waking up*”. There are anticipations that the infrastructural projects would significantly contribute to economic growth with an impact in real per capita income by 5 percentage points of GDP, improvements in power by 2 percentage points, roads and telecommunications by 1.5 percentage point (PREM/WBAR 2011, 6–7). Finally, as the GESP seems to be one of the most sustained and integrated programmes for Cameroon, there are hopes that

it can address some of its problems of policy consistency, poor systemic (intersectoral) connections which accounts for the past failures.

While the above analysis would be described as the resource perspective, this study approaches the Cameroonian macro economic situation from the perspective of knowledge as an important and driving factor for economies in recent years. It is questionable as to how long, the Cameroon economy can continue to be exclusively dependent on resources, with experience suggesting that global economic competitiveness, especially of the more successful economies is dependent on the capacity to constantly produce and use newly acquired knowledge (innovations) into the fabric of the economy and learning. The “*corn*” example by an eminent professor of innovations (Lundvall 2000) was already cited that whoever plants corn, harvests corn. This corn is either consumed or perishes. What remains (sustainable) are the skills, competences and experience in planting the corn. Interestingly, it is not only about producing the corn. Issues of quality, creativity and competitiveness in the market have become more important in recent years. This quality would be based on the innovative capacities of the planters, their skills, competences and experience. Learning becomes a critical process for a quantitative and qualitative improvement of the corn. For instance, whereas, the Cameroon government struggles to raise the insignificant average GDP of 3.5 per cent that has been the highest over the past three decades, one of the lowest (2.8 per cent) was paradoxically recorded in 2010 due to a downturn in the secondary sector, especially from a drastic fall in the prices and production of petroleum products and a rise in the price for extraction of hydrocarbon³² (GICAM (2010)). In addition, the government had to face the impact of the recent world financial crises. The above situations of vulnerability seriously question the sustainability of Cameroon’s dependence on natural resources.

The most recent economic history, especially from the 1970 crises that was caused by deteriorating terms of trade between the industrialised and less developed countries, the serious drop in export earnings and the oil shocks of 1979 were already important signals on the vulnerability of resource-dependent economies like Cameroon and many African and developing countries. By the 1970s, it could be observed that the basis (primary-commodity or agricultural production) on which most African economies depended became outmoded due to world wide restructuring to manufacturing trade and direct financial investment. Besides, the production of certain primary agricultural products which once constituted the basis of the trade had been developed and heavily subsidised in the industrialised countries and rendered it irrelevant for the industrialised nations to import those products from Africa. In order to accommodate new trends of industrialisation, most of the African countries tended to borrow heavily from international financial institutions which, ironically and unfortunately, failed because of the uncompetitive and less innovative industrialisation strategies and primitive economies that could not enable them to repay. There are concerns that the situation could be worse

32 Over 13 per cent (GICAM 2010).

under the present conditions of competitiveness in the new informational global economy with primitive resource dependent economies (Castells 2000, 133).

Also, the current speed of global innovations implies that the gap between the more and less innovative economies will widen more and more and so render it difficult for less innovative economies to cope and catch up with the advanced countries. Whereas Cameroon's economy may be chiefly dependent on petroleum products, there are generally questions about the dependence on resources, even with regard to its neighbours like Nigeria, Gabon and Equatorial Guinea, which may be better off in these oil and petroleum resources. One of the main tenets of this research is the advantage of sustainability which is brought about by new knowledge and innovative capacities of nations and their importance in reducing the degree of the vulnerability of economies like Cameroon's in unforeseen circumstances. In an article "*Africa must Innovate or Perish*", an eminent Nigerian, Philip Emeagwali emphasises the indispensability of scientific discoveries and technological innovations as a prerequisite for poverty alleviation and the survival of African countries. Emeagwali (2010) speculates that "since it takes about 50 years for oil fields to dry up, Nigeria has about 50 years of oil supply, if no oil is found" (Emeagwali 2010). The author recommends that rather than debating about which year the oil will run out, it should already be imagined that it has run out.

It is not by chance that in Ajaga Nji's as one of the most celebrated books on Cameroon as to "*why poor people have remained poor*" the first two reasons advanced are the "*lack of access to education and skills and inadequate indigenous capacity in science and technology*" [italics in original] (Nji 2004). This is because according to Emeagwali (2010), it is "*knowledge that precedes the development of new products, services, industries, jobs and new wealth*". Hence, a nation that is second to none in science is second to none in economic power. The grand challenge is for African scientists to make discoveries and inventions that can be domesticated and diffused into the continent's economy (Emeagwali 2010). From the above two authors (Nji 2004; Emeagwali 2010) the lesson is drawn on the use of the terms "indigenous capacity" (Nji 2004) and "domesticated knowledge" (Emeagwali 2010) as being extremely important because knowledge and education may not be useful if they are not applicable in their context. Again some key points could be made from the famous study as to "*why poor people remain poor*" (Nji 2004, 81). The study advocates amongst other things the foremost use of a "*Trickle Up*" or "*Bottom up*" approach which gives priority to the views and experiences of the poor into "...a multifarious actions involving the generators of knowledge (scientists and engineers), the controllers of knowledge (politicians and policymakers) and the use of knowledge (the rural and urban poor)", as the diamond paradigm for poverty reduction (Nji 2004, 44). It is the above notion of knowledge for innovative economic capacities which is articulated in the study through the use of the innovation systems' theory as a developmental strategy and with the focus on preparing the university as one of the knowledge institutions in the Cameroonian context.

2.4 Conceptualising Poverty and Poverty Reduction Strategies

Poverty is one of the well known phenomena and it is as old as the history of humanity. Although poverty may be known and understood by all and sundry, it means different things to different people and can touch on different people in different ways and is defined in different ways. Given that it means different things to different people, it will be necessary to attempt a conceptualisation from the literature on the various dimensions and perceptions of poverty. A down-to-earth understanding of its holistic character is hereby obtained by highlighting some key words that pervade the different dimensions of poverty amongst which “*lack*”, “*insufficiency*” and “*deprivation*”. Human Rights Facts (HRF) (2009) categorises poverty into three dimensions as “*absolute*”, “*relative*” and “*psychological*”. The first dimension of poverty is the “*lack*” of basic necessities such as clean and fresh water, food, health care, clothing and housing. The second dimension (relative poverty) is in relation to having fewer resources than others (in the same society, country or in other countries and societies). The third dimension (psychological) relates to a state of mind or lifestyle (HRF 2009).

Another form of poverty that mostly relates to deprivation may be political or regulatory. These can be characterised by restrictions on participation in political decisions and access to factors of production like land and financial services (World Bank 1992; UN 1995). The psychological and political dimensions of poverty provide another distinction between the material and immaterial dimensions of poverty. The material dimension may relate to the absolute or relative lack of or insufficiency to meet basic needs. The immaterial would relate to psychological and political aspects in terms of the lack, for example, of respect, self esteem and trust and power representation. There is also the social dimension in terms of education, health and work. Most of these dimensions of poverty appear in the UN definition as “*overall poverty*” being the

lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health, limited or lack of access to education and other basic services; increased morbidity and mortality from illness, homelessness and inadequate housing, unsafe environment and social discrimination and exclusion (UN 1995).

The definition elaborates poverty as further characterised by lack of participation in decision-making and in civil, social and cultural life. Poverty occurs in all countries; as mass poverty in developing countries, pockets of poverty amid wealth in developed countries, loss of livelihood as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of low wage workers and the utter destitution of people who fall outside family support systems, social institutions and safety nets (UN 1995). From whatever perspective any of the dimensions of poverty take, it can be observed from its literary basis that they revolve around lack, insufficiency (or relative insufficiency) and deprivation in terms of some material or immaterial resources.

In Ajaga Nji's "*Why Poor People Remain Poor*" poverty is observed "*as a social and economic stigma that affects individuals and groups*", irrespective of the area or region (Nji 2004). The author observes that even world economic powers are confronted by pockets of poverty and in every region all the categories of poverty exist in different proportions. Nji (2004, 12) perceives poverty to be as a result of structural biases, ideological prejudices and social stigma of the rich, the powerful and the privilege. However, as elusive as the phenomenon may be, understanding poverty requires that its causal factors be determined as attempted below:

Table 1: Factors underlying poverty

Factors of poverty	Examples
Political	Power structure of society, public policy and leadership
Economic	Infrastructure, resource access and allocation, employment, income distribution, science and technology.
Socio-Cultural	Inequality and opportunity structures, cultures, ethics and resources, attitudes, values and management, organisation of institutions and resources.

Adapted from Nji 2004, 29.

Drawing on two household surveys on poverty (ECAM I & ECAM II), the third Census and some of the key macroeconomic indicators, as reflected in the GESP and Nji's perception, some of the main factors and causes of poverty that have been identified in Cameroon are: household sizes, the level of education, the socio-economic group and access to factors of production (GESP 2009, 15). Nji (1981; 2004) concludes that "*poor people stay poor*" because of a combination of psycho-sociological, economic, cultural, political, scientific and technological obstacles on their paths. These factors are elaborated upon in to a broader scope of 26 inexhaustive and mutually-related key causes including:

Table 2: Major causes of poverty

No.	Causes
1	Lack of access to education and skills
2	Inadequate indigenous capacity in science and technology
3	Social immobility
4	Poor healthcare system and institutions
5	Lack of opportunity
6	Institutional inertia
7	Low wages and child labour
8	Economic depression
9	Centralisation
10	Injustice
11	Corrupt law enforcement
12	Street children
13	Tendency for immediate gratification and response to impulse
14	Environmental handicaps
15	The manufacture of poverty
16	Divorce and early marriage
17	Lack of understanding and insulation from bureaucracy
18	High fertility rates
19	Inadequate planning
20	Chocking the creativity of the poor
21	Urban bias in development
22	Poor governance
23	Unhelping international aid
24	Limited participation of the poor
25	Lack of water
26	Sitwell's fallacy (That the poor are happy in their state of life and should be left as such)

Source: Nji (2004, 81–110).

2.4.1 Rationale for Adopting the Economic Dimension of Poverty

Admittedly, there are several forms, factors and dimensions of poverty which lead to different definitions of poverty. However, for a better focus, this study adopts the “*economic*” dimension which is translated through “*income poverty*” (Friedman 1965; Barker 1995). This dimension is reflected in low incomes and low consumption levels which characterise some segments of the national population. This leads to the inability

of this segment of the population to afford the basic needs (housing, food, access to medical care and education among others). Economic or income poverty may affect a significant portion of the population to the extent that it may qualify to be described as nationwide or “national poverty”. In a nutshell, the operationalisation of poverty and the relationship between economic and income poverty in this study relate to the definition of poverty as income below some minimum level necessary to meet the basic needs or the “poverty line”. Friedman (1965) termed this “*economic poverty*” which is reflected through low income and translates into low standards of living. The national economic poverty generally describes a “general state of being poor or deficient in money” or lack of the “means of subsistence” (Barker 1995).

The national poverty reduction strategy is seen in the study as the national socio-economic plan to alleviate poverty and its related factors. The strategy therefore seeks to improve the human conditions at the national level by eliminating the related factors that trigger low standards of living. Since, the operationalisation of this study relates to national poverty, the strategic focus which coincides with those of the respondents in the study is about improving the national economic growth to reduce poverty, wherein higher education may find relevance. Although economic poverty seems obvious for developing countries (the case study), the choice of this economic dimension to other dimensions is premised on the fact that it is easier to measure than the others (e.g., psychological and political poverty). Arguably, the economic dimension of poverty would seem to be the most dominant, especially in the context of developing countries. The assumption is that other forms may be comparatively minimal and may have simply become extended effects or causal factors. The fluidity of the definition of poverty and the need for some focus would seem to account for the careful choice of words in the international political milieu. For instance, the Copenhagen World Conference on Social Development in its final declaration commits to eradicate “*absolute*” poverty and reduce “*overall*” poverty (UN 1995). Absolute poverty was therefore defined as “*a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information to which may be attributed to lack of incomes*” – a conceptualisation, which “*depends not only on income but also on access to services*” (UN 1995).

Another reason for the adoption of the national income and growth dimension of poverty strictly concerns their relationship to poverty as empirically revealed in the context of the case study. The two household surveys on poverty (ECAM I 1996; ECAM II 2001) emphasised the importance of the income dimension as the most serious dimension of poverty in Cameroon. The World Bank Africa Region likewise observes that one of the main development challenges of Cameroon is to “*stimulate growth and ensure that its benefits are shared more equitably among the different income groups in order to reduce poverty sustainably*” (PREM/WBAR 2011, 7). Although the debates continue as to how growth rate and national income reduce poverty, if they trickle down to all segments and

reduce inequality and if possible, how long they take for poverty to be alleviated, some studies (Baye 2004; Fambon 2010) suggest that during one of the worst period (between 1984 and 1996) when Cameroon was hit by the economic crisis, with a serious drop in the GDP, poverty increased very significantly. Baye (2004) points out that the growth component during that period over accounted for the increase in poverty, a decline in mean incomes and adverse distributional shifts. According to Baye (ibid.), the dominance of the growth factor was illustrative of the potential contribution of distributional neutral growth in household incomes to poverty alleviation in Cameroon (see Baye 2004).

Fambon (2010), carried out another study using several decomposition methods on statistics from results of the two household surveys (ECAM I & II above) to examine how economic growth recorded in statistics between 1996 and 2001 trickled down to the various strata, especially the poor, after Cameroon was said to have recovered from the economic crisis. Fambon (ibid.) reports that the economic recovery reduced poverty but highlights in contrast that inequality increased during that period. The fall in GDP and the resulting measures such as the 1994 devaluation of the Francs CFA, drastic cuts in public employment and reduction of salaries by 60 per cent during the crisis period led to a serious fall in the purchasing power of Cameroonians, thus affecting all segments of the population, including the poorest. Above all, it could be said that the ultimate aim of all economic policies (whether implicit or explicit) is to reduce poverty.

2.5 Higher Education in the Poverty Reduction Strategy Papers

The current economic growth orientation processes in Cameroon's higher education could be seen to originate from the point where the policy makers highlighted the use higher education in the Poverty Reduction Strategy Papers (PRSP) of 2003 and then 2006 (IMF 2003; 2006). Due to certain inherent loopholes as well as those observed during the evaluation the above two PRSPs were revised and replaced with a new economic development document termed: the *Growth and Employment Strategy Paper*, GESP (*Document de strategies pour la croissance et l'emploi*, DOCE) to be evaluated after ten years. This GESP has been qualified as the second generation of the PRSPs on Cameroon's macro-economic, structural and social policies towards growth and poverty reduction (cf. 1.3). The GESP conveys the first ten year period (2010–2020) of the long term vision of Cameroon "becoming an emergent nation around the 2035 horizon". The overall visions up to 2035 are as follows:

Table 3: Vision objectives for Cameroon till 2035

VISION 2035	
GENERAL OBJECTIVES	SPECIFIC OBJECTIVES
1. Reduce Poverty to a socially acceptable Level	<ul style="list-style-type: none"> - Make the population an effective factor of development - Intensify investment in infrastructure and productive sectors - Narrow the gaps by improving the redistribution systems - Improve Supply and guarantee access by the majority to quality healthcare services - Improve social protection and security - Improve the supply, quality and adequacy of training - Promote the creation of decent jobs
2. Become a middle-income country	<ul style="list-style-type: none"> - Increase the productivity of the economy - Intensify sylviculture, agro-pastoral activities, fish farming, mining activities etc. - Preserve macro-economic stability - Promote the transformation and professionalisation of services - Promote, disseminate and enhance research findings
3. Become a newly industrialised country	<ul style="list-style-type: none"> - Intensify investments in infrastructure and productive sectors - Develop a sound, competitive and diversified manufacturing sector - Collect savings, finance growth and development - Change the structure of external trade and expand the markets - Integrate into international financial sphere and improve banking intermediation
4. Enhance national unity and consolidate democracy by promoting the ideals of peace, freedom, justice, social progress and national solidarity	<ul style="list-style-type: none"> - Strengthen national unity and consolidate the state as guarantor of the public interest - Promote the rule of law and the credibility of the judicial system - Ensure greater participation of the population and consolidate social liberties - Strengthen the security of persons and property - Strengthen decentralisation and local development

Source: Vision Draft (GESP 2009, 54) (English Version).

Some of the reasons evinced for the replacement of the PRSP with the GESP are that although the PRSP permitted the government to maintain some macroeconomic stability between 2003 and 2008, the general growth profile was not substantial enough to eradicate poverty. Also, common sense suggests that the three year period of the PRSPs may have been insufficient and insignificant for the evaluation of any concrete realisation. It is therefore within the framework of the GESP that the national economic perspective of

Cameroon currently operates; to which the current higher education orientation is strongly attributed. The GESP builds on a more specific, a more concrete and narrower theoretical perspective that “growth” (wealth creation, jobs, concrete reduction of unemployment and underemployment) is the strategic vector of poverty reduction within an immediate contextual perspective. An important advantage provided by the GESP to the present study is that whereas higher education was simply and passively mentioned in the two PRSPs of 2003 and 2006, numerous implications and roles for HE can be discerned and seen to be articulated in the GESP. The recent emphasis from the GESP and as reaffirmed by the Sectoral Policy Document (SPD) for higher education in Cameroon is that higher education must be able to i) “bring pertinent responses to the projects and challenges of economic growth” in Cameroon, and ii). “Play a leading role for Cameroon becoming an emergent nation and its sustainable development” as well as iii) to the overall “long term vision up to 2035” (SPD 2010).

Amidst criticisms of the trickle down effects as opposed to trickle-up participatory approach of the poor (Nji 2004) the theoretical standpoint behind the orientation to poverty reduction in Cameroon is seen to be consistent with the traditional macroeconomic analyses regarding how growth and development are interpreted, whereby it is assumed that “economic growth” precedes development and poverty reduction (Dollar & Kray 2002; Kray 2006; Ravallion 1997; 2004). This is based on the assumption that the fruits of the growth will therefore trickle down to the lower strata and alleviate poverty. The weakness is that this approach takes a long time and can explain why in most developing countries the growth may be evident but the inequality gap difficult to narrow. This theoretical perspective as well as its long term implication is observably acknowledged in the Cameroonian economic policy orientation whereby, after launching several HE related structural projects the awareness is noted that “in the short term, they can have their immediate favourable consequences only through the employment of the young people”. Meanwhile, in terms of the effective or total eradication of poverty, “they can only be of long term effects” (President’s address to youth, 10 February 2007). The effect is that as it creates incomes to a particular class of the population, it has the tendency to widen gaps, creating income inequality and slowing the pace at which growth is translated into poverty reduction (Ravallion 1997; 2004). Despite these weaknesses, growth remains critical to poverty reduction and becomes significant when combined with low initial inequality and strong distributional mechanisms (Dollar & Kray 2002; Kray 2006). Similarly, fast growth can speed poverty reduction³³ (Dollar & Kray 2002; Kray 2006; Ravallion 1997; 2004).

It is important to observe the recent status and current transformation pathways for HE in the current poverty reduction strategy for Cameroon as laid down by the current document, the *Growth and Employment Strategy Paper* (GESP). Besides the development

³³ The focus and stance taken by the Cameroonian higher education policymakers is consistent with this perspective about fast growth in speeding poverty reduction (cf. chapter 5).

of infrastructure and modernisation of the production mechanisms of the national economy, “*education*” is factored in the GESP alongside “*health*” under the title “*human development*” as the major priorities of Cameroon (see Section 3.3 GESP 2009). The GESP highlights education as the key strategy for the long term human capital development of Cameroon. Under education is a section on *higher education* (HE) which articulates on a set of mutually-reinforcing strategies to drive the growth and employment plans of Cameroon (see GESP 2009, 76). The GESP highlights the necessity of certain urgent reforms including: 1) Infrastructural development and investments in teaching staff related to 2) the expansion and diversification of the technological, professional and more market-friendly components of the HE system, 3) developing partnerships between the university and the related productive sectors (industries and socio-professional milieus). 4) Developing continuing education blended with 5) frameworks for recognition of experience-based skills. 6) Digitising the HE sector through the implantation and use of the new Information and Communication Technologies (ICT). 7) Setting up a higher education area (for engineers and technicians). 8) Improving the support system through the award of merit-based stipends to enable excellent students accede to doctoral levels in order to 9) sustain the quality and pool of the university teaching and research staff as well as 10) improve their working conditions. 11) Regionalisation through a more profound reviewing process of the map of university establishments in order to reinforce efficiency and rationalise the implantation of university establishments to regional needs. 12). Provide the necessary guidance framework for student entrepreneurship, creativity and innovations. 13) Improve equity and create chances for the vulnerable population and 14) ensure gender balance and equal opportunity by “setting up frameworks to promote and ensure access for young girls into all domains of the HE system”. As part of the operational dynamics to accompany the above strategies are: 1 “*improve access to 25 per cent*” by 2020 accompanied by equity and 2. “*Improving the efficiency and quality of the teaching and research*” 3. Develop more “*efficient partnerships*” with the different stakeholders of the HE. 4 “*Improve Management and Governance of the system*” (GESP 2009)³⁴.

³⁴ Most of the elements are rearticulated in the Sectoral Policy Document for Higher Education (2010) in Cameroon.

Chapter Three

Methodology

3.1 Choice of Qualitative Methods in the Study

Generally, the techniques, conduct and methods of this research were qualitative. Although the definitions of qualitative research may be elastic, the perspective applied herein and as espoused by its scholars is that it is the study of a social phenomenon in its natural setting. Qualitative research takes place in a natural world; its multiple methods are interactive and humanistic. It is not prefigured but fundamentally interpretative. Qualitative research requires that the issue to be studied be viewed holistically as a social phenomenon in complex reasoning and through multifaceted and iterative processes. Qualitative research may draw from multiple methods of inquiry (Rossman & Rallis 1998, 9; Marshall & Rossman 1999, 2–3). Qualitative methods were adopted in this study because of the research problem and questions and generally, the nature of the phenomenon that was to be studied. This study was based on meaning and perceptions made by the participants with respect to an emerging phenomenon on the use of their higher education (HE) as a driver of their socio-economic development and poverty reduction. An interpretative-qualitative approach was deemed appropriate to enhance the conduct of the study and in analysing the perceptions and meaning made by the participants about the phenomenon and the researcher making meaning from the participants' perceptions.

The flexibility associated with qualitative research and the significance of the researcher as a key instrument is another reason which favoured its adoption for the study. This is because in qualitative research, the researcher is significant in shaping the outcome. There is flexibility in the use of instruments, the processes of data collection and analysis in qualitative methods (Marshall & Rossman 2006; Silverman 1993; Bryman 2004). For instance, since the theoretical framework of the study results from literature from the contexts of different developed countries and were being tested in a developing context, it was expected that there would be some cultural issues involved. These cultural issues would be difficult to capture by quantitative methods. Because of the flexibility, it was possible to constantly alternate between the researcher's own perceptions and meanings of the phenomenon and those of the participants. However, the preference of qualitative methods by the researcher did not preclude the researcher's understanding of the weakness that qualitative methods are generally weak in structure and also lack

the degree of accuracy and meanings like quantitative methods. On the other hand, quantitative methods may be fixed but they lack such flexibility like qualitative methods (Silverman 2000, 2; Mason 2006, 3). In short, the choice of methods fundamentally depends on what the researcher is trying to do and to some extent, on the level of precision and accuracy which are required by the type of study and feasibility.

3.1.1 The Study as Theory Driven Research

Qualitative research usually begins either from real world, tacit experiences or formal theories (Marshall & Rossman 1999, 25). The research stemmed from the researcher's observation on the phenomenon and theories from the literature that successful economic development is construed to be heavily reliant on knowledge. This reliance on knowledge grants importance to higher education in socio-economic development policies. The fact that some (less successful) developing countries, the three Sub-Saharan African countries, began mainstreaming their HE in their economic development and poverty reduction strategies, especially in an atmosphere characterised by scepticism on the relevance of HE in the country's context (see 1.1 & 1.2), emerged as a valid subject of research.

The study began with the identification of the appropriate conceptual frameworks in relation to the university's adaptation to knowledge-driven economic development. The literature suggested that successful university systems in those more successful developed countries adapt by being more entrepreneurial and engaged in third missions (Etzkowitz 2004; Etzkowitz & Zhou 2008). As such, the concepts of third mission (Molas Gallart et al. 2002; 2007) and entrepreneurialism (Clark 1998; 2004; Etzkowitz & Zhou 2008) were found appropriate for the internal adaption in HE. Meanwhile, the national innovation system (NIS) was adopted as a focussing device and systemic framework for the external environment, which the universities may use to adapt. In general, the research was theory-driven comprised both of the researcher's observation and existing theoretical frameworks in higher education research and studies (entrepreneurialism and third mission, then the NIS from innovation policy studies) as illustrated in the figure below:

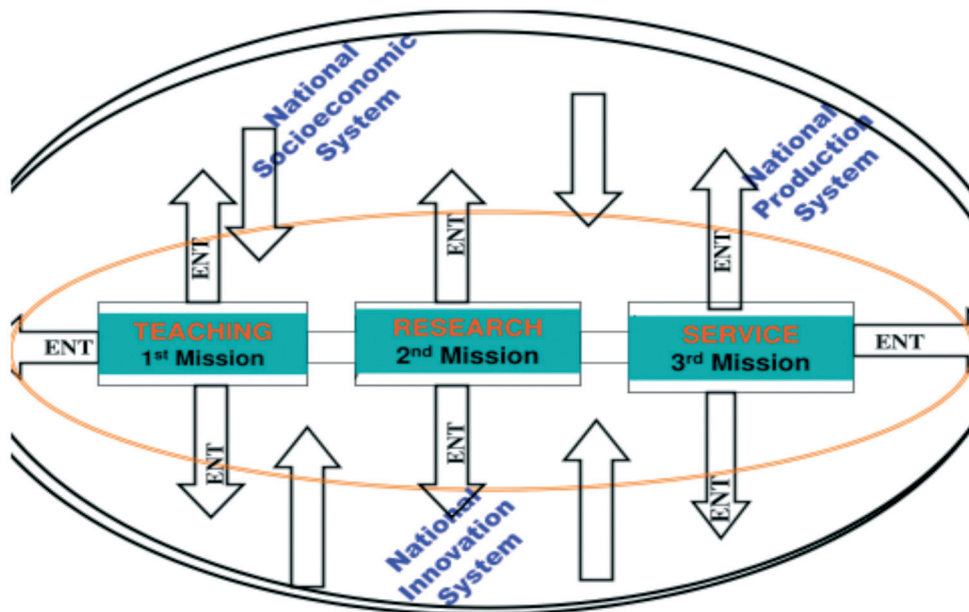


Figure 2: Theoretical perspective of the study

The oval structure in orange lines depicts the internal environment of the university with its two traditional missions (teaching and research), its focus on socio-economic role giving rise to the accommodation of a third mission. The outer environment of the oval structure in orange line depicts the university's external but system environment. It is assumed that by new socio-economic roles the university is supposed to cross over its boundaries into the national (socio-economic, production, innovation) system and interact therewith by being entrepreneurial through the arrow (marked ENT). Also, although the university assumes and pays attention to a 3rd mission, the first two missions, teaching and research can also permeate the university's boundary and interact therewith by being entrepreneurial as indicated by the arrows (marked ENT) and thereby also contributing to third mission. The white arrow into the university suggests the national system moving constantly towards the university for services and or giving feedback.

It was the above theoretical framework that guided the conduct of the study. At the background were the constructs on the reliance on knowledge for economic development as well as the concepts of the national (innovation, production, socio-economic) system and third mission and entrepreneurialism for the university's adaptation in the system. One particularity of a theory-driven research which should be taken into consideration as having influenced the conduct of this study is that the theory plays a very important role in determining what the researcher is looking for (Mason and Rossman 1999). It was the above theoretical perspective which then gave rise to the kind of research questions and analytical framework that were to guide the conduct of the empirical part of the study.

3.1.2 The Exploratory, Descriptive and Evaluative Dimensions

With the exception of a few research articles (Ngwana 2002; 2003; Mandjack et al. 1995; Mbongo et al. 2007; Nji 2000; Doh 2008a; Doh 2008b; Tanga & Stears 2004; Njeuma 2003; Brossard & Foko 2008) or commissioned reports (Njeuma et al. 1999; Gaillard & Zink 2003) and a host of Master's theses (Doh 2007; Yuh 2008; Ngufor 2009; Samfoga Doh 2009), higher education in Cameroon remains largely under researched and limited in literature. This scarcity of literature leads to the inevitability of an exploratory and explanatory approach in view of describing and clarifying some of its practices. Besides, the exploratory, explanatory and descriptive approaches were further necessitated by one of the objectives of the study, which was to document the ongoing perceptions and practice in the recent economic development focus of higher education in Cameroon. In fact, the documentary data was especially seen to serve as a description of the activities of the participants and then, they partly answer the research questions. Also, as seen in the next section (3.1.3) the case study design of the study prompted the explanatory and descriptive approaches. The exploratory, explanatory, descriptive approaches are indispensable when it comes to a case study design because of the necessity to provide as much information as possible both about the phenomenon and the case (also see Yin 2003, 3).

Finally, the addition of an evaluative dimension catered to the second research question in relation to one of the objectives. The second research question (see 1.3.2) implicitly aimed at evaluating the practices through the use of the theoretical framework to discern the links and missing links with the theoretical framework based on which certain scenarios that could strengthen the on-going transformation process in Cameroonian HE were to be examined and proposed. Evaluation may either be "formative" and "summative" (Scriven 1967). The study was limited only to the formative aspect. Formative evaluation strengthens or improves the object being evaluated while the summative aspect may stretch to issues of outcome and aftermaths (*ibid.*).

3.1.3 Case Study Design of the Research

Consistent with qualitative research paradigms and philosophies, a case study approach usually results from the need to study and understand complex social phenomena in their holistic and real-life conditions (Yin 2003; Merriam 1998; Patton 2002; Creswell 2003; Marshall & Rossman 2006; Silverman 2000; 2005). Case study is appropriate for individual, group, organisational, social and political phenomena (Yin 2003, 1). This was the situation with the country case study of higher education in Cameroon. A case study usually has as its main objective to develop as full as possible an understanding of the phenomenon being studied (Punch 1998, 150). Again the relationship and importance of the research questions are necessary in determining the adoption of a case study design. Yin asserts that the adoption of a case study design depends amongst others, on the type

of research questions, the degree of control the investigator has over the event and the contemporariness of the event (Yin 2003, 1& 5). A case study approach is most appropriate when “how” and “why” questions are being asked (ibid.).

Whereas the “what” question which was necessitated by the unknown context of the study was covered through the exploratory and explanatory approach, the “why” and “how” questions were implicit in the use of “perceptions” to include “rationale” (why) and strategies (how) the policymakers intended to use HE in the poverty reduction strategies. The design recognises the contextual commonalities of the cases involved; the three early countries (Zambia, Malawi and Cameroon) from Sub-Saharan Africa which highlighted the use of HE in their PRSP. In the term used by international development agencies they were “highly indebted poor” and “aids-dependent” countries, with similar trajectories of independent nation-building (from the 1960s) and developments paths characterised by 70 per cent population depending on agriculture and an average of 50 per cent of the population living below poverty line. Their development paths have all been subjected to the scrutiny of development partners in recent years through the PRSP (see IMF 2003; 2006). Although these commonalities would have made it possible for the countries to be studied as a whole, it was necessary to make a choice. The present study was finally designed as a single country case study of higher education in Cameroon. Cameroon was chosen as their case study for certain reasons. First, there was the researcher’s familiarity with and access to the Cameroonian territory. Another study had been done in Cameroon by the same researcher on another topic (see Doh 2007) which familiarised the researcher with the actors of HE in Cameroon. The bicultural nature of Cameroon with the Francophone and Anglophone systems; the major systems which pervade most of Africa was also deemed to facilitate generalisations. In such situations, it was considered that some of the issues from the study might not only pertain to the three mentioned countries but could even go beyond to reflect the entire continent. While it is a national case study, the higher education sector was the only sector for the focus of the study. This implies that it was both a “country” case study and of the case of “higher education”³⁵. The study therefore proceeded as a combination of an intrinsic and instrumental case study whereby the focus was only on one of the countries. This intrinsic focus is of interest because of its particularity and ordinariness. The instrumental dimension provides insight into the development through the case study (Silverman 2000). Because of the tendency for an intrinsic case study to be predominantly descriptive and explanatory, such loopholes can be filled through the use of the theoretical framework. The strength is in the theoretical proposition and not in the population and multiplicity of cases (see Yin 2003, 10).

³⁵ The country was the case and the higher education sector was the case of one of the country’s sector which was to be used as instrument for socio-economic development and poverty reduction.

3.1.4 Epistemological and Theoretical Bases

Epistemology and theory here refer to the knowledge underpinning the methodological choice of the study and the related philosophical stance informing the methods and logics behind the choice of the methods (see Crotty 1998, 3). The methodological choices of the study were rooted in the constructivist paradigm and the philosophical perspectives were the “*Interpretive-Hermeneutic*” approach with the concept of “*sense making*” in relation to “*reality*” as their major driving process. The related paradigm, approaches and choices drew on the repertoire of sociology in relation to how reality can be interpreted and also because of the implicit applicability of the present study to organisational change and cultural studies. Two sides of the interpretations emanate from the constructivist paradigm. The first generic perspective is that “*reality*” is a social construction. This generic perspective holds that reality is a “*quality*” pertaining to a phenomenon that can be recognised as “*being independent*” of one’s volition; one cannot wish it away (Berger & Luckmann 1966, 13).

The second facet of the constructivist approach relates to differences in sense making (within relativist ontology). It holds that reality is relative and related to social and cultural and historical contexts (Crotty 1998), as opposed to objectivism whereby knowledge, meaning and reality are seen as objective. Recent international discourses have tended to be dominated by a construct about the success of socio-economic development strategies being dependent on knowledge and marked by terms such as the knowledge economy and society. Although these knowledge economic strategies have worked in successful economies, they may largely remain as social realities without strong theoretical foundations. The relative side of the constructive paradigm suggests the importance of paying attention to contexts and histories. This necessity for attention to contexts and histories suggests the relevance of Research Question 1 about “*the conceptualisation of the participants*”; about the way they see the role of higher education. Nevertheless, it must be said that although the general and specific sides may seem contradictory, they are all contained in the constructivist paradigm which embraces the whole *gamut of reality* (Crotty 1998, 3). Constructivism holds that all knowledge and therefore, all meaningful realities are contingent upon human practices being constructed in and out of interaction between human beings and their world, then developed and transmitted within a social context (Crotty 1998, 3). Without this relative side of reality, the knowledge economy discourse will be taken as overall subjective and objective and will question the qualitative and constructionist approach employed.

Within the constructivist paradigm, is interpretivism, which “*looks for culturally-derived and historically situated interpretations of the social life-world*” (Crotty 1998, 67). Interpretivism is associated with Max Weber (1864–1920), who asserted that human science relates to *Verstehen* (understanding) in contrast to *Erklären* (explaining) which

is related to causality and therefore a domain of positivism, notably natural sciences³⁶. Weber observed the study of society in the context of human beings acting and interacting, whereby the “individuals are considered as the basic unit... carriers of meaningful conduct” (Crotty 1998, 69). Weber postulated the need to focus social research on the meanings and values of the participants. This interpretive approach is therefore based on the assumption that human understanding and actions are based on interpretations of information and those associated to the informants (Rabinow & Sullivan 1979). By default, the interpretive tradition, with sense-making as a driving process has been applied to the study of higher education organisations. A study by Dennis Gioia on university leadership in the United States not only reveals the relevance of this notion of sense making in understanding strategic change but the fact that it can help the researcher discern deeper patterns and dimensions of understanding (Gioia 1991, 438). The use of the interpretive tradition to understand the conception of a new economic development focus of HE in Cameroon is also consistent with Gioia (1991) who had suggested the relevance of this interpretive tradition at the cognitive and design stage of programmes.

Again, the practice of seeking for “deeper patterns” of understanding is a domain of hermeneutics. The etymology and history of hermeneutics reveals that it was a science of biblical interpretation which provided guidelines for interpreting the scriptures (see Crotty 1998, 87). It guided scholars on how to grasp the logic or deeper meanings behind texts. Hermeneutics suggested that texts should be taken as transmitting meanings, experiences, beliefs and values and not just the surface reading and meaning. It was later adopted in other disciplines and methodological approaches to include listening to informants. Crotty (1998, 110) recommends that researchers who want to grasp an appropriate understanding of people’s perceptions, attitudes and feelings or wanting to call them into question as related to culture, may gain useful insights from the hermeneutic approach. The interpretive-hermeneutic approach with sense making³⁷ (Arbner & Bjerke 1997; Weick 1995) has also been used for studying cultural changes towards entrepreneurship in higher education. A study by Gjerding et al. (2006) suggests that entrepreneurship be viewed as a social and contextual reality constructed by those involved and not as a uniform definition. The authors observe entrepreneurship in HE to have different meanings in different contexts, depending on the people involved in entrepreneurship. Sense making therefore becomes appropriate in creating new knowledge as it enables researchers to discover how different people interpret their contexts and actions and the type of conclusions they arrive at on the basis of their perceptions (Gjerding et al. 2006). What then is the position of the researcher?

Overall, the concepts of knowledge economy with their respective adaptation mechanisms in higher education (entrepreneurialism and third mission) were adopted as ideal and real (perhaps objective) because the literature say they work. However, the

³⁶ According to Wilhelm Dilthey (1833–1911), also.

³⁷ See partial results of studies by Gjerding et al. 2006 in 3.7.7.

conduct of the research is restrained by the second facet of the constructionist paradigm, which suggests that the participants in the study make their own interpretations of the phenomena. The perceptions of Gjerding et al. (2006) of this contextual reality supports the case study design which sought to bring out these differences and specificities, not least the holistic aspect of the study. Also, hermeneutic scholarship supports the single country case study design where it points to the possibility of understanding the whole through its parts and comprehending the meanings of the parts through the whole (Crotty 1998, 92). As will be seen below, the interpretive-hermeneutic approach with sense making also guided the multi level focus in the study because of the characteristics of HE whereby the implementation of programmes may depend on the sense made at the different levels of the system. As in Gjerding et al. (2006) the hermeneutic approach caused the data gathered during the analysis to be derived through qualitative analysis with measures taken not to influence the perspectives of the informants.

3.2 Level(s) and Units of the Study

The Importance of a Multilevel Framework

From a socio-organisational perspective, national systems of higher education present features which render them much different from other organisations, such as business and other bureaucratic organisations. There is first of all the fact that the system is a professional and bottom-heavy system (Clark 1983; Birnbaum 1988) whereby the orientation of the system is heavily reliant on the operational levels (institutions and basic units). The second peculiarity is the multiple levels at which the steering and operations of HE take place. National and state legislatures, administrative departments and councils may announce broad policies but implementation rests squarely in the hands of constituent universities (Clark 2000, 36). At the same time it is important to understand how the academics at the basic level construct the meanings of new programmes and of their work (Gunasekara 2006).

Because of the integrative characteristic of the higher education institution around knowledge and its technologies of teaching and research, the operational work of HE does not take place at the policy level. HE operates at several levels and despite this multilevel character and its cultures many studies continue to focus on macro level policymaking and meso level organisational adaptation (also see Maassen 2006) which can be a methodological weakness. Scholars (Gornitzka et al. 2005; Enders et al. 2003) suggest the necessity for a multilevel approach in studying and analysing policy orientations in HE. This multilevel approach finds stronger premise especially in a case study if it seeks to develop a full understanding of phenomena as in the present study on higher education in Cameroon. It is because of the importance of the multilevel perspective that the study focussed on three levels of the system as follows:

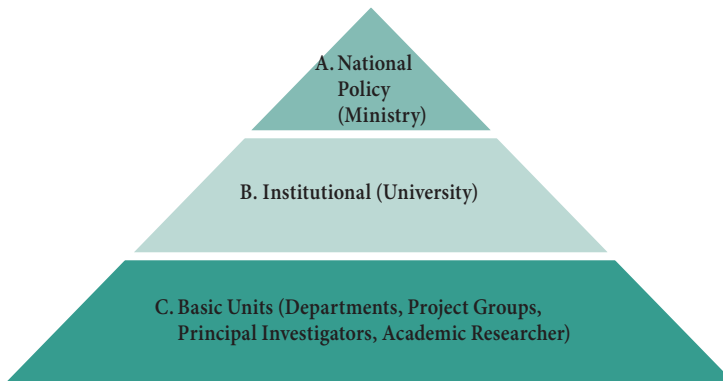


Figure 3: Multilevel perspective for analysing the HE system in Cameroon

One methodological concern that can be identified at Level B above, in a national case study of higher education is the heterogeneity and multiplicity of institutions. Universities/higher education institutions make up the organisational configuration of the system. Institutions usually have their own developmental histories, trajectories and policies. Government dictates are only part of the shapers of their developments. These institutional differences necessitate choices that reconcile their heterogeneity, multiplicity and to establish their representativeness. In a situation like Cameroon with eight state universities, it seemed difficult to include all the universities in the research for reasons of limited human capability and resources. It was therefore necessary to make strategic choices with good reasons and criteria that would reflect the representativeness of the institutions as a national case.

3.2.1 Selecting the Institutional Case Studies

Principally, two institutions, the Universities of Buea (UB) and Douala and (UD) were chosen based on a “theory sensitive” criteria set by the researcher. These criteria related to the activities, institutional characteristics and indicators that would be sensitive to the two conceptual frameworks of the study (third mission and entrepreneurialism)³⁸. The decision was made possible through a preliminary review of the documents and pilot interview that preceded the study. Three indicators emerged which suggested that the institutions to be studied were practising the concepts. Among which were streams of external incomes. The streams of external incomes indicated the degree to which the universities were directly involved with external socio-economic actors. Secondly, there was the number (and to some degree) quality of partnerships as depicted by the Memoranda of Understanding (MOU) in some of those institutions. Thirdly, the topics of

³⁸ Which constitute part of the theoretical framework (hence, the theory driven choice or sensitivity).

some activities were considered to be part of the indicators. For example; research topics that convey the intention of seeking solutions to some societal problems were adopted as an indicator of third mission. Lastly the researcher took note of the relative difference in student population over a period of time from the recent university reforms (1993–2010) as being partly indicative of the developments towards the conceptual frameworks.

The two indicators that qualified the University of Buea (UB) were the streams of externally-acquired income and the research topics and activities. It could be observed from the policy documents, that UB was the highest in terms of the streams, amount and percentage of income generated from externally-funded research through individual researchers. The amount from individually-competed grants had risen from below 1 per cent in 2005 to about 5 per cent of the university's budget in 2010, which was significant. Through the multiplicity of external streams of income, the significant increase in the percentage and the topics related to solving the societal problems in Cameroon from which those external incomes were obtained, UB could be termed as a potential growing "third mission university" in Cameroon.

With regard to the University of Douala (UD), its first conspicuous indicator was the size of its student population. Its student population was four to five times that of other universities of the same age³⁹. For instance, while the student population of UB, was 16,000 that of the University of Douala was about 50,000 students in 2010 whereas in 2003 the population of the latter had been between 9,000 and 10,000 students⁴⁰. This indicates a very strong growth (of about 40,000) over 7 years. This relatively faster student population growth attracted the attention of the researcher. It suggested at least that something special happens there to attract students. The pilot interview further led to the conclusion that the UD was one of the first in terms of its involvement with socio-professional actors, notably through the conception of programmes in partnership with enterprises. The policy documents showed that UD was already able to generate about 52 per cent of its budget from non-government sources; 15 per cent of which came from those programmes conceived with enterprises. This combination of exponential rise in student numbers, the UD's ability to conceive professional programmes with socio-professional partners as well as streams of income were considered as sufficient indicators of its involvement in entrepreneurialism and third mission. It must also be stated that while these two universities (UB & UD) are of the same age, they are respectively two Anglophone and Francophone Universities and thus represent the two educational subsystems in Cameroon. Both universities are quite near to each other at a distance of 53 kilometres. As such, this proximity confirmed the conclusion for the study to be based on UB and UD as the researcher could easily commute between the two respective towns and universities.

³⁹ With which they were opened in 1993 following the 1993 reforms.

⁴⁰ According to a pilot interview with an official of that university.

3.3 Study Population

As mentioned earlier, the focus of the research was on the higher education system in Cameroon from which the participants and data of the research came. In total, 19 persons participated as interviewees below:

Table 4: List of respondents in the study

Officials (Respondents)	Level	Language of Interview	Academic Background
1 System-Level Official	Macro	French	Economics
2 System-Level Official	Macro	French	Law
3 System-Level Official	Macro	French	Computer Science
4 Official of National Project on University Entrepreneurship	Macro	French	Engineering
5 Representative, National School of Engineering	Meso	French	Engineering
6 Representative of Rector's Conference	Macro	French	Economics
7 Rector	Meso	French	Economics
8 Vice-Rector	Meso	French	Economics
9 Rector	Meso	English	Biochemistry
10 Vice-Rector	Meso	English	History
11 Vice-Rector	Meso	English	Engineering
12 Vice-Rector/Project Researcher, micro-hydroelectricity & wind turbine generation	Micro	English	Engineering
13 Director, Central Administration	Meso	English	Agricultural Extension
14 Project Researcher	Micro	English	Women & Gender Studies
15 Representative, Biotechnology Centre	Micro	English	Microbiology
16 Project Researcher, Malaria Vaccine & Medicinal Plants	Micro	English	Chemistry
17 Laboratory Representative, Biotech Centre	Micro	English	Biochemistry
18 Project Researcher, Women and Land rights	Micro	English	Environmental Geographer
19 Project Research, drug discovery	Micro	English	Biochemistry

Codes used⁴¹: P: Policymaker at system level (No. 1–6), Q: University Top Management (Nos. 7–13), R: Academic Researchers/Principal Investigators of project (Nos 14–19). No 12 counted twice as Q & R.

⁴¹ See description in 3.5.

3.3.1 Population Sample and Techniques

In summary, the selection of the participants of the study was based on a mixed sampling method including “purposive”, “theory driven” and “random” sampling, for various reasons. Based on the multilevel framework, the population of the study was composed of actors from different (three) levels of the system (see Figure 3). The choice of such a sampling method is “purposive” in that it is based on interest in certain features (Silverman 2000, 104). In the present study, it was based on the interest for the different levels of the HE system to be represented in the sample with the purpose that the sample should reflect the different layers at which HE operates, in consistence with the multilevel framework (cf. 3.2). The distribution of participants is as follows:

Table 5: Number of respondent per level of the higher education system

No.	Levels	No. of Respondents	Category
1	Macro	6	Ministry and system level officials
2	Meso	7	University administrators and managers
3.	Micro	6	Heads of basic units, research group leaders (principal investigators) and academic researchers
Total		19	

Macro-level officials in the above table are referred to as participants involved in the formulation of broad policies for the whole higher education system. These macro level officials were composed of staff of the Ministry of Higher Education, the Rectors’ conference and those with specialised system-wide responsibilities. Meso level official therein refers to senior university officials in charge of formulating institution-wide policies in the central administration of the university. These are the cases of rectors, vice-rectors and directors in the central administration. Meanwhile, the micro-level staff generally comprised of academic researchers of the bottom units of the universities. Heads of faculty and school (deans and directors) respectively constituted a “weaker middle” and were not selected to participate in the study. This is because they were neither placed as institutional administrators who formulate and govern the university-wide policies, nor academic researchers who operate the third mission and entrepreneurial activities. As such, they were not included in the sample in either position as they seemed not to be well placed to inform the study. The choice fell on the most basic units represented by principal investigators of projects and staff and individual academic researchers.

Another special feature of the country case study in relation to purposive sampling and which was of interest to reflect the representativeness of the sample is the bicultural and bilingual background of the participants. Given some divergence on the perspectives of the two Francophone and Anglophone traditions of HE in Cameroon (Doh 2007) this

background representation was considered necessary for the composition of the sample. The cultural and linguistic backgrounds of the participants are as follows:

Table 6: Number of respondents per institution (Ministry & 3 Universities)

No.	Institution	No. of Respondents	Cultural/Linguistic Background
1	Ministry	5	Francophone dominance
2	University of Buea	9	Anglophone
3	University of Douala	2	Francophone
4	Two specialised units of the University of Yaoundé 1	3	Bilingual

The fact that project leaders and individual academic researchers were preferred rather than deans and directors implies that theoretical sampling accompanied in same or higher magnitude, purposive sampling. This preference was based strictly on theoretically driven and grounded reasons that these staff at the basic units were those involved in the practice of the theoretical framework of the study, hence theoretical sampling. For reasons attributed to the nature of qualitative research, it seems difficult to carve out major differences between purposive sampling and theoretical sampling, especially when the dominant purpose is usually theory-driven (Silverman (2000, 105). Even the multilevel framework which guided the selection of the level of study above was theory driven. Silverman (ibid.) identifies that their differences comes only in situations where the purpose behind “purposive sampling” is not theoretically defined. Given that the study was generally theory driven, it made sense to simply highlight special cases where they were particularly and exceptionally called for by theory.

The reader might question the contradiction as to why in the preceding section (3.2.1), it was stated that two universities were selected for the institutional study, whereas in the above (preceding) table three universities can be identified, in addition to the Ministry. In any HE system there are specialised units⁴² which attract much attention because of some special functions they are supposed to perform for the system. These were the cases of the National Advanced School of Engineering (NASE) (Polytechnic) and the Biotechnology Centre in Yaoundé which were not initially selected on institutional bases. Although, they are housed in another university, Yaoundé 1, it was later necessary to include them in the sample for purely theoretical reasons that they are specialised flagship units for entrepreneurialism and the third mission in Cameroon. The inclusion of these extra cases was justified by the flexibility which qualitative research provides. It is possible in purposive or theoretical sampling and analyses that the theory and even sample can be adjusted during the research process (Mason 1996, 100). Silverman (2000, 108) identifies

⁴² Like the recent phenomenon of Centres of Excellence.

the need for such flexibility in situations, where new factors emerge that need to be included “in order to say more” about the phenomenon.

A second aspect that may be identified in Table 4, which combines both the purpose and the theory, is in terms of the background of the informants which is dominated by “economists”⁴³. This was because of the researcher’s persistence in eliciting the technical views of the economists, who fortunately were part of the conceptual teams of the HE system in Cameroon. The persistence was prompted by the economic undertone of the research topic which suggested that economists working in the higher education system can be very well placed to inform the research about the phenomenon on the use of higher education in development and poverty reduction. Purposively as well, some of the system and university administrators in Cameroon were basic unit staff operating and handling third mission and entrepreneurial activities. These dual or triple capacities provided an added advantage for such respondents to be focussed on since their views could easily relate to practices at the three different levels of the system and thus easily respond to the multilevel framework. Researchers may also be helpless in the face of random sampling where the conditions and characteristics of the targeted respondents do not enhance the data collection. Not all the targeted participants may be available to inform the research. The challenge of the availability of the informants, especially in the case of very busy administrators, necessitated some random sampling. In situations where a targeted official was not available for the interview appointment, the researcher moved to another at that level. If it was the case with vice-rectors (VR), of which there are three in each Cameroonian university, the interview was conducted with the next. In some situations, the interviews were conducted with directors under the VR and down to more subordinate staff. Under certain circumstances, such as time constraints or issues related to the respondents’ busy schedules, another junior official who was possibly well informed about the phenomenon was indicated by the official to provide the related documents.

3.4 Use of Primary-Mixed Methods

The empirical data of the study were based essentially on two main and related methods, interview and review of documents which yielded two datasets. These two, interview and documents, belong to a group of primary methods or sources (Marshall and Rossman 1999, 105–117). Again, the use of the two methods implies a *multiple method approach* which is widely used in qualitative research. The case study design of the study suggested

⁴³ Four economists and equally, four life scientists as the highest number (see Table 4). The need to have economists was due to the relationship of their backgrounds to the topic. This is permitted for, in purposive and theoretical sampling (Mason 1996, 100). Meanwhile it is simply by default (occurrence) that the life scientists were also the highest either or both because they had projects and/or were available for the interviews. This may imply that the life-scientists in Cameroon are the highest to obtain or be exposed to societal problem-solving projects and thus, the most involved in third mission and entrepreneurial ventures (see topics of research project on Table 14).

that a single method, for instance one of the above, might be insufficient because of the necessity to get the maximum information about the phenomenon. The constructionist and interpretive approach as well as the research questions also favoured the use of more than one method. For instance, documents contain what they contain. Perceptions and sense making in relation to the phenomenon may be difficult to capture through a simple review of documents. It was considered that the use of only documents might limit the study as it may imply dependence on the researcher's interpretations of the documents.

The use of the above two methods was also premised on corroborative reasons. This corroborative rationale behind the use of two methods and thus two datasets may be conveyed in methodological terms as "triangulation" (Mason 1996; Mason 2006). It was hoped that loopholes in the use of documents could be filled through interviews and vice-versa. Drawing on Mason (2006, 3–4) the use of such multiple methods can be relevant in providing a broader picture and background of the phenomenon being studied and even to ask and answer differently conceived or separate questions. Although triangulation may be generally conceived of as the use of more than one dataset (*ibid.*), the organisational peculiarity of the HE system may be tantamount to producing its own methodologies for corroboration and to some extent, validity. In addition to the use of two datasets, the multilevel operational framework of HE brings in a new form of triangulation which is not only to compare data from different methods but the necessity for such data to be drawn from the different levels (layers) of the HE system.

It is possible in higher education that perceptions of the national policy levels may not necessarily be same at all the levels. Studies on different levels help to corroborate each other and to provide a holistic picture or the links and missing links of the policies and in ascertaining the direction of the policy adoption; whether they are bottom up or top-down. Drawing on scholars who have used the interpretive approach regarding new policy orientations in HEIs (Gioia 1991), it is possible through the use of the multilevel framework, to ascertain at which level of the system the *sense making* of the new policy orientation belongs or emanates. In which case, if it is of a particular conceptual level, without diffusing into the other layers, then it is not worthy of a whole system's definition. Otherwise, this suggests that if it is at the cognitive (*sense making*) or policymaking stage, then it may certainly be moving towards or have lacked the *sense giving* stage to complete the "systemness" of the policy. Effective implementation may as well depend on sense-taking (Gioia 1991).

3.4.1 Interview Process

The interviews were generally qualitative and specifically in-depth. The interviews took the form of conversations guided by standardised open-ended and unstructured

questions⁴⁴. Initially, 30 participants (10 per level) had been earmarked for the study but only 19 participated. This yielded a response rate of 63 percent. In addition, there were about a score of participants who were usually directed by their superiors to give specific documents or some piecemeal information about the phenomenon. Scholars of social research methodologies concede that qualitative interviews are conversations (Marshall & Rossman 2000, 108; Rubin & Rubin 2005, 4–18). Drawing on Kahn and Cannell (1957, 149), Marshall and Rossman (2000, 108) assert that an interview is a “*conversation with a purpose*”. Interview types depend on the prior structure and latitude of the interviewee (Marshall & Rossman 2000, 108). The peculiarity according to Rubin and Rubin (2005, 110), is that in-depth interview involves obtaining specific information for later analysis. Interview takes the form of strict division of roles whereby the researcher guides the conversation (interview) and the interviewee’s role is to respond. In in-depth interview the questions are focussed and depend on the views of the interviewee and not the researcher (Marshall & Rossman 2000, 108).

Three instruments accompanied the interview process. First, there was the interview guide containing the open-ended unstructured questions which was translated from English to French because of the bilingual composition of the respondents⁴⁵. Secondly, there was a tape recorder. Tape recording, according to Rubin and Rubin (2005), constitutes one of the differences between an ordinary conversation and an interview. It helps to ensure accuracy as it records the information (interview) for subsequent analyses. The researcher can always return to the data (Silverman (2001, 126). Its weakness is that once recorded, the information remains what it is in its original form and cannot be changed. Readers can have access only to how the recording was done (Silverman 2001, 26). Rubin and Rubin (ibid.) demonstrate that tape recording is tantamount to making respondent shy. The experience from the current study is that it affects confidence in the responses and may render respondents more tensed, especially at the beginning of the interview. This tenseness is exacerbated in societies with less technological cultures, less liberal and young democratic traditions like Cameroon where interviewees may not have the freedom and latitude to volunteer information as they could have wished⁴⁶.

The third instrument was a combination of a notebook and pen to take field notes. From experience, a field note complements tape recording. It is actually a starting point of the analysis. Whereas a tape recorder simply saves the information, the researcher begins

⁴⁴ Having mentioned it in previous sections, it is necessary to reiterate that due to the fact that the theoretical framework has been built from a context different to that of the study, a pilot (semi) interview was conducted by phone with two potential respondents, who were later interviewed, to examine how some of the concepts and interview questions emerged in the context of the study or vice versa. These pilot interviews had the same conversational characteristics and structure and enabled the researcher to make adjustments in the interview questions before the interview proper.

⁴⁵ See Appendices.

⁴⁶ Three potential respondents refused categorically to grant the interview without authorization from hierarchy for fear of being reproached or falling trap to the atmosphere of disguised censorship in Cameroon.

the selection of the data in what he or she retains from the interview. Field notes cognitively engage the researcher in the conversation and can facilitate retention and mastery of the data while tape recording saves it for later analysis. Field notes can help to keep the researcher more focussed and fully engaged in the interview especially in situations where certain responses are too elaborate. Because of the different layers from which the participants of the study were targeted, there was the necessity to adapt the interview questions to the perspective of the level at which the participants were responding. This adaptation produced three (translated) versions of the interview guide. For instance, if an interviewee was from the Ministry, the questions were framed in such a way that he/she was to talk about the national HE system and the national economic development policy, the national system and higher education in relation to the other sectors. Similarly, university officials talked about general university policies, issues specific to the university of the respondent and the orientation of the respondent's university towards third mission and entrepreneurialism; concepts which pertained to the institutional level. The academic researchers talked either about third mission or entrepreneurialism to which their projects were oriented.

However, there was not much variation in these three versions of the interview questions and consequently, the answers. In each of the interviews it could be observed that the respondent made reference to the practice of the other levels or the general system policy. The interview guides were structured in three dimensions. First, for all the respondents, there was a section for information about the respondents' background. Secondly, for all the respondents, there was a general topic in relation to HE & poverty reduction, knowledge-based economy and for the perceptions on the role of higher education/universities in economic growth policies. This was meant to elicit the respondents' general views on the research topic and those pertaining to their specific operational levels. Thirdly, the general topic was followed by questions related to sub-topics and themes drawn from the theoretical and analytical framework. This included discussion about their specific roles and mission, structural arrangements, governance reforms, institutional and cultural reforms, incentives and infrastructure in relation to their third mission and entrepreneurial activities. These sub-questions termed "follow-up" questions (Rubin & Rubin 2005) are important in providing more detailed answers to the general question and it was at the level of these follow-up questions that the level differences of the participants were reflected in the three versions of the interview guide.

The interview began with a presentation of the generalised views and global constructs on knowledge and economic development and by implication poverty reduction and higher education. These generalised views were presented as assumptions to stimulate the conversations in an open and generalised manner, in order not to influence or narrow the contextual conceptualisation of the participants. This was due to one of the main objectives and research questions which were to elicit their meaning and perceptions on the phenomenon and which may fall within the narrow taxonomies of interviews

as “*concept clarification*” and in broader terms “*elaborated case study*”. In terms of the narrow one, there is a greater focus on meanings and framework and the later focuses on processes (Rubin & Rubin 2005, 5).

Although it is the norm that the researcher asks questions and the interviewees respond, the conversational aspect of the study was enhanced from several perspectives. There were situations where another issue emerged in the responses in relation to the theoretical framework or subsequent questions which became follow-up questions. In such situations, the interviewee proceeded without following the sequences of the questions. There were also situations where the respondent cited a commonly-known phenomenon or practice which was in the theoretical framework and needed confirmation from the interviewer. In addition, there were situations where the respondent asked to know the practices in other contexts. For instance, “this is how we do it here in Cameroon, what is the practice in Finland or Europe?” Such questions led the researcher to contribute ideas to the interview in order to enable the respondent to continue into his/her conceptualisation. In terms of the general design, the interviewing took a combination of the “responsive” and “elitist” approach of in-depth interviewing models (Rubin & Rubin 2005). The responsive models suggest that the interviewer and interviewee are both human beings and so form a relationship during the interview. This approach is flexible and adaptive (see Rubin & Rubin 2005, 30–36). The elitist approach was based on the necessity to select interviewees based on certain levels, criteria and the theoretical framework (Rubin & Rubin 2005). For instance, interviewees were selected from the ministry, the top management of the universities, then (purposively and from a theoretical perspective) academic researchers especially those running projects were selected and not just any participant in the higher education system.

3.4.2 Document Review Process

Most often, a review of documents accompanies interviews. In the case of this research, the review of documents provided clues to the aspects of the study that were included in the interview and also complemented and validated the data from the interviews and vice versa. The literature on the review of documents reveals that documents convey both the history and contexts of a phenomenon. Documents provide more historical clues about the phenomenon and in certain cases, background. Marshall and Rossman (1999, 116) observe that documents are rich in portraying the values and beliefs of participants in a setting and can be very useful in developing an understanding of the setting or group being studied. One of the weaknesses of documents is that without complementary explanation that may come in through other methods like interviews, interpretations and sense-making may partly remain those of the researcher and thus subject to subjective judgements. However, this assertion does not preclude the fact that documents also contain robust facts, which remain facts, irrespective of interpretations. This would be

true in the case of quantitative data provided in documents. For instance, if one of the universities in the case study documents that its budget for Year X was Y, the information remains and must be taken as such with little room for manipulation or interpretation.

The document review process in the present study can be concluded to have taken place in four phases and involved an iterative approach of moving back and forth, visiting and revisiting the sources of the data to ensure that the interpretation was truly coming from the setting and context of the study. The first preliminary phase was when, upon having been motivated to carry out a study about HE and poverty reduction in Africa, it was necessary to consult some basic documents to build the research proposal. These documents provided data to convince both the researcher and the reviewers of the proposal that the topic and phenomenon were actually researchable. The second and more intensive phase began, when upon completion of the theoretical framework, there seemed to be the utmost necessity to place the theoretical framework in the context of the setting of the study. The intensity of this second phase was called for by the research question and the need for the context of the study to be reflected in the interview questions. It was necessary to examine a priori, related conceptualisations and terms in the settings of the study to the theoretical framework. For instance, third mission at the UB is called “outreach” and the comprehension would be marred if the questions were not conceived in the participants’ own ways of understanding third mission.

Again, it does occur that over the years, the field of higher education studies should have built its own concepts such as *massification*, *internationalisation* and *entrepreneurialism*, amongst others which may be difficult for all the respondents to understand. A good example, from the experience from one of the interviews was that the researcher was challenged to clarify what was meant in one of the questions as “*cultures and structures in higher education*”. Such concepts needed to be clarified by placing the theoretical framework in the context of the study. Most of such conceptualisations from the setting were provided for by documents. We also cite the example that it was mostly through an initial review of documents that the indicators were drawn about the sensitivities of the universities’ practices to the conceptual and theoretical framework. The budget books for instance, provided the proxies of the extent to which the universities were involved in third mission and thus a good indicator for selecting a university as an institutional case study. The third dimension and phase of the document review came directly from the field during the interview, when some respondents spontaneously cited related documents which might not have been known to the researcher. In such situations, they were either given as documentary proof to justify the assertion by the interviewee and in some cases they were simply cited for the researcher to procure. The fourth dimension of the document review was triggered from the data analyses, whereby there was a need to search and justify some of the analyses with document.

The document review provided clues for the topic, the structure of the study and about the settings. The economic underpinning of the study suggested a review of documents

on the external socio-economic environment of higher education and the national system. Documents related to the national system belonged to two groups: those pertaining to the national socio-economic system and those of the higher education system. In the first, were the two Poverty Reduction Strategy Papers (IMF 2003 & 2006) and the current Growth and Employment Strategy Paper (GESP 2009; IMF 2010) as well as other economic and poverty related documents and studies about Cameroon. Beside secondary documents from related sectors of higher education such as the national research and innovation policy, national education, employment, social and labour policies as well as publications such as journal articles written by non-actors either about higher education or the economic development policy in Cameroon were reviewed.

The second category of documents originated from the higher education system. These related to the official vision of higher education as well as the economic development focus of higher education and strategies. There was therefore an extensive and intensive use of the statements on the sectorial policy and decrees on HE, the Law on the orientation of HE, Ministerial Arrêtés, decisions, minutes of meetings and of the official journal of Cameroon higher education called “*SUP INFOS*”. Similarly, at the level of universities were decisions, policy guides, service notes, memoranda of understanding, budget books, annual reports, strategic plans and various publications. As opposed to the traditional approach, which supposes that the documents are obtained from the natural setting of the study, virtual instruments, notably the internet facilitated and provided a partial source of some of the documents, which were constantly retrieved and reviewed in the study. To these may be attributed the dominant use of the websites of the Ministry of Higher Education in Cameroon (www.minesup.gov.cm) and those of the universities. In addition, websites of international development agencies such as the World Bank, UNDP, and IMF which contain country information about Cameroon were used.

The role of the internet in social research has been classified into three categories namely: a medium of communication, a network of computers and a context of social construction (Markham 2004, 96). During the course of the study, the internet was predominantly used according to the first and third categories as a means of communication (information) and as a context of social construction. Part of the data and related documents were retrieved as they were constantly posted on their related websites, without the researcher having to visit the actual setting of the study. In terms of the third dimension, it was possible to follow up the evolution of the phenomenon through direct information posted on the website and from clues such as announcements. This use of the internet in social research is in order if it remains grounded in the fundamentals of rigorous and systematic research methods (Markham 2004, 120). As much as one identifies document review as a companion to interviews and related qualitative methods like observation, content analysis usually accompanies as a method of conducting document reviews and or both. As such, it must be stated, that the review of the documents and data were retained through content analysis. One of the strengths of content analysis is that it is unobtrusive

and non reactive in the sense that it can be carried out without disturbing the setting of the study. Also, it makes room for the researcher to determine where the emphasis lies (Marshall & Rossman 1999, 117). Marshall and Rossman (1999) equally articulate its relative transparency as opposed to simple interview, in which case the information can be checked.

3.5 Data Analysis

Data analysis here refers to the method and process of organising the data and bringing order, structure and interpretation to the mass of data collected in the study (Marshall & Rossman 1999, 150). Scholars of social research methodology suggest that the coherency in the interpretation of the data is dependent on data collection. Theoretically speaking, data collection and analysis go hand in hand (Marshall & Rossman 1999, 151). At the time of the data analysis, there were two datasets from the document reviews and the interviews which needed to be organised according to the theoretical framework and in response to the research questions. At the same time as the data analysis, there were on the one hand themes emerging from the theoretical framework according to which they were to be organised and on the other hand themes and categories emerging from the empirical data.

The first thing that was done was that the interviews were transcribed verbatim into a text document with no analysis to retain their conversational and lively forms. The data were further coded for the researcher's use, the identities of the participants removed and confidentiality taken into consideration with respect to the different levels of the participants. The codes applied in this dissertation are "P" "Q" 'R' for the system, university (institutional) and basic levels respectively. These codes were further numbered according to the sequences in which they were rearranged in the transcript of the interviews. If a quote or opinion is cited as "P1" or "P2", as would be seen from the next chapter (5), then the he/she was Number 1 or 2 policymaker in the sequence at the National (Ministry) level of the system and was speaking from that perspective. Similarly, "Q" indicates university official and "R", project and academic researchers from the basic units. While maintaining the codes, the data were later categorised and rearranged along the similarity of the patterns of the opinions, according to the most salient themes identified and also around which the interview questions focussed. The content of the documents was arranged according to the patterns of the empirical data. This solved the problem of not categorising the data again according to the theoretical framework since the interview questions themselves had been conceived on the basis of the theoretical framework. After the arrangement of raw data, it was necessary to examine how they addressed the research objectives or answered the research questions. The final phase was to analyse the information, inductively. The reason for the use of inductive analysis was that most of the data remained raw and broad and needed to be condensed.

The experiences of the participants needed to be structured and their linkages with the research objectives and questions, established.

3.6 Methodological Limitations

The first limitation in the methods, procedures and techniques used in the study relates to one of the fundamental weaknesses of qualitative research which is that of lack of accuracy (Silverman 2005, 2). This may be evident in situations where some of the details may not be as exact as they are supposed to be. In the study, some of the interpretations and reality may not be the same reality for everyone. It is possible that interpretations and meanings derived from the study are not the exact meaning from the source. Also, it is typically the case in higher education studies that the meaning given by a participant in a certain operational unit to a particular policy may not be the exact intended meaning of the policy and vice versa from policy level; not being accurate in capturing the operations at the lower levels. However, attempts were made to minimise these weakness in the study through the use of two data sets and focus on several layers of the higher education system, thus triangulation.

The second general weakness lies in the adoption of case study design. The design and generalisation from a single case study may be marred by lack of rigour and validity of the scientific conclusions, for being without systematic procedures and containing biased views that may influence the direction and conclusion of the study (Yin 2003, 10). It would have been possible to do a collective case study (see Silverman 2000, 127) for all three African countries which highlighted the use of their HE in their PRSPs to provide more information, enhance the quality of the information and provide a holistic picture of the phenomenon. However, the physical and human energy and at least material resources of the researcher were limited for such an extensive study. This would require a huge amount of resources and perhaps be designed as a longer term project most appropriate as a group research project. One of the consequences is that the inevitable adoption of a single case study design leaves out the internal logic and comparative aspect of the ground practices that may be reflective of the national contexts in the other two countries.

There may have been other (even qualitative methods) which might be preferable to the two methods (interviews and documents) in minimising some of the weaknesses in the research. These are, for instance, ethnographic and participatory methods, which may be more relevant, especially for studying cultural changes towards a more economic development focus which is not a principal mission of HE. There is also the important consideration that the transformation processes take place incrementally over the years and not abruptly. However, ethnographic and participatory approaches would have entailed the researcher becoming part of the HE team in Cameroon to be able to follow the developments and observationally participate in the various decision making forums

(such as meetings, seminars and conferences). However, this was not the case as the researcher was not on the scene and setting of the research in that period.

There is also the very limited number of respondents at 19 (63 per cent response rate) which might affect the study. This limited number was due to the unavailability of some of the targeted respondents given their very busy schedules as well as bureaucratic mechanisms for approval of the research. Earlier, there had been thoughts of using focus group discussions as a more strategic means of generating larger and more focussed information on the topic. This would have entailed bringing respondents together but would have been very difficult for university academic and teaching staff let alone the top managers of the universities. It was considered that focus group discussion might prove to be counterproductive in that it brings so many participants, perhaps causing saturation with control problems on the part of researcher and therefore paradoxically producing less data.

Finally, it was perceived that focus group discussions may be tantamount to reducing the actors' frankness and critical views in the face of a diverse public, thereby causing the researcher to miss certain salient data; individual interviews in confidentiality was deemed to provide more salient and objective information. The same reasons which relate to the limitations of individual research projects of this sort accounted for the decision to concentrate solely on the higher education sector. This choice was guided further by the logic of concentrating on the actor, the HE system in which the perception and transformation process was taking place, than the instructor, the national government and development document (the PRSP). This is because, as a professional system, higher education and its internal participants know its job better than any outsider. This makes it more appropriate for the study to focus on the practitioners. However, we note that the decision to make HE a leading strategic sector for Cameroon's socio-economic development with implications for poverty reduction was a national decision. The perceptions of the participants of the other sectors on the role of HE might have therefore been useful and provided more information that enriches the data and improves the holistic picture of the study as a national case study.

Chapter Four

The Systemic Environment and Transformation in Higher Education

4.1 Recognising the Traditional Characteristics of Higher Education

The literature on higher education (HE) studies permits certain assumptions and assertions about any study that concerns higher education and socio-economic development or to raise certain questions. Given the increasing functional and institutional concentration, it was important to question what higher education has to offer in socio-economic development and poverty reduction in Cameroon, its roles and the functions of higher education in the society as well as its technologies. The simplest response would be that higher education works with the immaterial and invisible substance, called “knowledge”. It is around knowledge that activities in HE are organized and it is knowledge that it can offer. Institutions of HE are meant for advanced education, teaching, research and training which are used as its principal technologies. In whatever context, knowledge is the core of any higher education system’s “*purpose*” and “*essence*” (Clark 1983). The higher education institution (HEI) therefore becomes “*a social structure for the control of advanced knowledge and technologies*” (See Clark 1983, 6). Given this central role of knowledge in HE, it was assumed that socio-economic development and poverty reduction, which are not the core of the activities and missions of higher education, would require certain transformations.

Again, drawing on Clark (1983), knowledge is the main material around which higher education is traditionally organized. The participants in higher education are organised and integrated around fields of knowledge called “disciplines” or “specialties”, each of them bordering each other. Knowledge conditions the structures, cultures, mode of authority & governance of HEIs. The several disciplines and specialties fragment the HEI thus rendering it as a “*loosely-coupled*” or “*matrix*” institution (ibid.). Authority and expertise in higher education emerge around knowledge. The specializing and divisive character

of knowledge and its respective units renders complex the governance of HEIs⁴⁷. It is also important to recall the influence of knowledge in rendering higher education separate from for instance, industrial and government organisations. Another characteristic of knowledge is that it conditions an increased level of autonomy thus portraying the HEI as a “*bottom-heavy*” institution. The HEI therefore comes to be seen as a “*bottom-heavy*” institution whereby authority is determined by the operational units. Clark claims that an increasing number of knowledge fields are intrinsically esoteric and inherently autonomous, “*each field going down its own tunnel*”. Clark (1983, 16) summarizes that academic systems work with “*materials that are increasingly specialized and numerous and knowledge edge intensive, with a momentum of autonomy*”.

The traditional disciplinary pattern of the higher education organisation has implications when the university has to engage in an external or societal mission like direct economic development and poverty alleviation. Several issues and missions are assigned to the higher education system today which challenge the ability of the disciplinary pattern of knowledge organisation. Some opinions hold that the structures and cultures of the contemporary university have been too rigid to enable it take upon new responsibilities, especially those entailing internal interaction and with the rest of the society (Stromeir 2007). As such, it requires transformation in structures, attitudes, cultures and procedures. It implies finding new ways, means and forms of the use of knowledge and its accompanying organisational, management and governance. For instance, the necessity for cooperation between disciplines and disciplinary groupings leads to a situation where the disciplinary borders are being transcended. Gibbons et al. (1994) observe in some situations that the organisational pattern of knowledge is being transformed from “*Mode I*” to “*Mode II*” when knowledge has to be produced according to its contextual application. In Mode I, the context was traditionally defined in terms of cognitive or social norms that govern basic research and academic science. However, in “*Mode II*”, knowledge results from a broader range of consideration and negotiation between scholars and practitioners; the goal being to use the knowledge in industries and society (Gibbons et al. 1994).

These changing patterns of knowledge production and organisation also suggest the necessity for new forms of knowledge governance. The autonomous character of knowledge actors also challenges the situation of leadership where the university has to look at itself as an autonomous organisation capable of taking control of its destiny and responding to such missions. This may be particularly evident when the knowledge actors have to change from their disciplinary bounded cultures to work in cooperation with other disciplinary and external actors. While Clark (ibid.) particularly found authority in the HEI to be bottom-up, recent trends may suggest a strong mix of bottom-up and top-down patterns of authority as an ideal type of authority for both the autonomous

⁴⁷ All drawn from Clark (1983, 6, 14, 21, 136) with corroborations from Birnbaum (1988) and Mintzberg (1998).

and external functions. The universities' engagement in third mission of direct socio-economic development challenges likewise the epistemological basis of most academic disciplines. Stromeir (2007) claims that scientific knowledge has been basically abstract. Regional knowledge, knowledge that has to be applied in direct problem-solving and the development of the society requires strong contextual foundations. There are also challenges which are related to the fact that the cultures, languages and values of academics may well be different from those of regional development actors and business organisations (ibid.).

It was also necessary to see what part of the university's function can accommodate the new development and poverty reduction focus of the higher education in Cameroon. It was resolved that socio-economic development and poverty reduction could be easily accommodated as the third⁴⁸ mission (Molas-Gallart & Castro-Martino, 2007; Molas-Gallart et al. 2002; Etzkowitz 2000) with or without the first and second mission, and without distracting the university. The third assumption was that the integration of higher education into poverty reduction policies calls for greater interaction of the university with its external environment (economic actors, development agents, industries). The concept of the entrepreneurial university was adopted as the framework that depicts such interactions. The fact that the concepts of third mission and the entrepreneurial university or entrepreneurialism draw on more successful cases, especially in developed countries, leads to the necessity for further arguments and statements of the assumption as to why they were adopted. This adoption builds on the premise that in times of crisis and of conception, answers may be sought from anywhere, be it from those who have faced it previously or simply from any potentially relevant models (Etzkowitz & Zhou 2008).

While a *one-size-fits-all* panacea may not be possible in all contexts of higher education, it was assumed that the fit and misfit of the conceptual frameworks with the ground practice can create knowledge that enhances the understanding of the case under study. Although there is no recipe, some success seems to emerge from international experiences through the use of such conceptual and theoretical frameworks which can be applied to varying degrees in different ways. The last premise on which the study is built and which confers its validity is the importance of "sustainability", where knowledge and its related organisations and infrastructures are observed to be determinants of sustainable economic development and a path to poverty reduction; growth being continuously sustained in an indefinite manner with knowledge (Kelly 1997). This consideration reinforces the importance and relevance of adapting the structures and cultures in higher education.

⁴⁸ Number (three) mission of the university but equally a concept.

4.2 The National Innovation System as a Mirror for Higher Education

4.2.1 Rationale for the Use of the National Innovation System

Given an open system perspective within which higher education operates, and considering that this open system influences higher education, it was necessary to search for a framework that would depict the system's socio-economic environment of the university and to which it is supposed to adjust itself. Two related system frameworks could either be used. There was the National Production System (NPS) with a high prospect of being adopted due to the economic undertone of the topic and its recurrent use by respondents during the pilot interview that took place in the study (cf. 3.2.1). The NPS itself presents one of the main origins and sources of the national innovation system. Bengt-Ake Lundvall as one of the earliest scholars to use the term "*National Innovation System*" (NIS) in a thought-provoking book of 1992, recognises that the NIS origins should be rooted in Georg Friedrich List's ideas of the national production system. According to Lundvall (1992) the NPS might have as well been called the "*national innovation system*". List's NPS (1841) reflected a wide set of national institutions including educational and training institutions as well as infrastructures and networks (Freeman 1995). Lundvall (1988, 362) therefore suggests the NPS as a point of departure for defining the NIS.

However, the NIS was preferred for adoption over the NPS as an evolving contemporary concept whose theorisation might not have attained its limit. Various sources recall that the NIS gained its prominence in recent years due to the failure of mainstream macro-economic policies to deliver an understanding and control of the factors behind international competitiveness and economic development (Freeman 1987; Lundvall 1992; Lundvall et al. 2002). Its main source is the attempt to understand the reason for the differences in growth rates (Freeman 1987). The NIS was further adopted because of the implications for knowledge in the study both to higher education and the NIS and the importance of "knowledge" in relation to economic growth, where knowledge presents the main material with which both the NIS and higher education work and are organised. Of course, the NIS does not differ much from List's recognition of economies to be based on the interdependence between tangible and intangible investment and on the ways industries are linked to institutions of science and education (Freeman 1995, 6). List analysed most of the features of the national innovation. These features included: education and training institution, science and technological institutes, user-producer interactive learning, knowledge accumulation, adapting imported technology and promotion of strategic industries as well as the coordinating role of the state for the industry and those technical institutions for the economy. Nevertheless, List could not have foreseen the changes in the world and national economies over the next century and

a half, such as the rise of in-house professionalised research and development (R & D) in industries and those that could be influenced by globalisation such as multinational and transnational companies that affect the boundaries of production and the setting up of R & D out of their original basis (Freeman 1995, 8).

Innovations, whose initial point is new ideas or knowledge have been seen to be very important and almost indispensable in current and long term growth processes and the catching up of nations (Fareley et al. 2007; Nelson 2007; Lundvall et al. 2002). With the current construct on the importance of knowledge in production, the innovation system would seem to have overshadowed and diffused the NPS. In specific terms, sectoral systems of production may be distinguishable from the sectoral systems of innovation (Breschi & Malerba 1997; Edquist 2005). In broad terms, given that knowledge (innovations) has been seen as a main determinant for the competitiveness of production systems may provide an edge for the NIS concept over the former. In a nutshell, these competitive and sustainability advantages that innovation (knowledge) grants to production systems as well the relevance to the focus on higher education as a knowledge institution provided stronger arguments for the adoption of the national innovation system concept. The function of the NIS in the current study is that it serves as a framework through which the university, in its attempt to respond to the socio-economic environment can use to mirror and adjust itself. The main object of the study is the innovation (transformation) process taking place in the higher education subsector in response (and reaction) to the requirements of its national system. This section will focus on the system or macro perspective through the use of the NIS as a systemic framework. Subsequent sections will dwell on the internal transformation process (third mission and entrepreneurialism) in higher education.

4.3 Conceptualising the National Innovation System

The starting point for defining the national innovation system (NIS) may be the indispensability of understanding the meaning of its three constituent words “innovation” and “system” and “national”. Innovation would refer to change, inventing something new as well as adding a new development stage to an existing product. By inductive reasoning, the basis of every innovation is “new” ideas (knowledge). Innovation needs or goes with new ideas (knowledge) and creativity. Put specifically, innovation is the creation, diffusion and use of new ideas in the economy (Lundvall et al. 2003, 1). According to Lundvall (2000), the starting and ending point of innovation is “knowledge”. There are several dimensions by which the definition of innovations (and to some extent knowledge), may have been found to be misleading, most of which relate to the fact that innovation has usually been viewed from much narrower perspectives. Some of these narrow perspectives have been tantamount to dismissing in much erroneous manners, the applicability of the “innovation system” concept in developing countries.

While from a definitional perspective, many may narrow down innovation to refer to new products in the markets, Joseph Schumpeter, as one of the most influential scholars of innovations defined innovation in very broad term in such a way that it was reflection of many contexts. Schumpeter's definition can be easily captured in terms of five "Ns"⁴⁹, namely: "*new products*", "*new methods*" (processes), "*new source of supply*", "*exploitation of new markets*" and "*new ways to organise business*" (Schumpeter 1969). There has also been the temptation to misconstrue and limit innovation and hence the innovation system to science-based and technological systems. This perspective has come to be challenged by perspectives on different innovations. There are the "3Ls"⁵⁰ with a reference to Arrow's analysis of "*learning by doing*" (1962a), then Rosenberg "*learning by using*" (1982) and Lundvall's "*learning by interacting*" (1985; 1988). In the first (doing), it was shown that the efficiency of production systems resulted from experiential learning. The second (using), suggested efficiency in using complex systems and pointed to how interactions between producers and users in innovation enhances their competences. Another broader definition would be retained in terms of the differences in the intensity of innovation from less intensive to more intensive sectors like science and technology based innovation. According to Pavitt's (1994) categorisation, there exist supply-dominated sectors (e.g. textiles and furniture) with the lowest propensity to innovations. There are also scale-intensive sectors (e.g. food and cement) which focus on process development and specialised supplying sectors (engineering, software and instruments) focussing on innovation in relation and interaction with customers. Finally there is the science based producing sectors (e.g. the chemical and biotechnology industries) which develop new production in relation and interaction with universities (Pavitt 1994). Regrettably it has been observed that university-related innovation perspectives have been grossly biased in favour of this latter category (Lundvall 2000).

Given that innovations are largely determined by knowledge, it is important also to pay attention to different types of knowledge that relate to different innovations. Here reference would be made to the "4Ks" by Lundvall and Johnson (1994) whereby knowledge is categorised in a simplified manner as: "*Know-what*", "*Know-why*", "*know-how*" and "*know-who*" which leads to or contributes to different innovations. *Know-what* refers to the knowledge about facts, things and events. Then *know why* refers to explanations about principles and laws of life. *Know how* is about skills and the ability to do something, thus considered as the leading knowledge in economic activities⁵¹. The fourth is about *know-who*, perhaps "*know who does what*", also becomes very important when it comes to cooperation, networks and chain personnel related to production; networks being very important in the innovation system (Lundvall & Johnson 1994).

⁴⁹ "N" for new.

⁵⁰ "L" for learning.

⁵¹ Though not enough as per Lundvall (2000).

A “system” is understood to be a whole composed of a number of elements with relationship between the elements (Birnbaum 1988, 30-35). It is the whole (sum total) of entities performing different and specific functions; the whole being created through the relationship between the elements, components and entities (Senge et al., 1994). An innovation system becomes more or less, a system constituted of elements which interact in the production, diffusion and use of new and economically useful knowledge (Lundvall 1992). If the notion about the strength of innovations is accepted, then it has important territorial consequences, one of which would be that “*the economic success*” and competitiveness of nations would be “*dependent on their capacity to perform innovations*” (Arbo & Benneworth 2008, 31). Despite recently observed trends in the internationalisation of innovation processes, the nation presents the natural governing unit or framework for user-producer interactions due to the geographical proximity of the actors, “*historically unique capabilities as well as shared history and culture*” – hence the “*National Innovation system*” (NIS) (Lundvall 1988). A NIS therefore encompasses the elements and their relationship either located or deeply rooted in a national border (Lundvall 1992).

Several other definitions have been evinced for the NIS such as: 1. “*The network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies*” (Freeman 1987), 2. “*The elements and relationships which interact in the production, diffusion and use of new and economically useful knowledge ... and are either located within or rooted inside the borders of a nation state*” (Lundvall 1992), 3. “*A set of institutions whose interactions determine the innovative performance ... of national firms.*” (Nelson 1993), 4. “*The national institutions, their incentive structures and their competencies that determine the rate and direction of technological learning in a country*” (Patel & Pavitt 1994), 5. “*A set of actors that play a major role in influencing innovative performance*” (Nelson & Rosenberg 1993), 6. “*Interaction between institutions that affect the innovativeness of nations*” (Edquist & Lundvall 1993, 267), 7. “*A whole set of factors influencing the development and utilization of new knowledge and know-how*” (Science and Technology Policy Council, Finland⁵² 1990, 21).

It can be observed from several definitions of the NIS, as above, that they revolve around the use of the words “actors”, “elements” and “factors” concerned with innovation within a national framework (Freeman 1987; Lundvall 1992; Nelson & Rosenberg 1993, 4). The NIS concept stresses the linkages between those actors, elements and factors of innovation. There is also the institutional point of view which emphasizes the steering or policy dimensions. This suggests that nations derive competitive advantage from their institutional infrastructures and frameworks (Edquist & Lundvall 1993, 267; Hall & Soskice 2001; Nelson 1993). Innovation actors, elements and factors would not govern or steer themselves. There is the importance of institutions to guide and govern the actors, elements and factors of innovation. In the NIS, the most important resource is

⁵² Often said that Finland was one of the first countries to adopt the national innovation system concept for the development of its economic and technological policies (Miettinen 2002; Hölttä 2007).

“knowledge” and the most important process is “learning”. The importance of learning gives rise to the “learning economy” which refers to all aspects of competence building (Lundvall 1992). The importance of knowledge and learning suggests the development of knowledge infrastructures and that such learning capacities should be built into all fabrics of society. One of the basic canons of the NIS is that a national innovative capacity is not dependent on the capacity of individual firms and organisations but on how they interact with each other. The open national system of innovation deviates revolutionarily from the traditional linear model of innovation on which technology policies were based after the Second World War. The assumption was that firm or country investments in scientific research create the basis for new technologies and when developed into new products they lead to strong international competitiveness (Lundvall et al. 2003, 2). This system perspective of innovation capitalises on the importance of interaction and learning between many other organisations and firms on the premise that firms and organisations do not innovate alone but in interaction with their external environment; within which customers and suppliers. They also innovate and adjust themselves in reaction to the actions of their competitors. The NIS helps to reduce fragmentation in the national system. There is the tendency that policy institutions can be extremely specialised and this renders analyses problematic. Policymakers therefore welcomed the necessity for an analytical concept to help overcome such fragmentation (Lundvall et al. 2002, 14). There is also the importance of feedbacks from the external environment with actors as well as the quality of the linkages and relationships (Lundvall et al. 2003, 3).

4.3.1 Weak Theoretical Base but Strong Focussing Device

There seems to be no agreement about a steady theoretical base of the innovation system as it may be viewed by different scholars from different disciplinary perspectives. In various circumstances, there is the tendency for it to be seen in terms of “*development theory*” (Hirschman 1981; Sen 2000), “*economic history*” (Mokyr 2008), “*learning processes*” and “*capability building*” (Lundvall et al. 2002), “*diffusion of innovation*” (Rogers 1995) and of the “*national innovation system*” (Freeman 1987; Lundvall 1996; Nelson 1994). Scholars also question the scientificity of the “*National Innovation System*”. Lundvall (1989) observes that the NIS lacks conceptual clarity. According to Edquist (1997), the status of the term is “*diffused*” and “*ambiguous*”. The national innovation system evolved simultaneously as a result of concerns in science and technology policy studies and policymaking or innovation researchers and policymakers (Miettinen 2002; 2009). Viewing divergences in the prescriptive and descriptive perspectives of the national innovation system, the term was concluded to be fuzzy (Miettinen 2002). Miettinen (2002; 2009) observes that NIS is a boundary and fuzzy concept but maintains that fuzzy terms are important in the sense that they serve to reorganise debates between different constituencies. In this sense, every constituency or scientific community finds its meaning and interpretation of the concept

and all operate on the basis of it as a foundation concept. Observing the contradictions in the prominence and extensive use of the NIS on the hand and on the other, the difficulties in defining it in sound theoretical manner, Miettinen (2002) recommends that the uses of NIS should be evaluated using different criteria according to the differences in perspectives between researchers and policymakers and be studied as a transdiscursive term that transcends the boundaries between science, policymaking and public debate (Miettinen 2002).

The lack of theoretical clarity in the NIS is exacerbated by some of its limitations. Lundvall et al. (2002) argue that the “elements” or “explanatory factors” of a system remain undefined. According to Miettinen (2002; 2009) it is difficult to establish determinants of innovation due to the complex, multifaceted, heterogeneous and ever-changing sets of phenomena which are difficult to capture in satisfactory definitions. The determinants include complex phenomena like knowledge, learning and interaction that cannot be studied on the basis of rigorous definitions (Lundvall et al. 2002). For instance, it would be difficult to model or theorise how interactions and distribution through knowledge takes place as well as to produce indicators of such distribution. Besides, there are difficulties in determining the limits of a system, subsystems or elements (Miettinen 2009, 84). The scholars of the NIS argue that innovation studies require more manageable units to understand the complex realities. Some scholars even claim that the processes and studies of innovation do not need a system perspective (Bruno Latour in Miettinen 2009, 103). As it can be explained by the actor network theory, when the aggregate is larger, it becomes difficult to identify and define the innovation actors and elements, nodes of the system as well as to analyse the quality and dynamics of their interactions (Miettinen 2009, 47). According to Miettinen (2009) such engagement requires a study of the innovation processes and the development of professional networks (Miettinen 2009). The challenges of the limits are further compounded by the current phenomenon of globalization whereby the factors affecting national innovation may increasingly transcend national boundaries. Viewing such difficulties, Miettinen (2009) asserts that the creation of a reasonable theory of all essential factors that affect innovation seems to be an unrealistic project.

Despite the ambiguity and divergence that may surround the theoretical base and status of the NIS, its scholars generally agree that it is a valid instrument for innovation policy-making. For instance, one of the factors that accounts for the rise and prominence of the NIS is that mainstream economic analyses could not explain the factors that affect technical change in the economy. According to Lundvall (2002, 53) it is not the intellectual origins of the NIS that matter but the background should be found in the needs of policy makers and students of innovation. The author argues that the NIS can explain historical processes and serve to establish a theoretical basis for policies related to growth (Lundvall et al. 2002). Miettinen (2002, 115) perceives importance in the pragmatic or policy dimension of the concept. Lundvall (1999, 9) recommends flexibility in the use of the term as it could be important both for research and as a policy development tool. Edquist (1997,

16) states that the NIS can serve as a means for studying innovations, a framework for government policymaking and for formulating innovation strategies. From the pragmatic or policy perspective, NIS has been seen as a tangible and important “*object of planning*” rather than a tentative concept of “*making sense of complex social and material realities*” (Miettinen 2009, 57).

In the analyses of the Science and Technology Policy Council of Finland, it is asserted that the NIS offers a framework for analyzing the interrelationship between the different factors in the innovation system. Similarly, Arocena and Sutz (2005) observe that the NIS is a general framework for studying concrete processes of interaction between actors and organisations. Etzkowitz and Leydesdorff (2000, 113) consider the NIS to be a valuable “*frame of reference for government intervention*”. With regard to Godin the NIS is useful as “*directors of attention*” for the planning of national policies (Godin in Miettinen 2002). It is argued that if the NIS were regarded as a theory, it would be one in the sense of an heuristic and focusing device which offers a broad and flexible framework for organizing and interpreting case studies and comparative analyses (Lundvall 2004, 20).

4.4 National Innovation System and Developing Countries

Although, there is no scientific definition of the concept of “developing” or “underdeveloped countries” due to their heterogeneity, certain common characteristics suggest their differences from developed or industrialized nations. One of such characteristic is captured in the concept of “*economic exclusion*” (Arocena & Sutz 2005). When there was the transition from agricultural to manufacturing societies which framed world history, exclusion from such a transition suggested a common phenomenon for some countries. Similarly, the transition to knowledge-based societies suggests the same phenomenon of exclusion (ibid.). Earlier on the innovation system concept had been perceived as a luxury for most developing countries (UNTAD 2007). There was the tendency that it may be misconstrued as being exclusively for science-based institutions and activities, let alone for the north (Lundvall et al. 2002, 225, 227). Scholars currently consider the Science and Technology and Innovation (STI) perspective to be a narrow form of innovation. Again, it may be reiterated that innovations do not pertain only to “*new world*” innovation but also “*to the absorption of technology and competence*” as well (Chaminade et al. 2010, 3). Innovation can simply result from “*doing, using and interacting*” (DUI) (Jensen et al. 2007), which may be relevant for every country. The simple reason for the applicability of the NIS in every context is that it works through the introduction of knowledge into the economy and society at large (Lundvall et al. 2002, 225).

It is argued in the light of its pragmatic and flexibility perspective that the concept of national innovation system would be a valid instrument in analysing and promoting sustainable economic growth and wellbeing in the poor countries. It is important for policymaking in its combination of “*a specific perspective on the economy with certain*

flexibility in terms of what parts of the economy should be included in the analyses” (Lundvall et al. 2002). According to Johnson and Segura-Bonilla (2001) its “*conceptual glasses*” can help concentration on aspects which are deemed to be important in the development of the economy. Among other items highlighted are its departure point about learning and learning capabilities and infrastructure, its focus on processes and their role in development (Johnson & Segura-Bonilla 2001; Lundvall et al. 2002). Viewing the NIS in terms of poverty reduction and the economic development focus of higher education, Emeagali (2010) states that it is innovations and technology that create new products which in turn, create new wealth that alleviates poverty.

In developing countries, innovation policies can be targeted at solving or mitigating particular development problems such as food scarcity, social pathologies, tropical disease, land erosion (Chaminade et al. 2010). Arocena and Sutz (2005) showed that the NIS can be a tool for studying the concrete aspects of innovation in underdeveloped countries and consequently contribute to the revitalisation of development thinking. These authors argue that the NIS would enhance the revisiting of the problems of development to be seen as an integral part of social transformation and that it can be an actor-centred approach to development and a means of improving the quality of life in the manifold realities moulded by the specific conditions of the South (Arocena & Sutz 2005).

Most of authors of the NIS propose the feasibility and employability of the “broader approach” for developing countries whereby innovation is seen as rooted in the activities of firms and in the competences and capabilities of ordinary people. The implication according to Lundvall et al. (2002) is a new perspective on integrated national coordination policies across different sectoral policies such as social, labour market, education and science and technology policies. This implies that concentration on important parts of the economy through the NIS concept can help drive the economy to growth. Innovation policies in broader terms become a cornerstone for development strategies (Chaminade et al. 2010). Lundvall and colleagues argue that narrow analytical approaches which focus solely on subsystems or science-based activities for instance, would be more relevant in situations where there are relatively complete and well established systems of innovation. This is not the case in most of the developing countries (Lundvall 2002). This broader approach implies that innovation is seen as rooted in the activities of firms, competences and capabilities of people and not necessarily in R & D, high tech or science-based industries (Lundvall et al. 2002).

The Danish system, where its wealth has been observed to have been built on specialization in low technology sectors with incremental and experience-based innovations rather than radical and science based innovation causes Lundvall et al. (2002) to assert that the NIS can work in developing countries. The concept helps to highlight the importance of different types of knowledge. There is therefore the importance of knowledge institutions, structures and infrastructures as well as steering interactions between them. Secondly, there is the importance of the attention paid by the broader

approach to tacit knowledge and the need not to lose important parts of largely uncodified and undocumented local competence. The focus on production based on tacit knowledge and on learning by doing, using and interacting should make it possible to implement such adaptation in the south (Lundvall et al. 2002). This broader concept helps to see how different kinds of knowledge can complement each other (Ernst & Lundvall 1997). Johnson and Segura-Bonilla (2001, 10) emphasise broad explanations which cover both research and everyday activity, the importance of institutions and structures and finally, interactions between firms, institutions and sectors.

4.4.1 Weaknesses of the National Innovation System for Developing Countries

Several weaknesses have been expressed by the scholars of National Innovation System (NIS) with regard to developing countries⁵³, especially as it has been used only in the rich industrialized countries to describe and compare strong economies. The scholars of NIS are concerned that the concept has not been applied to weaker economies or segments of the population and country (Lundvall et al. 2002). It is built in the North on the basis of empirical findings and in the South, it will only be ex-ant (Arocena & Sutz 1999). There is a lack of treatment of political and power aspects of development. Conflicts over income and power may not be underestimated to be connected to innovation processes when it concerns the south (Lundvall et al. 2002). Certain evidence suggests that there is interdependence between technological capabilities, innovation-friendly governance and social and cultural factors (Fagerberg & Srholec 2008). According to this school of thought, the existence of an innovation-friendly business regulation is crucial for development. Social capital (trust) and social inclusion are crucial for the development of NIS (Miettinen 2002; 2009). High level of corruption can be a barrier to the development and growth of the NIS (ibid.).

Certain degree of micro-economic and financial environment is indispensable for the efficiency of the NIS (Lundvall et al. 2002; Johnson & Segura-Bonilla 2001). There are challenges which relate to the problems of the transferability of knowledge. It is argued that because of the related supporting infrastructures and contexts which support the workability and relevance of knowledge, knowledge may not work in the same way in the South as it is the case in the North (Arocena & Sutz 1999; Gu 1999). There is the problem in the success of transplanting best practice from one system because of the heterogeneity of developing countries (Arocena & Sutz 1999). There is also the phenomenon of weak linkages; some of the elements that affect and promote innovations might be there but the interactions between the organisations and some capabilities may be lacking (Arocena and Sutz 1999; Gu 1999; Interakumnerd et al. 2002). To these may be identified differences

⁵³ Some of the weaknesses could be attributed to the weaknesses of the national innovation system itself (revisit criticisms about the NIS, Cf. 4.3.1).

in the socio-economic infrastructures, weaker institutional frameworks and low levels of interaction. Formal institutions such as rules and laws may be generally weak or with less enforcement (Lundvall et al. 2002). The few existing firms are often isolated and suffer from few upstream and downstream linkages in the value chains as well as specific technology institutions in their field of expertise.

According to the innovation literature, developing countries are characterised by low levels of interaction between firms as well as amongst different types of organisations (firms, universities, technology transfer services) (Lundvall et al. 2002). Micro innovative strengths are usually isolated and the necessary institutions for innovations are usually lacking in developing countries. Other scholars (Gu 1999; Arocena & Sutz 1999) observe that industrial innovation in developing countries is highly informal. In contrast to the developed countries, developing countries capitalise on the accumulation of financial capital and natural resources⁵⁴ rather than on intangible capital such as knowledge and learning (also Gu 1999). Interakumnerd et al. (2002) observe, in the case of Thailand, that the NIS of developing countries does not usually tie with their structural development levels. The challenges and characteristics of innovation in developing countries and the correlation between NIS levels and the country's development level lead to the necessity to connect perspectives on the NIS to the level of a country's economic structural and institutional development (Gu 1999 and Arocena & Sutz 1999). By implication the NIS can be analysed in developing countries only in the context of "socio-economic development" (Gu 1999)⁵⁵.

4.5 Status of Higher Education in the National Innovation System

As noted earlier, the central role of knowledge in the national innovation system suggests that policymakers should pay attention to all the factors and institutions that provide the bases and incentives for creating knowledge. Among some of the country analyses that have been made on the strength of the NIS, the educational system is high in the hierarchy of factors affecting innovation. In identifying some of the features of the Japanese innovation system and thereby economic growth, Freeman ranked its educational system second out of five features that contributed to the strength of the Japanese NIS (Freeman 1987). Similarly, the educational system in Finland which is said to have been one of the first countries to adopt the NIS comes second in the hierarchy of six constitutive elements on the strength of its innovation system after "research system" (Miettinen 2002). Again, with national research being a function and outcome of the university system, the role of

⁵⁴ See the "resource curse" by Ross (1999).

⁵⁵ It is therefore within the context of socio-economic development that the national innovation system is used in the study.

higher education is reinforced in the production of new knowledge. The traditional role of production of human capital becomes of greater importance as well.

Because of the knowledge and economic undertones of the NIS the role of higher education in the NIS, from a system perspective may seem more visible through the lens of the knowledge economy as its current operational environment. Although there is no concise definition of the knowledge economy; it is general perceived to stand for economic production and services which are based on knowledge intensive activities or the production and management of knowledge (Powell & Snellman 2000; Drucker 1987; Gibbons et al. 1994; Romer 1986; 1990). The knowledge economy perspective places knowledge as a cardinal intrinsic factor of production, as would be other factors such as physical inputs and natural resources. It is construed that economies have recently turned to be dependent much more on intellectual capability through its contribution in accelerating change and scientific advance which drive international advances and economic competitiveness (Powell & Snellman 2000; Drucker 1987; Romer 1986; 1990). One of such basis for knowledge is higher education⁵⁶. With global economic competition seen to be knowledge driven and higher education being a knowledge intensive sector, there is therefore a necessity to depend on higher education for economic development. Higher education therefore acquires an increased impetus as a major player in economic development (Marginson & van Der Wende 2007). With the knowledge economy such human capital assumes the role of producing new knowledge with embodied capacities for learning. In a knowledge economy, the universities play a very considerable role in research and development (R & D). The study by Lederman and Maloney (2003) indicated that the rate of return from R & D and economic development was 78 per cent. In relation to the other types of capital, education affects physical capital investment in the whole economy, which in turn raises income growth rates.

What also reinforces the position of higher education is the recent restructuring or shift in the structures of most developed economies and work to service and knowledge economies and innovations. The social roles of universities as knowledge creators are much needed. Universities provide the physical ground for research and teaching and the knowledge from the university is applied for use in the society (Hölttä 2007). Education creates human capital which directly affects knowledge accumulation and productivity and there are externalities of human capital in production. Universities provide inputs for the research sectors which generate new knowledge. It is assumed that firms cannot fully appropriate the gains from the production of new knowledge so spill over does not occur as would be the case from educational institutions.

Besides providing highly trained workers, universities are linked in many ways to the different parts of the entire national system and their effects felt through different channels and if they are linked in many ways to different entities of the system, then they

⁵⁶ See studies that confirm the prominent role of higher education in economic development and the efficiency of production and innovation systems (Freeman 1987; Dalman & Nelson 1995; Bloom et al. 2006 again).

contribute in other ways as well (Cowan 2005). Cowan claims that a simple and almost all encompassing answer regarding the function of the university in the innovation system is clearly that it is the source of knowledge and information (after all they are main products of research) on which other entities can build market-valued goods and service (Cowan 2005). Hölttä (2007) asserts that the university has a special and important role as a *power house* of the NIS through the production and dissemination of knowledge for use by industries and society at large. Hölttä (2007) proposes the necessity for HEIs to design their educational research strategies to fit cooperation with other actors of the innovation system. Most scholars observe that the university, higher education or advanced education is implicated in all the different meanings of “*knowledge*” or “*knowledge societies*”. HE is involved in all the different meanings of capacity-building towards sustainable development (NEPAD 2001, Art 64). HE has more relevance and adaptive capacity through a knowledge economy approach. That is; HE is more favourable to knowledge economies and vice versa (Desrochers 2005; Powell & Snellman 2000; Drucker 1987; Barrow 2003). With HE the students are likely to develop new tools and skills themselves and there is spill over to non-graduates. De Bloom and Roksovsky (2006) point to a positive correlation between HE and entrepreneurship.

4.5.1 Leading and Interacting Role of the University: The Case of the Triple Helix

Before highlighting the interactions of the university in the national innovation system (NIS), it may be necessary to recall from the preceding section (cf. 4.3.1) that the NIS can be as broad as possible, with endless limits in terms of its boundaries and the variety of constitutive elements may be difficult to capture. In order to acquire a focus and a more punctilious and manageable analysis about the status and role of the university in the NIS, there seemed to be the necessity for a more concrete framework that limits the weakness constituted by the broadness and extensiveness of the NIS. One such opportunities for a focussed, less complex and simplified analysis about the role of the university in the NIS is offered by the triple helix of the university-government and industry relationship (Etzkowitz & Leydesdorff 1997). The triple helix departs from different strands of the NIS literature, most of which have given the university a less prominent status in the NIS. In the NIS of the first school of thought (Lundvall 1988; 1992; Nelson 1993), it is the firm which is seen as playing the leading role in national innovations. Sabato’s triangular model (Sabato & Mackenzi 1982) grants the privileged position in the NIS to government. Lundvall (2007) for instance, observed the triple helix as a narrow approach to the NIS. Lundvall claims that if the triple helix is not presented as such but asserts itself as a “full-blown alternative” to the NIS, then it is a distortion (Lundvall 2007, 3). As observed by others (Leydesdorff & Meyer 2006, 1442), the existence of the government dimension in the trilateral network renders its evaluation complex.

Despite the criticisms from different strands of literature, the triple helix seems to be the simple and major conceptualisation that clearly accords a leading role for the university in the NIS. Besides the literature on the triple helix, a few other studies such as Godin and Gingras (2000) support this conceptualisation about the university as a leading actor in the national innovation and research systems. Given the simplified nature and its ability to project the university, the researcher in the current study employs the triple helix as a more concrete foundation and operational framework from where the analysis of the university's role can transit from simple to more complex situations in the context of the study. The triple helix (Etzkowitz & Leydesdorff 1997; Leydesdorff & Etzkowitz 1998; Etzkowitz 2002; Etzkowitz et al. 1998) denotes knowledge production, dissemination and transfer by universities where it is presupposed that efficiency in knowledge-based economic development results from a strong connection and interaction with the government and industries. Within this framework, the government sets broad national policies, establishes infrastructures and structures for policy formulation and coordination and also provides financial resources to stimulate interactions as well as regulations. Other government-related actors at this level may include funding organisations for R & D & S & T. The HEIs produce and disseminate the key knowledge and skills. The final sets of actors are the industries linking interaction to the markets and the global knowledge economy. Drawing on Etzkowitz et al. (2008, 681) "industry" substitutes as a "deleterious influence" and the "government as a source of support". The authors argue that knowledge production processes in a knowledge-based economy are affected by three dynamics and major actors: the economic dynamics of the "market", the internal dynamics of "knowledge production" and "governance" at the different levels of the innovation system (see Leydesdorff & Etzkowitz 1997).

One thing that stands out more clearly, as a point of convergence, is the importance of taking the national system of production as a point of departure when defining the NIS (Lundvall 1988, 362; Etzkowitz & Leydesdorff 2000, 115). There is also the importance of the "national" environment as a starting point for analysing any innovation system be they sectoral or regional innovation systems or subsystems and other institutional spheres. This is due to the systemic environment in which innovation occurs and the increasing influence the systemic environment exerts on the narrower frames of the innovation system. Another point of convergence is that besides the relational aspect of the innovation system "internal" transformation certainly takes place in their institutional spheres (Etzkowitz & Leydesdorff 2000, 118), be they industries, university or government. The importance of the concentration on one of the institutional spheres like the university which was one of the objects of this study may not be underemphasised because of the likelihood that such transformation places new and more emphasis on technical and economic change (Johnson 1992; 1995, 8).

4.6 Third Mission as a Framework for Socio-Economic Development

The history of the concept of “third mission” in higher education can be traced back to the Land Grant Universities (LGU) in the United States. The Morrill Act of 1862, which created the LGUs resulted from an awareness about the need to incorporate a practical, service and utilitarian dimension such that HE should respond more appropriately to the states’ developmental requirements. There were especially developmental demands which stemmed from the industrial revolution and generally, of the changing society during the 19th century. This perspective of a more practical and applied dimension of HE was contrary or in addition to the liberal education which dominated the American system at the time. The trends evolved over the years through different terminologies like “community engagement”, “outreach”, “civic engagement”, “community service”, “public service” “third role” then today, “third stream activities” or “third mission”. As was the case with the NIS (cf. 4.3.1), the diversity of the terms which describe the direct societal dimension of the university’s function and activities, beyond teaching and research for scientific purpose, hence third mission, portray third mission as one of those fuzzy or boundary concepts for policymaking and management rather than a scientifically-defined concept.

Third mission has been defined as the universities’ generation, use, application of knowledge and other capabilities and facilities for non-academic purposes (Molas-Gallart & Castro-Martino, 2007; Molas-Gallart & et al. 2002). Third mission translates the interaction between the university and the rest of society. Etzkowitz (2000) conceptualized third mission according to the Humboltian perspective where teaching and research are the main functions of the university, then a third mission could be developed which can be neither teaching nor research. However, we would argue from another perspective that if third mission is conceived of as being separate from teaching and research, it implies that teaching and research are the only internal missions of the university, which questions the idea of the “trinity” of its missions; teaching, research and service. If a university would soon find its major activity being for instance, the sale and rents of properties to the public in the name of third mission, then its organisational and functional identity would be questioned, given the world of increasing functional specialization in which we live today. Perhaps that university would have become a hybrid organisation. If that university finds itself tailoring part of its teaching (amongst related activities) through for instance, life-long learning or adult education then it should have been mission-focused in the balanced sense. This leads to the view of the third mission as the articulation of the societal utility and relevance of university activities, beyond academic purpose. This is not to postulate the exclusion of non-teaching or non-research activities as part of the third mission and which, of course, could be easier to execute and evaluate. If that university hired out its teaching rooms for external socio-cultural activities, that would be a non-teaching or

non-research activity but what is important is that it is teaching and research which are the *raison d'être* of the premises.

There seems to be another risk in attempts to stretch the definition of third mission. By design or default, universities impact on the society through different channels; directly or indirectly and at different times. From a cultural perspective, Cowan (2005) posits based on the Bill Readings notion of the “*University of Culture*” to the “*University of Excellence*”, that universities are central players in every innovation system. Cowan (2005, 4) illustrates the relevance of social cohesion to a competitive knowledge economy. There may be other facilitating factors to economic growth, most of which the university is best placed to provide but which remain invisibly unattended to, in measurable terms. Third mission can be a valid foundational or practical tool to plan, analyse and connect the universities’ interaction with the rest of society. The fuzziness in the definition is important in the sense that it organises debates between different constituencies, each finding its meaning and interpretation of the concept and all operating on its basis as a foundational concept or working tool. Simplified definitions and the scientific status of third mission as a boundary concept would certainly integrate all perspectives than broad explanatory definitions.

It may also seem that the definition of third mission can be more inclusive if it is kept simple than if it goes into explanatory definitions as is the case with Molas-Gallart et al. (2002)⁵⁷. For instance, Holland (2001, 7) also defined a university that is engaged in third mission termed the “*Engaged University*” as one which is committed to “*direct*” interaction with external constituencies and communities through mutually beneficial exchange, exploration and application of knowledge expertise and information. Attempts to make the definitions elaborate risk weakening the definition as they are likely to omit some of the related items and processes of third mission. For instance, it would be difficult for any definition to capture sufficiently, how interactions through knowledge take place with the rest of society. Also, the interaction between the university and its external constituencies may not necessarily be “mutually” beneficial as implied in Holland’s definition (ibid). Again, the invisibility of knowledge and the *ad hoc* and different times during which the societal impacts of higher education are realized, makes third mission more scientific if it is simplified and defined as designs to achieve some “direct” socio-economic and cultural objectives of the universities’ activities for the rest of society⁵⁸.

⁵⁷ Might be more inclusive and encompassing if it were shortened around the second facet simply as “the use of the universities’ capabilities and facilities for non academic service”.

⁵⁸ This perspective is reflected in Lundvall’s (2002b, 9) as “direct contribution” to a more dynamic development of the business sector. Similarly, there is Holland’s (2001) view above as “direct” interactions.

4.6.1 Categorisation of Third Mission and Implications for Engagement

The perspective upheld in this study is about the necessity for the university to establish a holistic framework for different categories of third mission in general and mastery of its actual third mission practices. Such a framework will be a crucial director of attention for policymaking and management in terms of third mission (Molas-Gallart & Castro-Martino, 2007; Molas-Gallart et al. 2002). In light of the necessity for a general framework Hatakenaka (2005) suggests that third mission activities, policy goals and incentives should remain diverse to enhance the economic and social impacts of universities. Understanding the indicators and dimensions would be important for full-blown engagement in third mission in the sense that it provides the thermostat for flexibility and basis for regulating the orientations of the university. A framework with third mission categories can be useful guides for the allocation of third mission funding as it points to areas for the concentration of funding, balance and priorities. An organised framework for third mission can also reduce capitalism; the dominance of some activities that tend to stifle others and keep the university focussed and holistic in its mission. Meanwhile, from a narrower perspective, the dominant categories of a university's third mission practices can describe its institutional design and orientations and vice versa. This implies that the dominating category of third mission expresses the typology and orientation of the university. Conversely, the design and typology can also suggest the dominant category.

Various conceptualisations exist about the categorisation processes of third mission. One of the first taxonomy by Molas-Gallart et al. (2007, 7) stresses that the simplified or complex indicators be obtained and then the need for a comprehensive definition of the third mission activities of the university. In the context of the UK, the cited study identified some 65 indicators under 12 categories of third mission activity. Those indicators were based on a distinction between the university's "capabilities" and "activities". The first set of indicators identified capabilities such as "knowledge" (research) being associated with both knowledge capabilities and teaching being an activity in addition to communications. The 12 categories identified in the third mission activities included: technology commercialisation, entrepreneurial activities, advisory work and contracts, commercialisation of facilities, contract research and collaboration in academic research, staff flow, and student placements, learning activities, curriculum alignment, social networking and non-academic dissemination (Molas-Gallart 2002, 7). In another situation, Laredo (2007, 447) identified 8 broad areas, namely: human resources, codified knowledge, spinoffs, contracts with industries, contracts with public bodies, participation in policymaking, involvement in social and cultural life and public understanding of science. In another broader categorisation, Montesino et al. (2008, 10) divide third mission activities into four categories. Montesino et al. (ibid.) observe that the first dimension termed "*social third mission*" is one of the most important ways for the university to organise its service to the community, perhaps to be naturally involved

and efficient in third mission without being pushed by many external factors which may at times, come with strings attached.

The second dimension according to Montesino et al. (2008, 10) has been termed “*enterprising third mission*”. The example of this second dimension can be consultancy for industry, patent registration, commercialisation of intellectual property, advisory work and contracts, shared development of research, problem-solving agendas or contracts and collaborative research. In addition to these, are continuing education and perspectives on lifelong learning, teaching/learning activities, curriculum alignment to societal needs, open and distance learning production, commercialisation of facilities, and congress organisation (ibid.). The third is the employment perspective such as staff mobility, staff and student flow and exchange, student placements, former student-employee links, training for company formation and self-employment. Finally the fourth dimension, according to Montesino et al. (2008, 11), is called “*Innovative third mission*”. This refers to services, products and processes that research institutes are able to transmit to society. Such services transcend technology transfer and usually have as some of their logical spaces science and technological parks (ibid.).

In terms of implications, the literature in higher education studies and research reveal that the university’s “engagement” in third mission necessitates changes in processes and cultures of the university and which therefore suggest their relevance upon inclusion of socio-economic development and poverty reduction tasks in the context of the study. These implications may be appropriately discussed in the light of existing conceptualisations about “engagement”. Duke (2002) asserts that effective engagement through higher education is transformational, cultural and instinctive. Such transformations necessitate “growing an ethos in which open, interactive and networking instincts and life style of engagement come in naturally and yields benefits” (ibid.). Strong internal, horizontal and vertical networking within the university, between its units and with external actors in the system become very important prerequisites for strategic engagement in community service like poverty alleviation. Duke’s characterization suggests the necessity for the university to develop a strong sense of organisational culture. That is; the university seeing itself as an organisation where all those involved are clear about what to do and believe in what they are doing and what is to be achieved. Such a sense of organisation equally implies the idea of coming to shared interests, decisions and ultimately destinies (Duke 2002).

Duke further states that engagement is indispensably reflected in the core functions of the university and thus requires a “deep continuous critique of such core traditional functions; in fact, “*a way of doing and constantly developing teaching and research to fit the objectives*” (Duke 2002). Duke recognizes the importance of a strong motivation and incentive system as the means of engaging all concerned in the shared goals. Duke’s notion of motivation corroborates those of Clark (1998) in terms of the academic heartland which should be regularly “stimulated” through motivations. Such motivation is particularly

important for the actors in the academic heartland who seldom believe that community engagement is part of their functions and are usually bounded by disciplinary loyalties, cultures and protocols (Stormier 2007; Hölttä 2007). Disciplinary based values often dominate institutional and regional ones. As such the provision of incentives is necessary to push academics to find external non-academic and socio-economic development partners (Hölttä 2007, 25). According to Duke (2002) individual loyalty to discipline inhibits teamwork and the traditional reward, promotion and classification systems have had a tendency to promote individual engagement around the discipline as opposed to the organisation. As such, there is a need to strike an appropriate balance between the individual and collective engagement as well as integrating community service as part of the academics' remuneration, evaluation and performance appraisal (Duke 2002; Hölttä 2007).

4.7 The “Entrepreneurial University” as a Process Framework

4.7.1 Locating the University in the National Innovation/Economic system

In the preceding sections (see 4.3.1), certain difficulties were observed in defining the extensive and complex number of factors and elements involved in a national innovation system. The triple helix seemed to provide a more concrete foundation and operational framework from where the analysis of the university's role can transit from simple to more complex situations (cf. 4.5.1). The university's location in the NIS becomes more visibly characterised by the triple helix of a combination and interaction between three actors: the government, the university and industry as depicted in the diagram below:

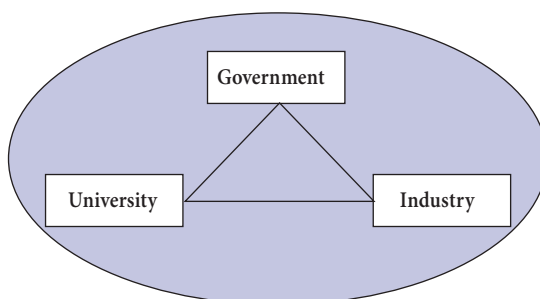


Figure 4: The University in the National System Characterised by the Triple Helix

Source: based on Etzkowitz & Leydesdorff's (1997).

Given the context of developing countries to which this study relates, these helices would be seen in the analytical framework of this study (4.9.1 Figure 5) to be remodelled and broadened to include another angle called “Community” to produce a quadruple structure, hence a Quadruple Helix. This quadruple structure is further broadened and enlarged to become a community innovation system (CIS) as a subsystem of its own in the NIS (cf. 6.3). In the quadruple helix or its extension to the CIS the university maintains the same roles as in the triple helix. The difference in the quadruple helix and the CIS is that the roles of the university would have to extend to other informal sectors of the economy and the rural communities that characterise developing countries. The aim of this section is to examine the framework that is worthy of a responsive university to the NIS. In other words, which is the appropriate responsive type of university in the innovation or economic system? In this study, we would postulate that it is possibly the “entrepreneurial university” model.

4.7.2 Definitions/Perceptions of the Entrepreneurial University

The starting point for conceptualising the entrepreneurial university should be the concept of “entrepreneurship” and its economic or business etymology. From the repertoire of political economy, Fuller (2005, 38) referred to “entrepreneurship” as a result of “*desperation*” by producers who have lost comparative advantages. Admittedly, universities nowadays no longer enjoy the advantages they previously enjoyed. They are surrounded by competing knowledge organisations and above all do not enjoy the type of relative attention and stable funding that earlier universities should have enjoyed from their main sponsor, the government. These situations cause desperation and consequently the search for survival strategies in competitive market places. Again reference has been made to Thorstein Vablen in line with Max Weber (1864–1920) whereby “*entrepreneurship*” is defined as “*craftsmanship*” or “*ingenuity*” devoted to finding cheaper technological means of replacing labour. According to Fuller (2005, 38–39) our “*knowledge society*” should have accelerated this process with the advent of “*expert systems*”, and generally, knowledge management. Another reference is made to Schumpeter’s (1961) “entrepreneurship” as an impulse towards creativity that characterises market reconfiguration. Schumpeter argued that entrepreneurship requires innovation at two levels: in terms of products and in maintaining standards. He maintained that entrepreneurs should be able to turn comparative into competitive advantage (Schumpeter 1961). There is also the risk factor. The French origin of the word “*entrepreneur*” according to the Oxford Dictionary, is worth recalling where a person rented a theatre hall with the expectations that potential audiences would buy tickets such that the cost of the hall can be recovered with profits. This risk perspective suggests the courage to invest in conditions of uncertainty; a risk-taking culture. Although entrepreneurship draws on the business and economic world, Shattock (2005, 23) concludes that in higher education it is not directly coterminous.

The “*entrepreneurial university*” concept has often remained fluid because of the differences in the types of universities, backgrounds, strategic agendas and the degree of exposure or connectedness to their occupational focus, national context and philosophies. Although universities share the same identity and other major commonalities, there are differences which affect the way entrepreneurialism may be conceived of or perceived. The differences suggest that any conceptualisation of the “entrepreneurial university” is determined by or should take account of the historical background and context of the university. This is because the ethos of a university is generally defined by its history and background (see Gjerding et al. 2006, 95). The differences in traditions and histories again suggest differences in the perceptions of the entrepreneurial university. There are question as to what the entrepreneurial university is; whether it is a university “that is able to increase funding and income” from new or non-government sources or that which has the flexibility, adaptive and innovative capacity to be responsive towards societal demands or an enhanced interaction with its external environment (Williams & Kitaev 2005).

Williams and Kitaev (2005) view the entrepreneurial university concept simply as a useful generic epithet to describe changes in missions and management occurring in universities. Burton Clark perceived the entrepreneurial university as one typically breaking out of the constraints of funding regimes or traditions of state-run higher education systems (Clark 1998). Such a university encourages innovative academic activities, builds a wide range of for-profit partnerships with its external environment (agencies, industries, business actors) from which to generate income. It in turn incentivises further entrepreneurial practices and cross-subsidises the non-market-friendly programmes within the university (Clark 1998; 2004). The entrepreneurial university responds to present demands by taking “advantage of future developments in various ways, offering new lines of courses and developing new areas of research in collaboration with surrounding society” (Williams & Kitaev 2005). Another perspective of the entrepreneurial university and which draws on the concept of entrepreneurship again is the readiness to turn business ideas into success; the ability to blend creativity or innovation with sound management and with the typical characteristic of “readiness to take risks and taste for independence and self-realisation” (Shattock 2005, 16). This view portrays university entrepreneurialism as “commitment to new technology together with its capacity to take quick decisions, risks and reposition itself in changing markets for success”. Shattock (2003; 2005) further defined entrepreneurship in higher education as “a drive to identify and sustain a distinctive institutional agenda” which is institutionally driven and not necessarily “*a product of state-funding formula*”.

4.7.3 Rationale for Use of the Entrepreneurial University Concept

Despite the differences in perceptions and to some extent, criticisms about the commercial connotations of entrepreneurialism, the “entrepreneurial university” concept was adopted in this study for several reasons. The entrepreneurial university frameworks implicitly

stimulate external collaboration between the university, industry, commerce and other development actors and agencies; the rest of the society. The entrepreneurial university is “*a means to promote economic growth*” (Etzkowitz & Zhou 2008, 629). Economic growth nowadays, especially for developing countries, requires greater interaction and collaboration of universities (Etzkowitz & Zhou 2008; Etzkowitz et al. 2008; Clark 1998; 2004). Monetary reward, if at all and when it is the driving force for university entrepreneurialism provides motivation for the academics and the university to improve their interactions with the rest of the society. If academics do not receive rewards for such non-academic missions, they will not find the motivation to be interactive with their socio-economic environments. Individuals will not make any extra effort.

Similarly, if the university as an organisation does not receive extra resources for those entrepreneurial and interactive activities with the rest of the society, it will see no reason to be engaged in them (see Fuller 2005). Universities need motivation as to why they transcend their boundaries to interact with other actors and agencies (Hölttä 2007; Duke 2002). The entrepreneurial university is the most theorised in recent years in terms of the interaction between the university and the rest of society. The entrepreneurial university reinforces institutional self-reliance and attracts more resources which can enable the university to reinforce academic performance and widen its research and teaching agendas (Shattock 2005, 17).

Like the concept of innovation system on which most of its studies have concentrated in high income, closely homogeneous and high-tech and science based situations (4.4.1), the entrepreneurial university may have some weaknesses with regard to developing countries. Most of the studies on the entrepreneurial university have concentrated on research, technological and applied institutions which are tailored as such and which pertain to high income and highly industrial environments. For instance, of the five universities which produced Clark’s (1998) entrepreneurial pathways, only one, the University of Joensuu, Finland was a comprehensive (classical) university. The rest were either research or technological institutions but for the University of Strathclyde, UK as semi-comprehensive institution (Clark 1998). It remains a serious gap in the higher education scholarships that most of the examples have come from elite universities (Goktepe-Hulten 2008). However, it does not mean that the entrepreneurial university is synonymous with research, elite and technological institutions. Its conceptual glasses would be applicable to universities of all types; from those with an intensive research tradition to comprehensive ones and in all contexts (Gibb et al. 2009). One of the proofs is that shrinking funding is a global phenomenon that requires universities to open up to new funding niches, hence becoming more adaptive and competitive in their socio-economic environments.

Although strong research potential may be an important prerequisite for the most active (hence entrepreneurial) universities in knowledge economies, Etzkowitz et al. (2008, 292) posit that it is not sufficient. This is illustrated by the structural division of

labour between research, the comprehensive and vocational institutions in Europe where the research-intensive institutions may not necessarily be entrepreneurial (Etzkowitz et al. 2008). Entrepreneurship can also pertain to education (Gjerding et al. 2006, 94). It is only the differences in the balance between teaching and research that affects the type and extent of entrepreneurial activities that are undertaken by each university (Williams & Kitaev 2005, 127). Although knowledge production, a domain of research is an important asset in interactions in knowledge economies, university entrepreneurship may likewise contribute to the learning economy (for instance through life-long learning) (see Lundvall 2002b).

The importance of the entrepreneurial university concept would be rooted in the concept of third mission (Etzkowitz 2003; Williams & Kitaev 2005) suggesting university's ability to be actively and proactively interactive as an influential institution in socio-economic development and in driving growth policies. According to Etzkowitz (2003), the entrepreneurial university concept is a historical process, a "second revolution" adding a third mission of economic and social development to the university. The entrepreneurial university provides the capacity for the university to complete the trilateral cooperation between the teaching, research and service functions enshrined in the mission statements of many universities (Etzkowitz & Zhou 2008, 630). Zhou and Peng (2008, 638) perceive the entrepreneurial university as the best tool for indigenous innovation because of its stronger service function and influence to the economy than the research university.

4.7.4 Theoretical Explanations for the Entrepreneurial University

Several theoretical explanations, all of which cannot be analysed herein, have contributed to the emergence of the entrepreneurial university concept in higher education. These explanations range from the ideological notion of "changing times" to practical problems of management and changes in the environments of universities; notably the transition to knowledge based societies and globalisation as follows:

Table 7: Summary of theoretical factors behind the Entrepreneurial University

No.	Factors	Authors
1.	Ideological changes/changing times	Williams & Kitaev 2005
2.	Commercialisation of university knowhow	Cook et al. 2008
3.	Processes of technology transfer	Leydesdorff & Meyer 2003; Zhou 2008
4.	Movement towards Triple Helix	Etzkowitz & Leydesdorff 2000; 2004
5.	Closer engagement of universities with industries and stakeholders of all kinds	Owen-Smith et al. 2002; Abbo & Benneworth 2007
6.	Employability and skills development	Clark 1998; Gibbs et al. 2009

7.	Massification/Expansion	Clark 1998; Gibbs et al. 2009; William & Kitaev 2005
8.	Globalisation/internationalisation of universities	Knight 2003; Gibbs et al. 2009; Williams & Kitaev 2005
9.	Changing nature of the knowledge society and its challenges in the organisation of knowledge within HEIs	Senges 2007
10.	Pressures to respond to social & economic development	Abbo & Benneworth 2008; Etzkowitz & Zhou 2008; Etzkowitz et al. 2008.
11.	Pressures from central government for universities to foster innovations	Etzkowitz & Zhou 2008, Etzkowitz et al. 2008
12.	Accountability/demonstration of relevance/ public value of universities	Williams & Kitaev 2005; Gibbs et al. 2009
13.	Autonomy	Greenaway & Haynes 2003
14.	Shrinking Funding/future funding of universities	Convergence in all literatures
15.	Changing cultures of universities	Davis 2001

Williams and Kitaev (2005) classified the factors leading to the entrepreneurial university under broad “drivers” (themes) as: “ideological” “Expansion”, “financial stringency” the “knowledge society” and “globalisation” (Williams & Kitaev 2005, 129). The ideological changes range from the simple notion that times have or are changing to changes in perspectives on the role of the state in the provision of public services in general, the rise of neoliberal thinking and specifically changes in the role and at the same time, funding of universities. However, it must be said from another perspective that these changes in ideological and political climate have not only affected higher education but also other sectors of the national system. In terms of the expansion, there is a general convergence on massification, which is leading to more strategic means of managing or raising funds in higher education such as commercial and for-profit ventures with a view to supplementing the funding of the systems and universities. Under such circumstances, it is difficult, if not impossible, for higher education to be funded entirely by the state (Gibb et al. 2009).

Other universities simply decide to act like commercial organisations through the constant innovations in their programmes offerings and teaching with a view to strengthening their positions in the growing markets for students (William & Kitaev 2005, 130). Related to this expansion Burton Clark summarised the emergence of the entrepreneurial university to be a result of a “demand-response imbalance”, with demand outrunning resources; the consequence being the university’s incapacity to respond (Clark 1998, 129). According to Clark (1998), this expansion in higher education is only one of the causes. Many demands and expectations rest with the university today which challenge its capacities to respond adequately or question its resources. Clark cites the

phenomenon that more students are beginning to seek and obtain access to universities thus increasing the pull of their “*clienteles*”. Then more segments of the labour force increasingly demand highly specialised training. Patrons and stakeholders diversify, accountability demands increase and knowledge fields expand (Clark 1998). Under such circumstances universities will be unresponsive if they remain in their traditional forms. Universities become more visionary, interactive, proactive and innovative in terms of their interactions, programmes, processes and towards greater funding capabilities. University entrepreneurialism becomes a means of controlling the demand-response imbalance between the university and its environment (See Clark 1998, 129–130)⁵⁹. It is also important to observe in terms of financial stringency that while demands and expectations from higher education increase there has over the last three decades in most countries been an observed sharp or relative reduction in its public or core funding. This reduction is exacerbated in developing countries by the parsimonious natures in which the state funds are disbursed in difficult economic atmospheres (Johnstone 2002; 2004). Although entrepreneurship generally meets resistance from academia, it is seen as a means for economic survival and for mitigating the depletion of the resource base of universities (Shattock 2005, 17). Most universities begin seeing the need to supplement their incomes from the state through various second and third streams of income.

Etzkowitz et al. (2008) perceived the emergence and consolidation of the “entrepreneurial university” to be the result of a complex interplay between “*exogenous*” and “*endogenous*” factors. The endogenous factor would refer to the internal transformation taking place in universities, the exogenous factors being those in the university’s external environment (national and international), notably the knowledge economy and globalisation. The exogenous factors can also be certain government’s deliberate actions to steer and stimulate economic growth by encouraging stronger interaction between universities and industries; the triple helix approach (Etzkowitz 2000; 2004; Etzkowitz & Zhou 2008; Etzkowitz et al. 2008)⁶⁰. According to this school of thought, such policies have been triggered especially by the transition to a knowledge based society thus resulting to changes in the university’s environment and affecting its internal dynamics. These designs⁶¹ may

⁵⁹ Clark (1998), like Clark (1983) had not yet recognised globalisation, which was soon to become the operational environment of higher education and with much impact on the latter.

⁶⁰ Example of exogenous factors: 1. Socio economic crises leading to loss of manufacturing industries, thus the transition to knowledge economies (the US) 2. Economic & social statist, case of Japan 3. Movement of corporations and entrepreneurs abroad leading to the need for alternative knowledge-based industries (Sweden) 4. Persistent extremes of wealth and poverty followed by the necessity for innovation as renewal and growth strategy (Brazil) 5. National innovation crises calling for greater university role; the 1998 and 2000 laws to promote transfer of universities’ technology (Japan) 6. Steep decline in core funding resulting from financial crises. 7. Incentives to assist universities to engage in entrepreneurial activities (Finland). 8. Changes in IP regimes 9. Outcome of societal innovation. 10. Result of deliberate policy designs (case of USA, Finland and UK) (see Etzkowitz & Zhou 2008; Etzkowitz et al. 2008 for the above factors).

⁶¹ Specialised universities for business and technology programmes that result from such policy designs can easily be moved to entrepreneurial postures than comprehensive ones (Clark 1998, 135).

include governments' structural policies of differentiation and diversification to create specialised universities (Etzkowitz 2000; 2004; Etzkowitz & Zhou 2008; Etzkowitz et al. 2008). The endogenous factors may also be bottom-up practices such as changes in programmes, processes, regulations and structures which enhance the university's ability to be more interactive and commercially-oriented.

The entrepreneurial university may also result from the activities and connections of individuals and key actors at the basic units of the university who act as agents of change thereby promoting an entrepreneurial culture throughout the university (Goktepe-Hulten 2008). There are changes in intellectual property regimes; conducive intellectual property regimes which compensate, encourage and may grant full or partial ownership to researchers/scientists, play a very important role in university entrepreneurship (Etzkowitz & Zhou 2008; Goktepe-Hulten 2008⁶²).

There is the observed phenomenon of shrinking funding all over the world in higher education. With shrinking funding universities become more willing to participate, seek for ways to raise funds and for new market niches and to commercialise part of their processes to increase their incomes. Situations like Sweden and Finland where a third mission has been recently institutionalised also contribute to the emergence of an entrepreneurial and more interactive university. In most of the factors, be they socio-economic crises, loss of manufacturing industries, movement of corporations abroad, extremes of wealth and poverty Etzkowitz et al. (2008) claim that governments found the transition to knowledge based economy as their panacea. Governments therefore take advantage of universities as knowledge institution, creators, interpreters, guardians, repositories of knowledge to strengthen their national economies and competitiveness in the global economic landscape. Universities have therefore had to be adaptive and innovative. For instance, some old programmes in universities have had difficulties to be adaptive to the current trends. Meanwhile newer responsive ones are constantly created for the universities to be competitive (Williams & Kitaev 2005, 131).

Globalisation and internationalisation may also be associated with an "employability" and "skills development agenda" (Gibb et al. 2009), as one of the "knowledge-society" related forces that have triggered university entrepreneurship in recent years. With regard to globalisation, there are first of all pressures that universities exert on each other. For instance, the competitiveness in the global higher education landscape; the aspirations to be elite or world class universities. Such aspirations seem to have become the major policy drivers in most countries. Some countries focus almost entirely on "*globalisation*" "*competiveness*" and "*educational markets*" (Williams & Kitaev (2005, 132). There are also the increased mobility of students and the increase in job and occupational mobility which have increased competition in a more open and global student and labour markets and the necessity for equipping graduates with skills to be competitive on the global labour

⁶² The case of the Bayh-Dole Act of 1980 and *Teacher Exemption Law* in US and Sweden respectively and several changes in Japanese IP regimes after Second World War.

markets. Because of the impact of globalisation on national economies, local governments and industries not only require a range of enterprising skills with focus on creativity and capacity for innovation (Gibb et al 2009, 7) but also competence to withstand global pressures. Students and graduates now have to think both locally and globally in an entrepreneurial way. International studying, working and travel experiences become important criteria in employment. Many governments seek to retain their own share of the globally mobile students, graduates, staff and labour force through universities in view of maintaining or strengthening their knowledge economies (see Maassen & Uppstrom 2004). The above requires internationalising and improving the competitiveness of universities. Universities have had to be more proactive and reactive in response to the above global challenges (see Williams & Kitaev 2005, also). The above globalisation-related strategies (internationalisation) have been observed to involve elements of entrepreneurial risk-taking and strategic choice (see Knight 2003).

4.7.5 Building Blocks of the Entrepreneurial University

Building blocks here refers to major conceptual characteristics and alternative concepts that are closer to the entrepreneurial university and from which it can be built⁶³. These include:

Innovation: (Hence the “*Innovative University*”⁶⁴): A university with the capacity for constant innovation and renovation in structures, programmes, processes and use of resources and outcomes (Clark 1998, 2004). *Enterprising skills*: conscious effort in institution-building requiring much special activities and energy backed by “*risk-taking*” and “*innovativeness*” (Clark 1998, 4). All positive or proactive responses of the university to the challenges of its society (William & Kitaev 2005). There is *Commercialisation, Marketisation or Profit-making*: generation of income to supplement inadequate public funds⁶⁵. *Risk-taking*: constant act of initiating new programmes and practices in the university whose outcomes are in doubt (Clark 1998, 4). Degree of willingness and ability of the university and its participants taking risk both “financially and intellectually” (Gjerding et al. 2006. 94); a university with a risk-taking culture. Shattock (2005, 19) also talks of the commitment to invest in new programmes and reputation through the use of finances. Individuals may also take risk by choosing a particular line of research with the expectations that it sells to industries. This risk element also involves the notion of “opportunism”; the ability of the university to take advantage of the demands of its

⁶³ The entrepreneurial university results from a combination of proportions or orientation towards some of the concepts. This suggests that the entrepreneurial university can be alternatively built from those concepts (Clark 1998; 2004).

⁶⁴ Earlier, Clark was using the “*Innovative University*” for all the characteristics he studied but suddenly resolved on the “*Entrepreneurial University*” in the final draft of the book (Clark 1998).

⁶⁵ Almost all literature, especially Cook et al. 2008.

surrounding environment in conditions of uncertainty, than normal university activities which are planned or stated in their strategic plans, perhaps based on continuous state support. Related to the notion of risk-taking is *fast-decision making capacities and technologies*: the development and use of new technologies and the ability of the university to quickly reposition itself in the changing markets (ibid.). This perspective about entrepreneurship situates within another etymology of entrepreneurship in the 1980s in the US whereby smaller firms were seen to displace larger ones due to their commitments to new technologies, capacities for quick decision-making and easy adaptability in the market (see Shattock 2005, 16).

There is also *Self-reliance*; a higher education institution that no longer depends entirely on government largesse (Clark 1998; 2004). Then, there is *Autonomy* which can be “academic” “governance” or “financial”. Autonomy devolved from government in terms of governance, academic and more financial autonomy to manage the activities and manoeuvre with their resources; the entrepreneurial university almost being synonymous to the “autonomous’ university”⁶⁶. With greater autonomy, universities can take “more financial responsibilities and risks and even for the consequences of their own actions” (Williams & Kitaev 2005, 126). The development towards the “*entrepreneurial university*” concept itself was viewed by Clark (1998) as a transition towards greater financial autonomy by the European university that initially or traditionally depended largely or was centralised on government. There is the aspect of being *Interactive/Proactive*: the importance of collaboration with the external environment, actively and interactively involved with other societal agencies, institutions and actors and playing a more important role in broader societal stage (Etzkowitz 2004; Etzkowitz & Zhou 2008). This also involves being active in third mission, producing and disseminating knowledge beyond academic purposes. Such an entrepreneurial university takes a more proactive and leadership stance in the triple helix (Etzkowitz & Zhou 2008, 629).

The above perspective is also corroborated by other findings, with respondents associating entrepreneurialism with “collaboration” through the university’s contribution to the development and formation of companies and the evolution of the society in general. Collaboration becomes increasingly recognised as one of the most important indicators of the university’s interaction with the rest of society (Gjerding et al. 2006, 102). The streams of external non-governmental incomes, their amount, percentage as well as number of industrial cooperation links may be suggestive of the university’s entrepreneurialism or activeness in third missions. Finally, there is *Adaptiveness/Flexibility/Responsiveness*⁶⁷ and *Focus*. The transformative features, structures and cultures towards an Entrepreneurial University, would have to be adaptive and cope with the contradictory but mutually-reinforcing forces of “sustainability’ and “change”. The university must be adaptive to

⁶⁶ Also enhanced autonomy for the internal actors and participants (Clark 1998).

⁶⁷ These three concepts meaning almost the same thing in terms of university entrepreneurship (Clark 1998; 2004).

be able to sustain changes without having to carry the university beyond the boundaries of academic legitimacy (Clark 2004, 92). The university is entrepreneurial but maintains its legitimacy as an academic institution. It is quick to respond to external demands but quickly readjusts itself and maintains its focus. The status quo of such a university is to continuously adapt to changes (Clark 1998; 2004).

4.7.6 Pathways to the Entrepreneurial University

It is also relevant (see Chapter 7) to examine some of the major scholarly works that have attempted to establish frameworks for the transformation to entrepreneurial university (See Table 8 below). Clark's work (Clark 1998, subsequently complemented by Clark 2004) undoubtedly remains one of the major and thought-provoking works on the entrepreneurial university that has been widely acknowledged either as a foundation for subsequent studies or as one of the most comprehensive frameworks (See for instance Gjerding et al. 2006; Gibbs et al. 2009; Williams & Kitaev 2005; Azele et al. 2008; Fuller 2005). Because of this wide acknowledgement and for the sake of space, Clark (1998; 2004) shall be employed for demonstration as a starting point and full framework, in a more elaborate manner. The analysis shall then be narrowed down through other works (e.g. Etkowitz 2004) which have conceived and established some other pathways to the entrepreneurial university. See table below.

Table 8: Major Pathways to the Entrepreneurial University

No.	Clark 1998/2004	Etkowitz 2004	Glassman et al. 2003	Gjerding et al. 2006
1	A strengthened steering core	Knowledge capitalisation	Opportunities	Organisational culture
2	Enhanced developmental periphery	Interdependence	Resources	Supporting Structures
3	A discretionary funding basis	Independence	People	Strategy in practice
4	A stimulated academic heartland	Hybridisation	Organisational culture	External Cooperation
5	Integrated entrepreneurial culture	Reflexivity		

At the heart of the entrepreneurial university (Clark 1998) is a strong and expedient steering core with greater managerial capacity and which is quick, flexible and focussed to react to expanding and changing demands. Clark argues that this steering core must

combine both central managerial group and academic departments and units and it must be capable of reconciling managerial and academic values (Clark 1998, 5, 6). Clark observes that universities that are already endowed with reputation can ignore this notion of a strong steering core for some time and continue to depend on their reputations and fame for their resources and competitive status. However universities without such reputation and which are concerned about their “*marginality*”, and “*survivability*” would need to transform their modes of steering⁶⁸. They need a “*strong steering core*” which is fast, more flexible and responsive to changing societal demands (Clark 1998). Conversely, universities designed as third mission⁶⁹ universities may not require such reputation to become entrepreneurial. The second aspect is that entrepreneurial universities are typically characterised by growth of units marked by non-traditional units that transcend old university boundaries and which Clark (1998) describes as “*enhanced developmental periphery*”. Given the fragmented nature of the university as well as the independence and boundaries of academic units, these non traditional units are there to connect them. They include professional units working on knowledge transfer and connecting both internal units and university units with external agencies (industrial contacts), intellectual property development, continuing education, fund-raising and alumni affairs (see Clark 1998, 6). These non-traditional structures may be interdisciplinary and expressing non-disciplinary definitions of problems which are brought into the university by individual and group academic researchers from external partners in need of practical problem-solving. These structures mediate both between disciplinary units and between the university and the external world (Clark 1998).

The third perspective is that university entrepreneurialism requires not only greater financial resources but funds which it must have the discretion to allocate, thus a “*discretionary funding base*” (Clark 1998). Scholars have observed that funding, funding regimes and level of investment in human resource policies are two very crucial issues for the entrepreneurial university. Funding, for instance, determines the innovative capacity of the university (Shattock 2005, 14). The entrepreneurial university typically seeks several funding niches and diversifies its sources. Clark observes that financial austerity on the part of government can also be taken advantage of. Such universities turn such conditions to advantage by raising money from second and third sources. These second and third source incomes moreover increase the university’s capacity for discretion in further investments, enabling it to elude some of the government or system wide regulations and constraints (Clark 1998; 2004).

The fourth perspective (pathway) is that because most of the technical work that makes the university entrepreneurial is done in the academic units, the acceptance of entrepreneurial activities by those in the academic units is essential to make the university

⁶⁸ The traditional modes of academic or collegial governance in the university having been slow for decision making (de Boer & Goedegebuure 2003).

⁶⁹ Case of applied universities which are designed to be interactive and to address specific societal demands.

entrepreneurial. As such, these units need to be stimulated. Clark (1998, 7) therefore perceived the importance of a “stimulated academic heartland” as an important pathway to the entrepreneurial university. Not only do they need to be stimulated but Clark also deems it necessary that they should be part of the central decision-making body that makes the decisions to be implemented in the academic units. Clark also articulates that since academic units are the areas where traditional values are found, such academic values need to be blended with new managerial points of view. In terms of the fifth pathway Clark (1998) explains the necessity of a “*work culture that embraces change*” and thus spreading into a set of beliefs throughout the whole university. Clark describes this fifth pathway as the necessity of “*integrated entrepreneurial culture*”. According to the Clark “*the culture or symbolic side*” is particularly critical to the identity of the university as entrepreneurial. The entrepreneurial university with its participants typically incorporates the business sides (entrepreneurship) into its values (Clark 1998, 7).

The perspective of other scholars (Etzkowitz 2004, 66) (Column 2 in Table 8 above) is about “*Capitalisation*”; the processes of knowledge creation and transmission of knowledge for use and for disciplinary advance. Etzkowitz (2004) observes that knowledge is critical for economic and social development and thus of an enhanced role for university in society. By the second pathway “*interdependence*”, he refers to the art of interacting closely with industry and government (in the spirit of the triple helix). By “*independence*” Etzkowitz refers to the entrepreneurial university as a comparatively autonomous organisation and “*not a dependent creature of another institutional sphere*” (Etzkowitz 2004). Autonomy is crucial to the university’s ability to take entrepreneurial initiatives and bear the responsibility for its actions. This notion of autonomy is critical both from the institutional and individual perspective, both for entrepreneurial universities and their inherent entrepreneurs “wishing to control their destinies” (Etzkowitz & Zhou 2008, 629). By “*hybridization*” Etzkowitz (2004) refers to procedures, structures and formats that resolve tensions between interdependence and independence. Finally, “*reflexivity*” is implied as commitments to continuous innovation of the internal structure according to changes in the industrial environment and of the relationship between government and industry.

4.7.7 Empirical Studies on the Pathways

An examination of the results of some empirical studies which have been carried out on some of the proposed pathways to the entrepreneurial university, notably Clark’s (Clark 1998; 2004) was deemed to provide more inputs to this study. A study by Gjerding et al. (2006) was undertaken on four institutions of the European Consortium of Innovative Universities where the five pathways suggested by Clark are stretched to “*Twenty practices of the entrepreneurial university*” and then employed as an analytical tool in auditing the entrepreneurial practices of the universities through interviews. The study suggests that

the practices of the entrepreneurial university may be interpreted only in varying degrees, most often unsystematically and depending on the level of ambitions of each university regarding each of the practices (Gjerding et al. 2006). In terms of the definition, most of the interviewees perceive entrepreneurialism as the university's ability to contribute to the needs, formation and development of firms and the evolution of the society at large. Others in the study perceive the entrepreneurial university as a change in operations "in the industrial society to the knowledge society". Another group of respondents see it as the university's ability to generate "commercially viable ideas and activities" (Gjerding et al. (2006).

In terms of characteristics Gjerding et al.'s respondents agree on three main issues: the relationship between innovation and entrepreneurship, then the importance of making money and the relationship between "internal" and "external" entrepreneurship (Gjerding et al. 2006, 93). However, it is argued that innovativeness may not be as necessary as collaboration links with external partners or even supplementary funds. According to the study by Gjerding et al. (2006) the art of embarking on activities that generate cash flows does not receive the same affirmative response as the other characteristics above (see also 4.7.5). Entrepreneurship may meet stronger resistance from the academics in some universities than others. Gjerding et al. (2006) observe that this notion of cash flows may be debatable to an extent because of differences in traditions and funding patterns across nations. It may also depend on the extent to which "generating extra cash flows" is enshrined as a strategic objective of the university. Gjerding et al. (2006, 95) highlight some important factors that may characterises an entrepreneurial university. History: the history of being entrepreneurial means that the university is entrepreneurial in what it is doing. Culture: if the university has the culture of taking risk. There is also the extent of flexibility in the interpretation of rules and how the rules support entrepreneurship. Where there is a culture to focus on real life problem-solving, collaboration and thus entrepreneurship will be stimulated (Gjerding et al. 2006). This collaboration according to Gjerding et al. (2006, 95) may also be facilitated when there is an understanding of entrepreneurship as the transformation of entrepreneurial ideas into commercially viable ideas. Gjerding et al.'s study (ibid.) points to the importance of understanding and accepting that entrepreneurship is subject to diversity; the fact that some parts or missions of the university are more market friendly⁷⁰. In the same light, Azele et al. (2008, 676) observe the importance of accepting that changes would not be swiftly experienced in certain parts of the university in the same magnitude. Of the twenty criteria which Gjerding et al. (2006) develop out from the entrepreneurial university pathways by Clark (1998; 2004), they conclude on the following as the most indispensability:

⁷⁰ According to Clark (1998) also and which gives reasons that fallouts from the more market-friendly programmes and activities can subsidise the non-market friendly ones to keep the university balanced and focused. Cross subsidisation helps to reduce the impact of academic capitalism that result from the more market-friendly programmes and activities.

There is the importance of support structures which assist researchers in securing funding, protecting property rights and commercialising their business ideas and managing projects; the need for the administration to be innovative. There is also the need for internal funding set aside for entrepreneurial activities. The study also highlights the importance of strong leadership with decentralised freedom. Above all, there is the very prime importance of ingraining entrepreneurship as part of the identities of universities. If entrepreneurship is the ethos and basic value of the university, the university could easily become entrepreneurial in cases where there is a lack of support structures (the developmental periphery, for instance) (Gjerding et al. 2006).

Azele et al.'s (2008) study that also focuses on Clark's five pathways of transformation introduce the concept of "*entrepreneurial island*". Azele et al. (2008) argue that it may not be very necessary for the university to transform itself into an entrepreneurial university in the organisational sense and before contributing to economic development. Such entrepreneurship and contribution, the authors claim, may easily come about by attention being paid to certain units and by harnessing and nurturing the resources and assets of units which have the potential to drive the university to be entrepreneurial and by virtue of their natures. In this way, entrepreneurship comes naturally without an entire organisational culture of entrepreneurship (Azele et al. 2008). The scale of the university may be too wide such that the university may be more successful in entrepreneurship if led by key departments and units than by a formal centralised decision making process. Azele et al. (2008, 677) observe that there are certain laboratories and units that can be more easily considered and harnessed as academic heartlands; as entrepreneurial centres or centres of excellence. Statistics from their study at the *Université Libre de Bruxelles* present a high concentration in certain parts (for instance 80 per cent in biotechnology) thus suggesting the importance of nurturing those activities locally, rather than through top-down actions. Azele et al. (2008) argues that ambitions to get entrepreneurship spread across the university can stretch the university's resources.

In line with Etzkowitz and Zhou (2008) on the importance of a "critical mass of research" with commercial potential, Azele et al. (2008) propose the importance of reviewing the scientific quality and research strengths and market-friendliness of certain programmes and then capitalising on them. Azele et al. (2008) conclude that entrepreneurial cultures can be facilitated by developing exemplary entrepreneurial islands around departments. As Gjerding et al. (2006) who studied the five entrepreneurial pathways of Clark (1998), Azele et al (2006) claims that the first three of those pathways (see 4.7.6 and Table 8), especially "enhanced periphery" seem to be the more relevant. Then, decentralisation and creating specialised units are very important and can be even more helpful for more direct relations with industries. Also, funding and regulations was seen to drive entrepreneurship in the case the Walloon Region to which the study relates. Azele et al. (2006, 676) observe the importance of regional policies as drivers of entrepreneurialism in universities. However, Clark's framework has also been criticised for having been too broad (Azele et

al. 2008; Martinelli et al. 2004) and having focussed so much on entrepreneurialism as an institutional characteristic (Shattock 2005; Goktepe-Hulten 2008).

4.8 Models/Levels of Entrepreneurship

In relation to the triple helix concept to which the adoption of the entrepreneurial university was referred to in this study (see 4.7.1 and Figure 4), Etzkowitz and Zhou (2008) assume that entrepreneurship is determined by the proportion and leading role of each helix (university, government, industry) and the quality of their interactions. In light of these notions, Etzkowitz & Zhou (2008) establish the first three models of the entrepreneurial university in the table that follows. However, like Clark (1998), the three models by Etzkowitz and Zhou (2008) seem to have a gap in the sense that they seem to view entrepreneurship mostly as an institutional⁷¹ characteristic. Because of the importance of the entrepreneurial scientists in the basic units and their roles in fostering the related cultures and in relation to the context of the study⁷² it is postulated here to include and articulate on the scientist-led Model to the three as follows:

⁷¹ University, firm, government in the organisational (institutional) sense.

⁷² The researcher identified earlier from a pilot data collection that research and entrepreneurship in Cameroon is mostly researcher-led (based on individual contacts) thus likened to the scientist-led model (Goktepe-Hulten (2008).

Table 9: Models⁷³/Levels of entrepreneurship in higher education.

No.	Model	Level	Description	Cases
1.	<i>Government-pulled</i>	<i>Government/Policy/Macro-system Level</i>	Universities promote the development of industries and the creation of new industries at the behest of government	China, Singapore, Finland
			Policy dimension of how universities may contribute to economic and social development	
2.	<i>University pushed</i>	<i>University/Meso Level</i>	Bottom-up initiatives from within the university	Cases of spin off companies. Example of MIT, Stanford among others
			University initiate the innovation and cooperation process	
			Jumpstart and lead the innovation process in greater proportion	
			Organisational structures of the university and level at which it is reconfigured to support entrepreneurship and innovation	
3.	<i>Corporate or industry led</i>	<i>Interactional Level (Demand-driven)</i>	Universities act in response to demands from industry	Turkey
4.	<i>Scientist-led</i>	<i>Micro-Individual level</i>	Scientists are important actors and media in shaping the entrepreneurial university	Sweden
			Motivation and interest of individual academics and leaders of research groups	

Author's modification from Etzkowitz and Zhou (2008) and Goktepe-Hulten (2008)

4.8.1 Rethinking Entrepreneurship from the Scientist-Led Model

The basic notion about the *scientist-led* model is that entrepreneurship is realised by people and not the organisation. It is believed that leading scientists are those who induce and indirectly institutionalise entrepreneurship in the university. However, the literature

⁷³ "Level" is an addition of the researcher. The authors did not state at what level these models operate or are dominant. The models seem to implicate different levels of the higher education system and thus important to highlight. See Multilevel Framework in the previous chapters.

on the entrepreneurial university hardly does justice to these individuals. For instance, about half of the studies on entrepreneurship in higher education have focussed mostly on the university as the unit of analysis and the rest either on firms, business incubators or technology transfer offices (Goktepe-Hulten 2008). Scholars of the scientist-led model of the entrepreneurial university postulate that leading entrepreneurial scientists and academic research group leaders are indispensable actors and media in shaping entrepreneurial cultures of universities.

The scientist-led entrepreneurship would also be rooted in the broader concept of “*intrapreneurship*” whereby it is entrepreneurial individuals who are perceived to innovate within large organisations and acting as change agents. They may even challenge bureaucracy and end up creating successful operations (Goktepe-Hulten 2008). Scientist-led entrepreneurship reinvigorates and buttresses earlier theorisations about the university as a bottom-heavy institution (Clark 1983); a fact which remains crucial for the policymaking processes in higher education. Although scientist-led entrepreneurship was the traditional form of entrepreneurship before 1980, where entrepreneurship was mostly seen in the light of individual academics seeking research support (Etzkowitz et al. 2008, 685), it remains crucial for entrepreneurship⁷⁴.

Like the conceptualisation of Azele et al. (2008) on the identification and capitalisation on “*entrepreneurial island*”, it is argued that university entrepreneurialism is highly concentrated in the minds and abilities of a few individuals. According to the authors, these individuals imprint their behaviours on the research group and help to nurture entrepreneurial activities in the university (Goktepe-Hulten 2008). It has been observed that even in the top and large research universities with greater capacities and propensity for entrepreneurship in the organisational sense, entrepreneurial activities are mostly carried on in smaller units and research groups as opposed to larger institutional, faculty and departmental structures. The researchers do not work in isolation but collectively in these research groups, sometimes, interdisciplinary groups and this collective mode becoming more frequent (as per Hicks & Katz 1997 in Goktepe-Hulten 2008, 659). In such groups there are either leaders who are more influential, establishing the group norms and cultures that may contribute to making the university entrepreneurial and on the other hand, junior members and colleagues who are exposed to the behaviours of the influential ones (*ibid.*).

Proponents of the scientist-led model of entrepreneurship posit that it is important to know what roles the leaders of such groups, scientists and leading academics play in university entrepreneurialism. Through the study of one of the Swedish research institutions, the University of Lund, on the role academic leaders and individual academics play towards university entrepreneurialism, Goktepe-Hulten (2008) reveal that the

⁷⁴ This is because of the power of knowledge in the academic institution and the autonomy, authority and rulership which knowledge expertise grants to individual professors (Clark 1983). They remain carriers of entrepreneurship. Also see Clark (1998; 2004) on the foremost importance of the academic heartland in the entrepreneurial university.

behaviours of the entrepreneurial research group leaders and role models influence and institutionalise the culture of entrepreneurialism (Goktepe-Hulten 2008, 657 & 658). The enterprising research leaders are important media in creating the connection between the university and industry. They create the contacts, the relationship between the university and industry and the relationships generally taking the form of a communication network between the scientists, research groups, technology transfer offices and firms. The importance of these individual contacts is evidenced by the fact that the university's relationship with leading Swedish companies like Volvo, Astra and Ericsson were mostly established in informal manners between individual scientists who design solutions to problems in such relatively large firms.

The thesis on the importance of the networking supports earlier claims by other authors (Standkiewicz 1997; Etzkowitz et al. 2005; Jacob & Orsenigo 2006) who posit that university transfer activities are often informal and the outcomes seldom systematic. Goktepe-Hulten (2008, 68) posits that the characteristics of such individuals who engage in such contacts and facilitate communication between and amongst members of the networks are important driving forces for the entrepreneurial university. Goktepe-Hulten (2008) draws on earlier works on the concept of *social imprinting* which relates to norms associated with training which influence subsequent behaviours and drive the adoption and diffusion of new practices. Applied to the university, this concept of social imprinting (Bercovitz & Feldman 2008) suggests that faculty participation in such groups may be influenced by training, leadership and peer effects. The argument holds that scientists are likely to be involved in technology transfer from what they observe their peers to be doing (Goktepe-Hulten 2008, 659). Again, this argument corroborates other claims that the most important factor for the involvement of scientists in research groups is group norms and cultures (Louis et al. 1989). Scholars of the scientist led school of thought conclude that strategies, policies and structures may have little effect on commercialisation or entrepreneurial activities (Goktepe-Hulten 2008, 659).

4.9 From Theory to Practice

The theoretical framework of the present study began with a re-examination of the material with which higher education works and can offer in the socio-economic development of Cameroon and some of the basic characteristics of higher education (cf. 4.1). This re-examination provided suggestions to implications for transformation in higher education. Needless to overemphasise that because the higher education system was responding to socio-economic development and poverty reduction in its external environment, it was necessary to adopt a framework that depicts such an external environment, hence, the national innovation system. We moved on to identify the conceptual framework of a university that depicts a university interacting with its environment and resolved on the "entrepreneurial university". There was also the necessity to identify the mission of the

university that can accommodate the socio-economic and poverty reduction function and the concept of “third mission” was resolved on.

It will therefore be in the spirit of these assumptions about the material to be offered (knowledge), the implications for the traditional characteristics, organisational patterns, cultures, governance and activities of HE that this study on the transformation process towards socio-economic development and poverty reduction in Cameroon higher education proceeds. It is with the guide of the theoretical framework that the analytical framework in the next section is built and from which the transformation process in Cameroon was mirrored. It is with the guide of the national innovation system, especially the broad approach prescribed by its related literature for developing countries that the system analytical framework is built. It is specifically the related concepts and themes about the entrepreneurial university and third mission as the adaptation mechanisms of universities to the demands of their system environments which are used to check the ongoing transformation in Cameroonian higher education⁷⁵. The analytical frameworks in the next section will therefore represent a transition point between the theoretical framework and the empirical part of the work. It is the starting point for the contextualisation of the theory, from which the picture (the context of the study) begins to be placed into the frame of the theory and the implications and areas for internal transformation of higher education are released from the theoretical framework.

4.9.1 Systemic Analytical Framework of the Study

In the study an attempt was made through Figure 5 to create a national framework reflecting the broad approach (Lundvall et al. 2002; Ernst & Lundvall 1997; Johnson & Segura-Bonilla 2001; Arocena & Sutz 2005; Arocena & Sutz 1999; Gu 1999) of the national innovation system (NIS). The framework positions the university as a leading actor in the national system and thus using the whole system, in consideration of the other elements of the system to mirror, adjust and transform itself as below:

⁷⁵ For further clarification see the theoretical perspective of the study in previous chapter, especially 3.1.1.

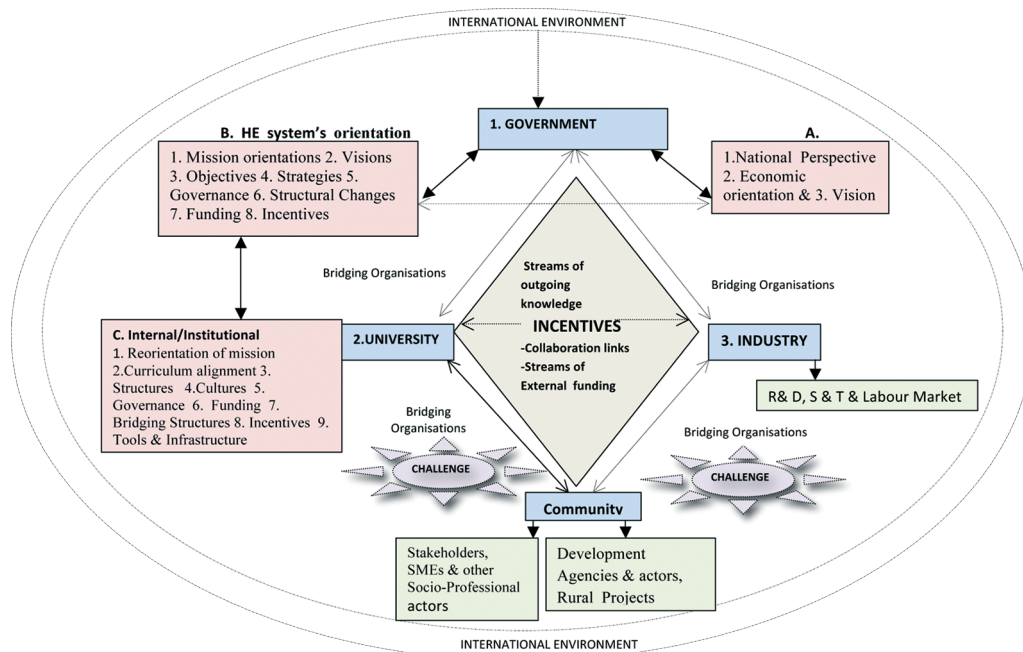


Figure 5: Framework for systemic adaptation of the Cameroonian higher education subsector

The broad approach of the national innovation system suggests that the major factors and actors that affect the economy and technical change are brought together into an analysis (Lundvall 2002). In the framework above, higher education (the university) is positioned as one of the system's actors, supposedly permeable to its socio-economic environment (not operating in isolation but having to interact with other actors of the system). Because higher education, especially the public institution, until today has traditionally been a creature of the nation-state (Scott 2003), it is bound to succumb to the orientations and perspectives of state legislatures and at times, in the case of Cameroon, presidential directives⁷⁶. Above all, HE is mostly financed from the state budgets with the power of the purse having, to a great extent, to steer their activities. To this effect, it was necessary to examine the current national development and economic orientation of Cameroon with regard to the use of HE, the system level (see the first box, A).

Although the orientations of HE may flow or be steered from different layers beyond the HE system, it was realised during a pilot interview⁷⁷ that took place before the study proper that national perspectives on the use of HE (knowledge) may not correlate strongly with those of internal actors (in the HE sector). This is buttressed for instance, by divergences between policymakers of the Ministry of the Economy (MINEPAT) in Cameroon and

⁷⁶ That is, even if universities have been traditionally known to have trajectories of their own.

⁷⁷ See previous chapter.

those of the HE subsector on the perspective and role of HE during the draft of the long term development vision of Cameroon (the GESP 2009). The differences in perspective may be attributed to the professional nature of universities which makes it difficult for external actors to perceive and master higher education the way the internal actors will. Hence, it was necessary to differentiate and analyse the system-level orientation from those of the internal actors of the HE system. This perspective produced the second box (B) for the HE system. It was because the HE is a bottom-heavy subsector (Clark 1983), with much power usually being produced in a bottom-up direction from the operational units, that the second box (B) was further separated into two; a system (policy) level and institutional (university) level. This led to a third box (C) for the institutional (university) level proper.

The quadruple structure in the middle of the framework (Figure 5) was conceived from a triangular connection, depicting an innovation system that is characterised by the triple helix (see Etzkowitz and Leydesdorff 1997; 2002). The first upward isosceles triangle in the figure represents the tripartite arrangement (triple helix) and connection between three major actors playing different roles in the innovation system as follows:

Table 10: Expected roles of the major actors in the Triple Helix

Actor	Role(s)
1. The Government	Connecting the university to industry
	Coordinating, regulating and providing funding
2. The University	Standing as knowledge, skills creator and supplier to industries and the society
	Providing the physical environment for research, teaching and training
	Disseminating disciplinary specialised-knowledge for industries and the society
	Participating in innovation through R & D
	Providing knowledge for development of S & T
	Providing incentives for academics as executors of interactions and cooperation
3. The industry	Cooperating with universities
	Providing of resources
	Providing feedbacks to universities
	Linking interactions to the market, society and the global knowledge economy

Modified from Etzkowitz & Leydesdorff 1997; Etzkowitz 2000; 2003; 2004 and Hölttä 2007,

The quadruple structure in Figure 5 therefore resulted from the addition of the community angle to the triple helix and it was based on the perception that the triple helix may be insufficient in the developing country's context of the study. One of the reasons is that

most of the innovations and R & D for firms and industries in developing countries which may require the university's service may not be carried out in the countries themselves. Though not confined to developing countries alone, most of their innovation is related to the absorption of technology and competence building rather than resulting in "new-to-the-world" innovations (Viotti 2002). This situation complicates and oversimplifies the concept of industry in developing countries. Besides, systems of innovation in developing countries are different and predominantly characterised by the informal sector (Gu 1999). The systems are especially more heterogeneous than those of developed countries (Lundvall et al. 2002; 2009). Consequently, most of the production and innovation in developing countries are not a product of formally articulated R & D (Interakumnerd et al. 2002, 1, 146).

In the case of Cameroon, diverse and less organised actors and bodies must be taken into consideration. There is an informal sector of the economy which may neither be situated nor be structured clearly as the public nor private sector. This informal sector with diverse agents may not easily be captured in the definitions of "industries" and "companies" but, are likely to cooperate with and can potentially benefit from the services of the university and vice versa. For instance, 70 per cent of Cameroonian employment is in the informal sector and forms a significant part of its economy and growth (GESP 2009). Innovation policies can target such constrained economic conditions or particular economic activities such as agriculture or structures of the informal economy that dominate economic structures of most developing countries (Chaminade et al. 2010). Scholars of the national innovation system suggest that the building blocks and main drivers of the system need to be understood. Because of the numerous reasons for the peculiarity of developing countries, it was therefore deemed necessary to create another angle in the main triangle called "Community"⁷⁸ (No. 4). This additional angle therefore produced the opposite triangle forming the rectangle, hence a "Quadruple Helix". This "Community" angle encompasses diverse actors, rural communities, SMEs, socio-professional actors, development agents⁷⁹, civil organisations and individuals.

It was also necessary to find indicators of such university-industry-society linkages in the case study. Some of such linkages were to be indicated by streams of external or third mission incomes and streams of outgoing knowledge from the universities to industries and incentives for the industrial and societal application of knowledge as well as evidence of cooperation links⁸⁰. These were represented in the Figure 5 by the two arrows between the universities and the industry. Viewing the identity and functions of universities as educational and training institutions, it was considered that the imposition of external missions like economic development and poverty reduction may be tantamount to

⁷⁸ It is also this idea to add a community angle to the triple Helix that is carried forward for the conceptualisation of the community innovation system as a means of improving the university's connection with the poor rural communities in the developing country's context (see 6.3 to 6.3.4).

⁷⁹ Including the international agents.

⁸⁰ For instance, Memorandum of Understanding (MOU) between the university and industry.

overcharge and even distract the university from its core missions. There was therefore the necessity to explore other means by which the university is connected, wherein the importance of bridging or mediating structures emerge. These bridging structures and organisations are represented in the framework by the thin arrows running from the system/government level to the universities and industries and from the universities and industries down to the “Community” angle. These bridging or intermediate structures have been identified to exist at two levels: the governance and operational levels (Hölttä 2007). At the governance level, these bridging or intermediate structures are represented by the two thin arrows running from “Actor 2”, the university to government and “Actor 3” between industry and government⁸¹. The operational level is represented by the two thin arrows from the university to the “Community” and “industry” angles.

In national innovation systems and knowledge economies, the “governance” bridging structures may include research and science councils, academies and funding bodies which act as intermediaries between the government, the university and the rest of the innovation system. The bridging structures and organisations at the operational levels may include technology transfer offices and science parks operating between research and advancing the process of transformation of knowledge to products as well as feed back to the universities (Hölttä 2007, 23). It seemed indispensable to identify the challenges involved in the universities’ interaction with the rest of its socio-economic environment. These were represented in the design by the two star-like figures at the bottom of the inner circle of the framework. The additional circle depicts the “international” environment of the universities. This is based on the argument that with globalisation, innovations may no longer be concentrated within the boundaries of a nation state and thus a limitation to the triple helix. This situation was illustrated in the study especially with the case of a developing country, Cameroon, where its international environment may play a highly significant role in steering the activities of its HE and in providing resources.

4.9.2 Institutional Analytical Framework

It is necessary to state that the design of the previous system view and environment of the university (see Figure 5) that was represented by the national innovation system (NIS) framework was merely illustrative and collective. The use of the NIS, especially with a perspective on the broad approach represented a collection and illustration of some of the major elements within the open external environment of the higher education system. This subsection takes a practical approach on the internal adaptation and transformation process in the higher education subsystem⁸² (thus Box C in Figure 5) in response to its national socio-economic system and inherent needs. Again, it must be said that the related themes in the analytical framework for the analysis of the transformation process

⁸¹ See Table 10 also.

⁸² This is where the real focus of the study was.

in higher education (see Boxes B & C) were not chosen at random but based on certain theoretical and conceptual frameworks in higher education studies and research. They represent some major themes around third mission and entrepreneurialism which were assumed as frameworks to embrace the socio-economic mission, improve interactions and open up the university to its external socio-economic system. The thematic areas were further elaborated upon⁸³ into a checklist of items in higher education management and policymaking that may be easily affected through the new socio-economic mission of higher education as seen in Figure 6 below.

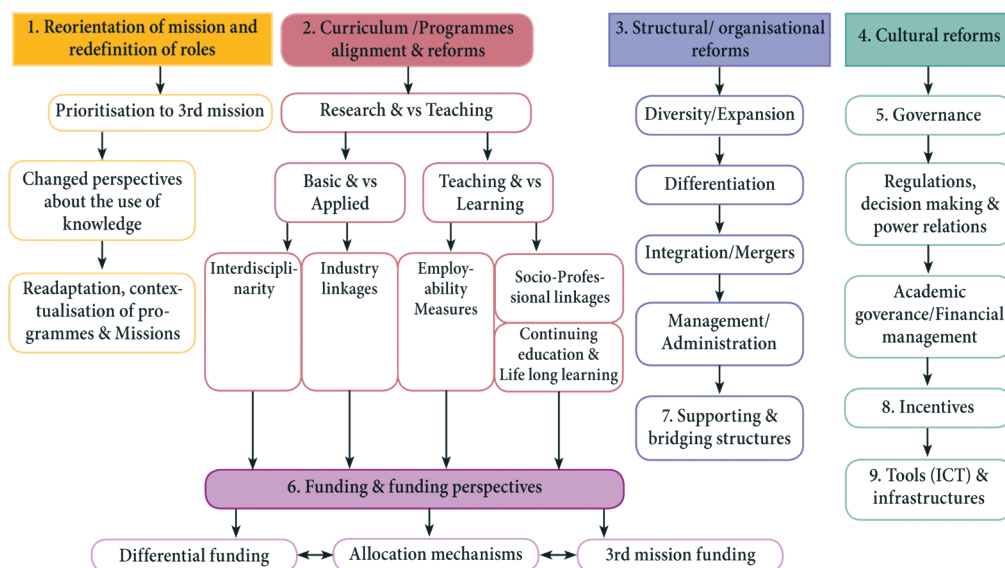


Figure 6: Institutional Reform Areas for the Responsiveness of Higher Education in Socio-Economic Development

The above thematic framework conveys the implications and transformation processes that take place in higher education and its institutions as a result of its insertion in the NIS and socio-economic development. It begins with the premise that the insertion of the university into the NIS calls for an internal reorientation of missions, functions and roles in favour of prioritisation and reinforcement of its third mission and localisation of higher education in its immediate environment and to related sectors of the national system. One of the implications is that as a result of involvement in addressing the needs of the national innovation and production system, the university or HE system pays attention to its third mission⁸⁴. This implies that teaching and research in the university would not be

⁸³ With Justifications.

⁸⁴ See adopted working definition in 4.6 and further in 7.1 (Molas-Gallart & Castro-Martino 2007; Molas-Gallart et al. 2002).

done for their own sake but by reason of their applicability to the external environment (non-academic purposes).

Again, the framework builds on the premise that involvement of the university in NIS changes the university's perception of the use of knowledge and affects priorities and their relationships. It would necessarily call for a reassessment, reshuffling and redefinition of functions and missions, thus pointing to a new priority function. For instance, while the knowledge economy favours third and second missions (research), the learning economy which drives and sustains the knowledge economy makes more use of teaching and learning capabilities. Of course, priorities between teaching and research are often dynamic, context-driven and depend on prevailing discourses and perceptions about the nature and use of knowledge (Brew 1999; 2001). Although higher education seems to be massifying and the need to attain university access remains of prime importance, some functions like research remain selective and elitist. The current context and political climate of knowledge today suggests that research plays a more efficient role in innovation through the production, transfer and application of knowledge for the economic development and international competitiveness of nations (Laredo 2007; Altbach et al. 2009, 147). Due to that dependence of knowledge economy on new knowledge particular attention can be paid to research, research protected from the teaching function through various vertical and institutional differentiation policies. The above implies an increase in investment in university research. By the same token, the traditional dynamics of knowledge production in universities has been affected, in particular, by a dominant drift from basic to applied research but there are implications for basic research as well.

The above indicates that more research be done in the context of or focus on applicability and market values. By the same token, the market becomes a decisive factor in university policies and processes. As a result, university research finds itself drawing mainly towards what has been described (cf. 4.1) as the transition from *Mode I* to *Mode II* (Gibbons et al. 1994). The transition to *Mode II* depicts a shift from academic science, which was governed by the academic community and its peer review mechanisms, to knowledge production in the context of application (Arbo & Benneworth 2008). It is observed to reflect a new "interactive" conceptualisation of the use of knowledge. For instance, under *Mode I*, it was the academic community that spoke to society but in the latter society speaks back to the academic community (ibid.). In the past, the university was dominantly known for basic research. Big sciences did not favour academic research (Gibbon et al. 1997; Altbach et al. 2009). Such big sciences were usually dedicated to specific institutes. In most (modern) universities more interdependent relationships are being developed between universities and industries (Hasley 1992, 13). It has been observed that research endeavours are increasingly geared towards the requirements of governments and industries with applicability objectives. This leads to the loss of ground by some isolated institutes and a more blurred boundary between basic and applied research (Altbach et al. 2009, 141). Over the last three decades, university systems have witnessed an upward

trend in industry-funded research (Altbach et al. 2009). Several reasons account for the upward trend in university-industry linkages and by implication applied research but the trends present both opportunities and threats to universities⁸⁵.

The general phenomenon of diminishing funding in higher education is leading universities to become more entrepreneurial. Secondly, the fact that most economies are today knowledge-driven has reinforced the interaction between universities and their socio-economic actors. Third, most developed countries are increasingly adopting the above “open” or “system” model of innovation⁸⁶ which includes universities and which supposes that research-oriented companies should work closely with universities. This perspective also suggests differences in the effect of basic research which, according to Lundvall (2002b) depends on how the linkages between firms and knowledge institutions have been shaped by history. The open or interactive model of innovations reinforces the role of demand or client side. The client side becomes a decisive factor in shaping the development of knowledge. More relationships with industry are perceived as decisive assets for research institutions. Recent processes of the commercialization of research have also resulted in closer links with industry and more applied research.

As much as research is emphasised as a leading mission for the innovation system because of its knowledge production capacity, it has been observed that teaching remains one of the comparative advantages of the university compared to other research (knowledge producing) organisations, especially when linked to research and economic development (Etzkowitz & Leydesdorff 2000, 117). Teaching-only institutions or levels would always be inevitable to meet the needs of an extremely heterogeneous student body and nurture the capacity for specialised functions (Altbach et al. 2009, 140). Etzkowitz & Leydesdorff (2000) assert that students are the potential inventors and they represent a dynamic flow of human capital as opposed to the more static nature of other research organisations (industrial laboratories and institutes). As depicted by the constant passage of new student generations the university’s important role and capacity to “*combine continuity with change*”, is second to none (Etzkowitz & Leydesdorff 2000, 118). There is also the implication for universities to participate through the use of teaching and research in strengthening the learning society, as part of their third mission. As much as knowledge accelerates technical and scientific change that drives economies, it also contributes to rapid obsolescence (Powell and Snellman 2004) thus attaching importance to commensurate learning. Lundvall et al. (2002, 222) observe that the learning economy gives premium for fast learning. Therefore, proficient learners would certainly have an easy time in the learning economy and in labour markets (Lundvall 2002b).

In the same magnitude, proficient learning national economies would constantly have an edge over dormant ones and the route and rate of learning will determine the gap between nations. Fast learning is observed through the innovations and changes that can be seen

⁸⁵ See pitfalls and downsides in 9.5.

⁸⁶ See theoretical framework.

in new products, brands and technologies. As the speed of learning increases products, technologies and services become obsolete. Consequently, the life span of products and services become shorter. Universities assume the role of providing continuous learning to update innovations as well as learning and adapting the university's processes. The acceleration in the learning economy or innovation system also poses new challenges to competence building. Universities assume the responsibility of permanently upgrading candidates. It is apparent in life-long learning that every university can participate in third mission; the simply example being adult learning especially in developing societies with a high illiteracy rate where every university could contribute in its own way to the development of a learning society. It is especially in life-long learning that the role of universities in tailoring part of their capabilities (teaching and research) to the learning society as well as individual socio-economic and cultural requirements is visible. This is, for instance, through part time programmes for non traditional students, adult education programmes, tailor-made courses, contract or commissioned education, job tailored courses, open university courses, teacher training programmes, distance learning and professional degree.

The inclusion and emphasis on the university's role in the innovation system generates additional pressure which necessitates structural orientation and different types of institutions. Boulton (2009) observes that to emphasise the direct socio-economic relevance of the conventional university's activities is like trying to "move the graveyard". As such, some diversity and differentiation are needed for flexibility, adaptability and responsiveness to such direct needs. The type of diversity in higher education entails the institutionalisation or creation of a vast array of higher education institutions, study programmes, subsystems and sectors. There is also a combination of a variety of types and dispersion of entities across the types (Huisman 1998, 79). Diversity can be one of the effective ways of structuring the service function from an institutional perspective. In the 1990s, Finland undertook a major diversity reform leading to the binary system (see also Huisman 1998; Kyvik 2004). A non-university sector (of polytechnics or universities of applied sciences) was created within the system to serve more specific regional and national socio-economic needs (Finnish Ministry of Education, 1992). Because of that policy design, the experience suggests today that the polytechnics or universities of applied sciences impact more directly on their regional environments. The streams of funding from external socio-economic actors are a good indicator that they are specifically third mission universities. The same holds for differentiation.

With differentiation new structures or functions are created from an integrated whole (Kyvik 2004). The particularities and urgency of some of the needs suggest the indispensability of a certain institutional and functional differentiation such that some of the functions can be protected to achieve the desired quality, excellence or relevance. Diversity and differentiation would seem to be necessary evils and panaceas to cope with the multifaceted needs of higher education systems. Lundvall (2002b, 7) asserts

that the gordian knot may easily be cut through institutional differentiation between and within institutions concerned with knowledge production. Another trend to ensure the efficiency of universities in innovation is through mergers or integration. There are cases like China, Denmark, Germany, Norway and Finland⁸⁷ that have been oriented towards merger or situations whereby former research-only institutes are moved into the universities. Universities' responsiveness may be challenged at times by the traditional disciplinary patterns of knowledge based on which the university has been organized and governed. This would necessitate cooperation between disciplines or knowledge of other sectors termed interdisciplinarity or transdisciplinarity or the cited *Mode I to Mode II* of knowledge organisation (Gibbons et al. 1994).

Recruiting universities to play more efficient roles in knowledge or innovation based economy would affect the relationship between governments and universities and would call for redefinition of roles in the steering of HEIs. The insertion of the university in the NIS reinforces the role of third parties and the market. University institutions need to acquire the latitude to become business smart, seek different niches of collaboration (also funding) from different business groups and sectors in the innovation system. They need to be able to manage and manoeuvre with their own resources. Even by seeking funding from non-government sources, universities would consequently be strengthening their interactions in the system. Consequently the role of the government changes and the government itself becomes only one out of the many stakeholders of universities. The experience in most developed countries has been a shift from strong government steering to more autonomous institutions (Peters 2001; Osborne & Gaebler 1992; de Boer & Goedegebuure 2003; Maassen & van Vught 1994; Neave 1998).

The inclusion of universities into the innovation system also affects decision-making structures and instances in the university. The university had traditionally been run by academics and according to Clark (1983), the academic oligarchy. Academics exerted the greatest influence in university affairs through various guilds and collegial decision-making bodies. With the business environment that surrounds and pressures the university, the university expected to be more responsive, flexible and adaptive, the collegial mode of governance becomes too slow and cumbersome to cope with the needs and pressures of the business environment (de Boer & Goedegebuure 2003, 215). Such business environments also require smart and risk-taking leaders. Recent experience shows a transition from the strong traditional continental mode of authority to strong executive heads where rectors and vice-chancellors no longer think of themselves as the *primus inter pares*⁸⁸ but as executives to provide quick responses. This transition also creates a weak middle as well⁸⁹ (de Boer & Goedegebuure 2003). Rendering the university more effective in national innovation necessitates cultural transformation

⁸⁷ Case of the recent 2009 university reforms (Ministry of Education, Finland),

⁸⁸ First among equals.

⁸⁹ Deans and Directors of Faculty and School (though relative in systems).

(Duke 2002). This leads to the importance of knowing the elements that constitute the organisational culture of the university. Interactions with socio-economic and regional actors may challenge both the epistemological and disciplinary bases of knowledge as well as their organisational forms in the university. When knowledge has to be employed for application or contextual problem-solving in its external socio-economic environments it may be difficult for one discipline (Stromeir 2007).

The inclusion of the university in the NIS not only points to an increase in the funding of higher education and university research but to a new rationale for funding higher education research and its various missions of teaching and service. It will be argued in this study that a perspective on the knowledge economy requires funding through subsidies as well as incentives that should increase and facilitate access to higher education. These also include various loan schemes and scholarships. These access-related incentives guarantee both the public nature of knowledge and the supply side of the human capital that is necessary for national economic development. Also, as higher education is moving towards a second revolution of socio-economic development, there is a necessity for cultural change also in terms of motivation to drive the required cultural change. Since academics have been too confined to their disciplinary bounded cultures, it is also suggested that they need further incentives beyond scientific remuneration to motivate them towards their external socio-economic environment, including the inclusion of economic impacts as part of their evaluations and career mobility (Duke 2002; Holtta 2007). Finally, the inclusion of the university into the innovation system necessitates more innovative and perhaps sophisticated mechanisms in the allocation of funding. Because of direct and urgent demands and speed in the NIS, some objectives of higher education become more strategic and urgent than others, thus requiring commensurate incentives and concentration of funding. For instance, the necessity for universities to participate in strengthening their national knowledge economies, especially through research also affects the funding patterns and formulae in higher education. The traditional pattern of block funding of higher education which was simply based on expenditures seems to be fading away. Various patterns of performance based funding seem visible in most developed and industrialised nations (see OECD 1990; Eurydice 2008); all of which aim at obligation for more direct and visible results.

Chapter Five

Changing Missions and Roles of Higher Education in Cameroon

The objectives and research questions of this study centred around analysing the perceptions of Cameroonian higher education policymakers and actors about the use of higher education in the socio-economic development and poverty reduction strategies in Cameroon, the ensuing transformation processes and their relationship to the theoretical frameworks in higher education studies and research. In response to the objectives and research questions (cf. 1.3.1 and 1.3.2) this chapter presents the empirical data on the perceptions and strategies of the HE policymakers and participants about the subject. The quotations in this chapter and those that follow represent the opinions of those who participated in the study and those conveyed in related policy documents from and about the HE system in Cameroon. The views also describe the different levels of activity (responsibility) of the participants which were coded as “P”, “Q”, “R” (cf. 3.5) for system policymakers, university administrators and basic unit staff (academic researchers), respectively⁹⁰.

5.1 Perceptions on the Developmental roles

The integration of higher education as a major driver of the poverty reduction policy in Cameroon could be said to be rooted in its background as the fruit of discussions with its development partners. It is also a result of the proactive and sensitising efforts of Cameroonian higher education authorities during the policy processes and debates which culminated to the design of the recent poverty reduction strategy paper for Cameroon, especially the Growth and Employment Strategy Paper (GESP) (2009). From an institutional point of view, the integration could be viewed as revolutionary in the sense that the prescriptions of the development partners were contrary. One respondent reveals this revolutionary perspective as follows:

Higher education appeared to our development partners as if it was a luxury to us. Certain measures were practically imposed and which we saw as relegating higher

⁹⁰ In respect of the multilevel framework of the study (see 3.2 and Figure 3).

education to the background. We felt that to marginalise higher education was detrimental to and inconsistent with modern paradigms of economic development (P2).

According to the respondent, one of such measure by which higher education was being undervalued in Cameroon was in the funding formulae proposed by the development partners. For each 100 FCFA that was to be put into the educational sector of 4 ministries, 50 FCFA were to go to basic education, 35 to secondary (general and technical) education and 15 were to be shared marginally between professional training and higher education (thus 7.5 FCFA)⁹¹ (P2). Respondent P2 observes that this marginalisation was paradoxically happening at a time when they “were already seeing from other parts of the world that higher education was becoming a critical instrument for economic development and needed more investments” (P2).

Similar disagreements could be observed even at the national level between the Ministry of the Economy and Regional Development (MINEPAT) which was in charge of drafting the long-term development vision of Cameroon up to 2035. It is interesting to note from the interviewees that so far, there was no elaborate strategy on the use of higher education from a macro-economic perspective and even the two Poverty Reduction Strategy Papers of 2003 and 2006 (cf. 1.1 & 2.5) had simply and in passing, highlighted higher education. When it came to correcting the PRSP which was renamed GESP, the higher education authorities appeared to have put a lot of weight into making clear their points on the crucial role of higher education. Some of such proactive efforts were manifested by several reflections and debates on the contribution of HE to development.

The policymakers in Cameroon higher education argue that in this age where economies are grossly evolving to become knowledge based, it was not possible to be designing the development perspective of Cameroon up to 2035 without higher education being at the heart of the strategy. They cited the example that Cameroon could not talk about the recent heavy structural projects without talking about “*man*”, the human resource, let alone about “*an increasing transition towards the service sectors, without higher education being seen as a major driver*” (P2). Otherwise, failure to centralise higher education in the strategies (according to the respondents) was tantamount to a return to the post independence years when the country depended on expatriates. The new projects were therefore seen to create graduate jobs and “*even if they were being conceived by expatriates, they were to require maintenance and entail high quality and graduate-related skills*” (P2).

One perspective that was clarified by the policymakers concerned the need for higher education to have a general focus. Drawing on the responses, there seemed to be a direct and unanimous focus on “*growth*”, especially knowledge based economic growth with higher education being seen both as its strategy and means. This perspective was consistent with the Growth and Employment Strategy Paper (GESP) itself which capitalises on economic

⁹¹ Call it 7.5 percent.

growth and employment for the first decade of the long term vision of Cameroon to be an emergent nation by 2035. The respondents argue that poverty reduction is so multifaceted and fluid in definition that it is supposed to be a multisectoral issue. As such, if a sector like higher education has to participate in poverty reduction, it must be able to direct its focus where its impact can be most visible and narrow down its specific roles; granted that it can participate in the different sectors through training, research and capacity-building (P1 and P2). P1 argues that poverty reduction cannot be a sustainable strategy. According to this perspective, it is growth and employment that can easily contribute to reducing poverty and not *vice versa*. *“It is wealth and its creation that can impact on poverty reduction and not vice versa”* (P1). Therefore, they in higher education have to target at how they *“can participate in creating wealth and employment and for their products (graduates) to enjoy the wealth and participate in the new wealth creation”* (P2). The expectations, according to P2 are that the growth and related non pecuniary benefits of higher education spread to the rest of society. *“If the strategy is to ‘reduce poverty, reduce poverty’ then there is no perspective”* (P 2).

One orientation and strategy that seems clearly discernible about the current perspective of the Cameroon policymakers in terms of the engagement and direct contribution of higher education in the ongoing growth and poverty reduction policies is that of a *“a greater, more relevant, adaptable and employable poll of graduates”* (P1). Judging from the current state of affairs, it is in curriculum reforms (technological and professional development perspective) that seem to drive advances in relation to the growth and poverty reduction policies through higher education in Cameroon. This policy perspective would seem to be consistent with the reality that Cameroonian higher education institutions, at least in the global comparative sense are teaching institution. As such, curriculum transformation seemed above all, to be the prime instrument for engaging the Cameroonian university in redressing societal problems within the current context (P1 and P2). It was expected, according to P1 and P2, that the outcome of the professionalisation and curriculum reforms could be visible within a few years; and research can perhaps be of long term. That is why they immediately preferred curriculum reforms and professionalisation. Meanwhile, *“parallel strategies were to be designed in terms of applied research”* as the second main item for the socio-economic involvement of higher education (P2). The research perspective holds that the higher education sector has to be capable of producing knowledge that can be re-injected into the production system to maintain and sustain the development process (P1).

As stated by the respondents, the changing vision for higher education in Cameroon has required adjustments in its statutory referential policy documents. The recent Sectoral Policy Document for Higher Education (Sectoral Policy Document, SPD 2010) in Cameroon states that the role of higher education, as required by the current dispensation and dynamics of economic development, goes beyond that of the mere supply of human capital. Besides that the university establishments should be more prepared to train highly

qualified personnel, *“such personnel must be adapted to being the knowledge (production, diffusion and dissemination) workers that ‘the new economy’ demands”* (SPD 2010). Their productivity (according to the SPD) would be better evaluated from their ability to *“translate research into innovations”* (SPD 2010). Governance wise⁹², the document emphasises the implication that these new orientations and especially the quest for “excellence” in teaching and research usually necessitates a transformation and changes in the relationship between the university and various publics, political and private actors; notably between the government and the university and between the university and its establishments (SPD 2010). The document raises awareness of organisational autonomy, if the university has to become more strategic, acting much more like *“a strategic organisation”* capable of taking care of most of its ventures, risks and destiny. As a strategic organisation,

The university would have to be capable of defining its future, putting in place its proper development strategies and be able to establish the link between economic progress, scientific and technical innovations and research, and to produce economically useful knowledge for the development of local economies (SPD 2010, 2).

Noteworthy is a strong expression of awareness of the new or current paradigm of economic growth, notably of the relationship between “knowledge” and economic development, as depicted in the first lines and introductory paragraph of the SPD. According to the policymakers *“economic growth and sustainable development in any modern economy depends heavily on the quality of higher education and scientific research”* (P1). As a consequence, these changes to the new paradigms of economic growth not only implicate higher education but call for new roles, expectations and orientations where in any modern society higher education institutions come to be seen as *“facilitators of innovations; product innovations, process innovations, social innovations, organisational innovations and training and certification innovations”* (SPD 2010, 10).

Eliciting to understand the institutional position of the Cameroonian universities in the poverty reduction and economic development policies, the first respondent observed that the role lay in the traditional mission of the university as an educational, research and training institution. This role was said by this respondent to depend especially on the use of the university’s teaching and research mission “for the society” by *“promoting knowledge and acquisition of knowledge, building capacity and engaging in research which could be empirical for pure purposes or action-oriented* (R14). This means that

The university should be in the business of understanding what poverty is, knowing the elements of poverty, researching the problems of poverty, building capacity to address poverty and also designing projects for effective implementation of poverty reduction issues and collaborate with partners both government, industries and the civil society in this area (R14).

⁹² See the changing governance perspectives in 5.4.

The above respondent believes that the university is one of the most strategic organisations in knowledge and capacity building for economic development and poverty reduction in Africa and so it is “quite central”. The second respondent stated that

It is a clear vision for the university to contribute innovations and knowledge that will propel development. The university has to create programmes and do research with a perspective on innovation that will address the economic and development vision of the country. We have identified eleven clear areas in which the entire university can focus on. You can see our Research Policy and Management Guide (RPMG) at the university of Buea (Q9).

The above respondent emphasised that those areas of focus were not selected at random but based on the national Poverty Reduction Strategy Papers (PRPS) (the GESP) and the Millennium Development Goals. This perspective suggested that one of the strategies through higher education was the necessity for the universities to align their programmes and activities to the national development plans such as the PRPS. The third respondent raises issues about the institutional and functional identity of the university: *“you know the mission of the university is to produce and create knowledge and to transmit it. It is not the same case as the applied university. It is necessary to make this distinction such that universities are not asked to do what they cannot do”* (P6). This respondent further suggested that the university could embrace issues such as poverty reduction and economic development for which it is capable but *“this requires a lot of communication to the outside community on the potentials of the university”*. The expression employed by this respondent was that the university could be a *“jack of all trades”* as it can intervene in all the other sectors through training and research but there is the risk of losing its identity if it becomes a *“master of none”* or does not become a *“a master of its own”* by taking and showing its focus. The respondent argues about distinction or differentiation in institutional missions when it comes to *“direct, specific and strategic economic development needs”* (Q6).

According to a fourth respondent (Q8), the university’s role in the current socio-economic vision of Cameroon is about moving further from its traditional position to being able to participate in the development of industries and enterprises and innovations. Respondent Q8 raises the idea that Cameroonian universities have been contributing to economic development. Lamenting the absence of statistics, this interviewee cites the fact that most of the labour force that has been used in the economy has been trained in the Cameroonian educational system. *“From this perspective, the educational system has had an impact on society and the economy”* (Q8). However, the respondent observes that the constant low growth rate and the inability of the country to be globally and economically competitive, means that the Cameroonian educational system, especially higher education needs to go further. According to the respondent, a serious failure and which is a characteristic of developing countries is to use the university in the development of industries, enterprises and national innovations.

Now the university is not supposed to evolve in parallel manners with socio-economic and productive actors and structures but in total consonance with their activities. Is the Cameroonian University capable of developing its research which allows it to resolve the problems of small and medium size enterprises, is a major item in the current agenda (Q8).

The activities of the universities have to be beneficial to industries and enterprises. They have to be integrated into the national research and development agenda. We have trained Cameroonian graduates who are today the principle actors in the various sectors of the economy but that is not enough because you can see from the economy that the growth rate is weak (Q8)

The above implies, according to Q8 that besides theoretical and basic research there was the necessity for placing more emphasis on applied research. This respondent believes that Cameroonian universities have to support the efforts of innovations in the firms and develop applied research rather than importing all the technologies from abroad. *“We have to be capable of producing our technologies and even own patents and property rights”* (Q8). According to a fifth respondent, higher education is crucial to the critical mass of human capital and human resources that are needed to be created and put at the disposal of the economic society *“to permit it to respond to the needs of the productive sector, to create sufficient wealth to give to one another a level of income that can be capable of reducing poverty”* (Q7).

5.2 Strategies for the New Socio-economic Vision

In a preface that could be observed as a reception of the call for higher education to integrate and centralise itself in the development and poverty reduction strategy of Cameroon, the policymakers of the higher education system in Cameroon claim that it undoubtedly implies that the *“daily preoccupations (growth/poverty reduction) be embraced and translated into training programmes and more operational curricular”* (SUP INFOS 2010c, 7). This is interpreted further as a call for committed reforms and innovation by *“carrying out ontological changes for the acquisition of transformable authentic knowledge into know-how, proper action, good practices and adequate speed that is commensurate with the evolution of our time”* (SUP INFOS 2010C, 7). One facet of the engagement and changed role of the higher education in Cameroon seemed to be the necessity to increase the socio-economic, socio-professional and market-friendliness of the curriculum as well as their restructuring and reorganisation. This reorientation process of the Cameroon higher education could be seen to be constituted in the *“New University Governance Policy”* (NUGP) (cf. 1.2) which overlapped and accompanied recent programmes harmonisation reforms in Cameroon along the Bachelor, Master and Ph.D (BMP). The objective, as stated, is for the NUGP to serve as a guideline to acquire

a modern, professionalised higher education which is resolutely open to the rest of the society and meeting the requirements of knowledge production, of knowhow, of the use of knowledge and the production of human capital, quantitatively and qualitative which is necessary to drive Cameroon to become an emergent nation (Operational Strategy of the NUGP up to 2010).

The NUGP (MINESUP 2009) is operationalised into a block of broad long term objectives which are: to develop professional and entrepreneurship training, to reconfigure and diversify the geographical map and location of higher education establishments, to restructure academic and development research. There are also the objectives to implement a system of digital governance in higher education, strategize the employability of graduates and their insertion into the socio-professional world. There is capacity-building: to reinforce the steering and management capacities of the higher education system and finally to design and adapt student support systems. In 2010, the strategies were being prioritised and financed in seven tracks as below:

Table 11: Support programmes under the New University Governance Policy

No.	Programmes
1.	Support Programme for the Implementation of the Operational Strategy of New University Governance Policy
2.	Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE)
3.	Proposed creation of a Higher Education Free Zone
4.	Proposed creation of the Virtual University of Cameroon and the promotion of distance learning
5.	Support Programme for the Integration of ICT in Higher Education
6.	Support Programme for the Entrepreneurial and Income-generating Initiatives of the Higher Education System
7.	Support Programme for Student Support Systems

Source: MINESUP (2009). Operational Strategy of the New University Governance Policy.

In order to keep the analysis manageable within the scope of the study, the researcher found it necessary to capitalise on a few of the above tracks which were directly related to the theoretical framework of the study. However, seeing that some of the tracks were related but more marginal, they have been centralised according to the theoretical framework and thus include: *Entrepreneurship* (see the objectives of the NUGP above & 1 & 6 of the table above). Then, there is *technological and professional development programmes* (2 & 3 above) and *virtual university, distance learning and ICT in Higher Education* (4 & 5 above).

5.2.1 Curriculum Alignment: The Professionalisation Policy in Cameroon

One of the principal orientations for the socio-economic strategy of higher education in Cameroon is a focus on the labour market and graduate employability. This agenda was seen to be conveyed in an ambitious policy to attain a 100 per cent employment status for all Cameroonian university graduates through a slogan “*one student, one job*”. This perspective would seem to be consistent both with the poverty reduction document, the GESF which places the reduction of unemployment and creation of jobs at the centre of the immediate and long-term vision. This professional orientation was portrayed to be strongly based on the wisdom that “*charity begins at home*” (P2) and given that

It is more reasonable to begin by addressing the needs of the participants (students/ graduates) by adapting their training and rendering them more relevant to the needs of the job market, thereby mitigating the causes of their own poverty (unemployment) before addressing other societal problems. Otherwise higher education would have failed in its initial mission or it would not be higher education (P2).

A second argument that supports the professional orientation is about accountability and cost effectiveness. The respondents hold that since the universities do not train the students to keep them within the higher education system, the best means of evaluating the contributions and efficiency of the education is in terms of the graduates’ relevance and use in its national system. This implies that the graduates should be able to 1) have jobs and 2) contribute in the creation of new wealth (P2). “*Within the current state of affairs, it is a social waste to train these youth and they end up being unemployed, especially because the training has not been relevant or it is due to structural problems*” (P2). Drawing on one recent estimate, a respondent (P1) explained that the government cannot spend about 223 Billion Francs CFA⁹³ from 1993 to 2008 on higher education and that sector is not able to tell the government or society what it has done with the money. Whereas, given the current high rate of unemployment and of the invisibility of university research, they did not have the feeling that the higher education system was meeting its goals or being cost effective. Granted that the unemployment rate among university graduates from technological and professional programmes may be low, that of graduates from classical or liberal programmes which dominate the system were seen to be generally high and thus “*a major cause for concern*” (P1). Graduate employability was therefore seen as the starting point and, according to the respondents, the research output from the university and their linkages and input in the production system was another matter to be seen from another perspective under the “research” mission (P1 & P2).

⁹³ Approximately four hundred and forty-six million USD (1USD= about 500FCFA).

5.2.2 Paths and Dimensions of the Professionalisation Policy

In general analytic terms, all the recent curriculum reforms in relation to the labour market in Cameroon can be seen to revolve around “professionalisation” and along different paths and itineraries. The Cameroonian professionalisation policy can be seen as a broader package covering all the programmes, from new professional and direct development programmes to traditionally-known professional, vocational, business, market-friendly to the classical and other non-market-friendly programmes. The package may well constitute related issues of skills development, entrepreneurial (creative) teaching and learning and credit systems. The reason for this generic classification is that they are all seen as strategies to adapt higher education to application. The objective as stated by the Sectoral Policy Document (SPD 2010), is that “*all the programmes are professionalised*”. The idea is that even the driest⁹⁴ (classical liberal) programmes should be able to receive some professional components internally or externally from other disciplines to ease the students’ placement into the world of work (P1, P2 and Q13). The above perspective leads to the definition of professionalisation in the Cameroonian context as a strategy to adapt the curriculum and its related technologies (teaching and learning) to socio-professional needs and applicability. Although this applicability perspective involves research, the focus in this subsection is on the curriculum and teaching. This subsection attempts to create a checklist of the strategies as well as the ways and means and their related meanings, rationales and backgrounds which were portrayed as envisaged by the Cameroonian policymakers to drive the professionalisation policy. The dimensions of the professionalisation policy range from system level to institutional and programmatic levels as follows:

The term *Urgent Development Programme (UDP)* would be employed to describe the first dimension and most prioritised package of the recent professionalisation policy in Cameroon labelled “*Support Programme to the Technological and Professional components of Higher Education*” (SPTPCHE). These refer to programmes aimed at driving the government objectives to improve the capacity of the technological and professional fields of study and to respond to the country’s urgent socio-economic development needs. These programmes are seen as potentially bridging not only the developmental gaps but of the rapidly widening technological and knowledge gaps between developed and developing countries, hence the urgency. The programmes may also serve as major instruments to accompany certain social development trends. Within this SPTPCHE, the most prioritised are medical, teacher training and technological education. The attention given through the SPTPCHE was seen to span over three objectives to *consolidate, develop* and *expand* the technological and professional components of the higher education system (FUM 2010). The implementation of this UDP was evident in the creation of the medical cycle to the Faculty of Health Science, University of Buea (UB) (in 2006) and the universities of

⁹⁴ Less professional or not having a direct employment or application prospects.

Douala (UD) and Dschang in 2006 and 2007, respectively. There was also the expansion of the Faculty of Health and Biomedical Science of the University of Yaoundé I. There was in addition, the creation of the Technology College and School at the universities of Buea and Douala, respectively, as well as the expansion of the National Advanced School of Engineering at the University of Yaoundé I. Finally, the teacher training component of the SPTPCHE can be seen through the expansion of the first and second cycles of the Advanced Teachers' Training School, ENS Bambili and the creation of the Advanced Teachers' Training School at Maroua and of the Technical Teachers Training School in Bambili.

Drawing on the respondents, the selection of the above priority programmes through the SPTPCHE was driven by the necessity for the higher education system to address certain urgent social development needs of the country during the post crises and post *Structural Adjustment Programmes* (SAP) years. "This was evident in the health and educational sector" (P1). Respondents revealed that by the year 2000 there was a gross deficit of medical and paramedical staff and teachers in Cameroon. One of the reasons for this deficit is that during the SAP years the number of schools training these medical and paramedical staff and teachers of the secondary educational cycle were reduced. Besides, a good number of the teaching and medical graduates had emigrated abroad because of the poor working conditions resulting from the crises and the SAP. Also, as a signatory to conventions related to the millennium objectives where 80 per cent of youth from primary education have to go to school, the educational sector in Cameroon soon found itself in a situation of a serious capacity imbalance a few years later. There were so many students moving from the primary to secondary schools but which did not have sufficient teachers and "these teachers were to be trained in the higher education sub-sector" (P1 & P2). The priority to the *Health and Teacher* education, according to another document, the *Education Sector Policy* of 2006, could also be seen as an urgent response to the Millennium Development Goals (cf.1.2).

As to the other professional and technological programmes in the SPTPCHE, the interviewees revealed that they were triggered by the needs from various national circles for the higher education system to be more responsive to technological changes. Having acquired a new perspective about development path and with structural projects being conceived during the post structural adjustment years, the Cameroon government in 2005 assigned certain new missions to higher education. It was perceived that for the higher education system to be more responsive, the training should be reorganised in such a way that the human capital produced should be useful to the national development strategy (P1 and P2). These needs were equally articulated by the Growth and Employment Strategy Paper (GESP). The choice of the policymakers was to give priority to technological and professional training. Before the year 2000, fewer than 5 per cent of students were on technological and professional programmes and 95 per cent in the whole system on classical liberal programmes. In order to expand the system's capacity in professional

and technological programmes, respondents reported a need to rehabilitate and increase the number of intake into the existing professional and technological establishments and to create new technological and professional schools (P1–P2). The current objective, according to the SPTPCHE is to increase the components to between 25 per cent and 30 per cent by 2015 (MINESUP 2010). Also, having attained the completion point of the HIPC in the mid 2000 and with new heavy structured projects in infrastructure, mining and energy in perspective, the Cameroonian government decided to redefine the role higher education was to play to permit the economy to meet the pre-1980 growth rate of 5 to 6 per cent. One of the expectations inevitably concerned adequate and relevant human capital supply.

In the light of improving and expanding the capacity of the technological and professional components of higher education, the Cameroon Ministry of Higher Education competed for and was granted the sum of 31 Billion, 45 Million Francs CFA⁹⁵ from funds accruing from the completion of the Highly Indebted Poor Countries' (HIPC) initiatives. This sum was meant to finance the Support Programme to the Technological and Professional Components of Higher Education (see SPTPCHE 2007). The allocation is for the first phase of the project to be used from 2007 to 2012. The money has as the focussed objective of enhancing the capacity of the health, engineering and teaching components of the higher education in Cameroon. The expected results for the first phase are to increase the number of graduates in these prioritised areas as follows:

Table 12: Priorities of the Support Programme to the Technological and Professional Components (PRO-ACTP), 2007–2012

(PRO-ACTP)					
No.	Graduates/ Professions	Increase/year	per cent increase/year	increase/ 5 years	Total in 5 years
1.	Physicians	85–450	429.4 percent	1,825	2,250
2.	Pharmacists	0–125	/	625	625
3.	Dental surgeons	0–125	/	625	625
4.	Health technicians	140–200	42 percent	300	1,000
5.	Engineers	500–1,000	100 percent	2,500	5,000
6.	Teaching	2,500–3,260	30.4 percent	3,800	16,300
TOTAL				9,675	25,800

Source: Programme Document 2007. Additional Analysis by Author.

Traditional Applied Programmes (TAP) will be used to describe the second dimension of the professionalisation policy in Cameroon. This refers to the applied programmes that existed in the higher education system from its initial inception through the professional

⁹⁵ Approximately sixty three million three hundred and thirty USD.

schools, centres and institutes (see 2.2.1) which had been tailored to respond to the specific development needs of the country. These are the cases of agriculture, public works, administration, diplomacy, journalism, translation, water and forestry. Previously these programmes had professional characteristics with direct recruitment into the public service and were known to be highly selective with strict entry requirements. This second dimension of the professionalisation has involved increasing capacities of those establishments and diversifying their programmes offerings. A case in point is that of the Institute of International Relations (IRIC) whose capacity and intake has increased over the years⁹⁶ with additional programmes such as money banking and international finance, international marketing and the addition of a more structured doctoral layer along the BMP or LMD degree architecture⁹⁷. Another novelty added to this institute is the special programmes under the “*Chinese Centre for Languages and Civilisations*” and the “*Senghor Chair: Francophonie and Globalisation*”⁹⁸.

The third dimension that could be observed from the Cameroonian transformation processes to socio-economic development through the application (professionalisation) agenda could be described as the creation of Regionally-applied Establishments (RAE). This pattern follows the necessity to create higher education establishments with programmes that provide value to an existing and dominant economic activity of a specific locality or addressing certain urgent problems. Four cases of institutes that have been recently created in 2009 attract attention. There are the two “*Institutes of Fine Arts*” in *Foumban* and *Nkongsamba*. These two towns, Foumban and Nkongsamba would seem to be some of the most cultural, artistic and tourism-rich towns in Cameroon in general and specifically the West and Littoral regions, respectively. The rationale observed behind the creation of these institutes was that the education and training offered in the institutes be aligned to those cultural and artistic activities such that the institutes participate in creating more economic value and therefore boom and greater wealth from those activities. Cameroonian authorities argue with regard to the Sultanate of Foumban that they had no reason not to take advantage of the rich potential of the Sultanate; its artistic tradition militated in favour of the creation of that institute (SUP INFOS 2010b, 11).

There is also the “*Institute of Wood, Water and Environmental Management*” to improve the participation of higher education in the economy of one of the most forest-rich zones of Cameroon, Bertoua in the Eastern Region. The third is the “*Institute of Halieutic Sciences*” in Yabassi, one of the most aquatic and fishing-dominated regions of Cameroon with the objective of engaging higher education into seeking solutions to their problems as well as modernising the fishing and marine economy of the region. The more

⁹⁶ One of the observations that can be made from the exponential and capacity increase in the former professional schools and institutes in Cameroon like IRIC is the consequence that their elitist natures are gradually being diluted into a mass system. Perhaps the prestigious aspect will be maintained because of the quality and relevance of some of their programmes to the job market.

⁹⁷ See 5.5.4.

⁹⁸ Fruits of Bilateral and Multilateral cooperation.

problematic and demand-driven case of these institutes is in the creation of the *Advanced Institute of the Sahel* for the textile, artistic and livestock-rich area. It is on the other hand, one of the most environmentally unfriendly part of Cameroon. While the institute is to support the textile, artistic and livestock potentials of the region, its programmes reflect the necessity to address issues like desertification, energy crises and other problems of sustainable development that characterise the area.

The fourth dimension which could be described as *globalisation and service-sector oriented* programmes followed the advent of the new economy and evolution towards a service economy, the information and communication technologies and the private sector. This is depicted by an explosion of so-called market-friendly and business programmes such as business administration, commerce, accountancy, management, banking and finance, computer science, management of information systems and secretariat duties. Most of these programmes seem to have been created without a particular focus on the public sector of the economy or direct recruitment into public service but in anticipation of the evolving private sector. The professionalisation policy, according to the respondents (P2 and P3), aimed at increasing the capacities of such programmes. The fifth dimension of the professionalisation policy is about a new sector of *Regionally-applied universities* in Cameroon in the form of the *University Institutes of Technology*. Three of such institutes were developed during the last decade under the universities of Douala, Dschang (Bandjoun) and Ngaoundere in electrical, industrial, civil, biological, biochemical, computer, maintenance, biotechnology, environmental, software and mechanical engineering programmes. Viewing their efficiency in responding to the current development needs, the Cameroonian government envisages establishing such institutes in all its ten regions to meet their specific needs (SPD 2010, 13).

5.2.3 “Professionalising all the Programmes”: What does it mean to the actors?

Asked what would happen to the 70 per cent to 75 per cent in the other programmes after the professional and technological components would have been expanded to between 25 and 30 per cent (cf. 5.2.2), the respondents (P1–P3) reiterated the general objective of the professionalisation policy in Cameroon which is “to render all programmes more practical and professional” by:

*Professionalising the discipline: adding professional components and skills to all disciplines*⁹⁹. There is also the dimension which is to *professionalise the faculty or department*: creating more professional and market-friendly programmes within faculties characterised by classical fields and linking them. The creation of a *Tourism and Hotel Management programme* in the Faculty of Arts and Social Sciences (FALSH)

⁹⁹ There was an observed difference in institutional implementation as to whether it is easier or better to professionalise disciplines or to professionalise students (Q 9).

of the University of Yaoundé I, which is dominated by classical liberal programmes, is an example. The third strategy about the professionalisation in Cameroon involves *professionalising students*: This may refer to cross departmental and cross faculty arrangements for students to take professional courses that render their studies more practical and directly relevant to the job market. The most structured form of these cross departmental arrangements could be identified at the University of Buea (UB) which emphasises that all students take minor subjects in different departments and faculties. For instance, “a student of Linguistics takes either a minor or core course in journalism such that the student graduates as a linguist but having some professional competence that should enable him/her to practice Journalism and thus easily find placement on the job market” (Q9). Respondents at UB posit that it is easier to professionalise graduates than professionalising disciplines (Q9).

The above perspective holds that by trying to emphasise that disciplines be professionalised, the discipline may be deviated from its pedagogical path. Instead of teaching the discipline the way it should be taught, this type of practice “entail overloading all disciplines with examples of application” (Q9). Other cases, cited by respondents, are that students of Biology/Zoology could minor in Fisheries or Medical Laboratory Technology. Respondent Q9 argued that such combinations have proven to be very successful in the job market. The advantage is that the combination of the traditional liberal science or arts subjects with professional minors maintains the generic skills and at the same time professionalises the students; “The student graduates as professional but still possesses all the generic skills from the basic disciplines” (Q9).

In a further institutional reflection as to what professionalisation means, many other perspectives can be discerned from the policymakers of the University of Yaoundé I (see FUM 2010, 5). The first perspective includes: providing the disciplines with multidisciplinary and professional competences to qualify them for the labour market. The second is about coaching students for professional life. Thirdly, helping students to be able to set up and manage their own enterprises. The fourth that could be identified is about using teaching and research with application and socio-professional insertion in mind. The fifth is about teaching that engages students to learn how to learn and to be able to confront complex problems which they can solve through their own learning competences. The sixth is about designing pedagogy in such a way that it blends theory and practice and finally, involving professionals to participate in design of the curriculum and pedagogic activities (FUM 2010, 5)

It was important to observe how the professionalisation policy was affecting the orientation of system level governance of the universities in Cameroon and respective changes. Drawing on the interviews and policy documents, several perspectives could be discerned at the macro or system level of the higher education in Cameroon. In terms of programme accreditation and valorisation, the Ministry of Higher Education is ensuring that prior to any validation, all the programmes have professional components and that

the programmes have their socio-professional objectives or indicate their links with socio-professional actors (P1, P3 and Q8). The government, through the Ministry of Higher Education is ensuring that all technological and professional programmes earmarked in the 1993 University reforms be made operational before 2013. Another major strategy for higher education to be involved and drive the national economic development policy is that all programmes must be designed based on the development and poverty priority themes (as earmarked by the GESP) (see Sectoral Policy Document, SPD 2010). The SPD articulates that computer training and the use of ICT should be indispensably integrated in the teaching and learning process. There is also the linguistic perspective which is that the two national languages, French and English should be made obligatory in all disciplines and training to facilitate the employment of the students in any socio-linguistic and cultural region of Cameroon. The Ministry takes the coordination responsibility of improving job search instruments and student entrepreneurial skills. Another strategy, according to the documents and interviews with the policymakers, is to create centres of apprenticeship and business incubators, then increase the number of virtual universities and distance training forums as well as inter-university orientation centres (Sectoral Policy Document 2010, 13).

5.3 Factors behind the Professionalisation Policy in Cameroon

The factors that have claimed priority for the professional, including technological higher education in Cameroon are situated within the broader problems of application and relevance of higher education in Cameroon and the peculiarity of Sub-Saharan Africa in general. The recent and strong emphasis on professional and professional higher education in Cameroon would also be seen as revolutionary move resulting from the observed weaknesses regarding the developmental role of the higher education in Cameroon and the sub-region. It would also be seen through the Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE) that the orientation attempts to correct both the conceptual weakness of the Cameroonian higher education system from its early foundation in the 1960s and also those of the 1993 reforms¹⁰⁰. As mentioned earlier (cf. 2.2.1), the conception of the Cameroonian higher education system in the 1960s was such that directly applied (professional and technological) education be arranged and protected in professional schools, institutes and centres away from the main university. It turned out that while the main university became congested and produced a huge number of less qualified and unemployable graduates in the 1980s, the

¹⁰⁰ This has been the major broad reform since the inception of the higher education in Cameroon. The reform was seen as too dramatic by some schools of thought, Njeuma et al. (1999) for example. The reform immediately created five extra universities to add to one. It therefore addressed an immediate problem of access without paying attention to those of resources, quality and relevance in a thorough manner.

above professional establishments remained highly selective, elitist and with very limited capacity. These two ways of arranging classical, liberal and general higher education and the elitist perspectives about applied, professional and technological education has been seen as the root of the present problems of relevance in Cameroon higher education (Njeuma et al. 1999). The 1993 university reforms in Cameroon seemed to have attempted to solve the problem of increasing numbers and to correct the conceptual difficulties stemming from the former higher education structure. Some light professional (and mostly business-oriented) programmes were developed in the new universities but they remained quite limited in capacity.

Besides a few cases like the teachers training colleges which expanded by opening their doors to privately-sponsored students, it must be said and seen that most of those specialised and direct-development tailored institutes maintained their selective and elitist identities in the main universities but with insignificant expansion in terms of capacities. As such, the problems of professional and direct development relevance continued. In addition, the newly integrated institutes, centres and schools into the universities, following the 1993 reforms remained mostly in the classic professional programmes (translation, journalism, international relations etc.)¹⁰¹. Those traditional professional programmes were not diversified and expanded enough to meet student demands and the current changes in the societal needs. All of the above limitations therefore support the assertion that the creation of the five universities (following the 1993 reforms) tackled the problem of access (increased demand for university education) but the challenge of applied professional and technological training remained.

The prioritisation of the technology and professional component could also be seen as another implementation and finalisation phase of the 1993 reforms. This is because most of the new professional and technological establishments and programmes in the SPTPCHE had been earmarked in the 1993 reforms but probably lacked the necessary resources to be implemented. This is the case with the College of Technology and Faculty of Medicine at the University of Buea which had been earmarked in a separate decree creating that institution. There is also the fact that the post 1993 years which followed the economic crisis of the 1980s, in addition to the stance of development partners on higher education, was a period of financial hardship and therefore a serious obstacle to the evolution of applied training in Cameroon HE. These crises can be seen to have left very little room for the HE system to expand in terms of the technological and professional programmes and given their cost-intensive natures and the needs for infrastructure and teaching staff. With the new funding opportunities which emerged after the completion of the Highly Indebted Poor Country's Initiative (HIPC) a good deal of advantage seems to have been taken by the authorities in Cameroon to develop the technological and professional components of the higher education.

¹⁰¹ Except for engineering education in only one university, the National Advance School of Engineering, University of Yaoundé I.

It may also be said that the problems of relevance and applied higher education may not be confined to Cameroon but a characteristic of the sub-region and other developing countries. It has been observed in the ongoing processes of massification in higher education that, unlike in industrialised countries, the increases in student numbers and expansion in Africa takes place more in traditional disciplines and subsequent careers with limited relevance for the nations' development. While their training function would seem to be making some progress, the science and knowledge production, technical and vocational domains increasingly lag behind (Castells, 2001). To these may be attributed other quality-related issues like lack of qualified teaching staff and funding, among others. It is also necessary to look at the changes towards more professional and technological programmes in Cameroon from the broader national framework. That is, in terms of the changes in the structure of the economy and development perspectives, to which may be added the advent and evolution of the private sector as a potential major employer of university graduates in Cameroon.

During the first three decades after independence, the economic development of Cameroon was essentially based either on export of natural products/resources and then civil service/public sector dominated economy. From the end of the 1970s to beginning of 1980, the growth rate of Cameroon was above 5 per cent. It was realised at the end of the 1980s and early 1990s, that the growth rate was continuously regressing. The policymakers had the feeling that the previous model of growth was attaining its limits. It was therefore necessary to give it a new trajectory. This new trajectory involved perspectives other than dependence on natural resources and then to create and expand the private sector. Later, especially around the early 2000, there was more awareness about the transition from resource to knowledge economic development. Developing the nation's innovative capacity was beginning to be seen in Cameroon as the means to sustain the growth rate. The need to develop this national innovative capacity therefore reinforced perspectives about the importance of the national knowledge infrastructures. Higher education was seen as one of those major knowledge infrastructures for provision of the related skills into the economy. Respondents however, revealed that the extent to which higher education could carry out this role in the new economy of Cameroon was questionable. It became important to rethink the role and how it could be strengthened to carry out the role efficiently (P2). It became common knowledge that for a developing country like Cameroon to attempt the transition to knowledge based economy, it needed to improve its science and technology culture and to which higher education was seen as highly relevant and as cited by the respondent below.

We were aware from the current economic theory, especially the new growth theory of endogenous growth that science, technology, research and development are the main leverages that drive growth.... This could be verified with industrialised as well as the new emergent countries (Q8).

Consistent with the above perspective, the respondent argued that there is no means by which Cameroon can become an emergent nation in the next two decades without paying attention to technological education and at least starting from its traditional problems in the classical professions like medicine. Even if Cameroon were to depend on natural resources, it does not have as much natural resources as its neighbours¹⁰². According to one of the respondents, Cameroon does not “*have any interest not to take to this knowledge trajectory*” which includes training, technology and research and development and strongly involves higher education (P1).

Another related factor to the changes in the structure of the economy is the seemingly and consistently dominating orientation towards the tertiary and service sectors of Cameroon’s economy in recent years. Respondents reveal that the traditional primary sector of the economy like agriculture today whose growth rate stands at 3.8 per cent (as opposed to 3.9 and 0.5 per cent in the tertiary and secondary sector respectively) (PREM/WBAR 2011) can hardly have the high level of production “*when the human capital or the quality of the personnel is not sufficiently adapted or updated to meet modern trends*”. Secondly, *when the techniques of agricultural production have not been updated, adapted and seldom change* (P1).

The above trends, according to P1, suggest that Cameroon has to depend very much on training and research for its emergent ambitions. *It is through knowledge, new knowledge¹⁰³ that is produced then, training and life-long learning that these techniques and human capital have to be updated, hence, the current creed of the Cameroon government* (P1). According to this school of thought, if Cameroon or at least in the CEMAC economic zone in which it is located, were to have an acceptable growth, there is a need to boost the technological aspects of the economy as well as innovations among which education, training and higher education are crucial. Also there are new needs, possibly due to phenomena like globalisation and new management tools like ICT which require being incorporated as part of the policy.

The role a more conducive and favourable national policy environment can play in opening up and steering the actions of the HE system and universities cannot be ignored in the Cameroonian orientation towards more development, science, technology and professional higher education in the recent years. We would refer again to the Growth and Employment Strategy Paper (GESP). At least in principle, the GESP represents one of the most coherent, integrated and intersectoral strategies contributing to the orientation of the higher education system in Cameroon. The GESP articulates a clearer division of labour between the different national sectors. This can be exemplified with the human development component to which may be attributed the roles the entire education sector and specifically, higher education are expected to play for Cameroon to meet its ambition of becoming an emergent nation in two decades.

¹⁰² E.g. Nigeria and Gabon which have oil and other minerals (following the respondents).

¹⁰³ Emphasis by respondent.

Section 3.3 of the GESP highlights that for the required ambition to be attained Cameroon has to “*dispose of a solid human capital capable of sustaining the growth*” process. The GESP (2009) carves the path for future integrated and sectoral coherencies, hence addressing the sectoral or institutional fragmentation that have often characterised the national development or economic systems of developing countries. The different inter-sectoral and structural development projects designed in the GESP and their related strategies can be observed to have obviously sharpened the focus of the higher education system in terms of the types of training to be offered and roles in the structural projects. In other words, the dire need for professional and technological programmes could also be seen to have been triggered by the existence of new national structuring projects designed and articulated upon in the GESP as well as the existence of recent funding opportunities. To these, can be observed several industrial, mining and energy projects; the construction of the Limbe shipyard and Kribi deep ports, extension of the aluminium producing industry in Cameroon (Alucam), Lomie mineral extension, hydro-electric project at Memve’ele and oil prospection in the Bakassi Peninsula. It is observed that these projects would require varied job profiles which involve to a very great extent, higher and advanced education. The GESP (2009), for instance, grants a leading role to higher education in the training of the engineers and technicians who will be involved in the projects.

5.4 Changing Governance Perspectives

In this section, governance will be examined in terms of how the coordination, steering and control mechanisms as well as the power relations have been affected in recent years in Cameroon following a stronger emphasis on a leading role for higher education in its socio-economic development. It is necessary to state *a priori*, that the new orientation in Cameroon has led to a reconfiguration and redistribution of the steering responsibilities and power relationships about HE. The study observes the wide belief in Cameroonian higher education policy circles that for the universities to become more interactive with the socio-professional milieus they require more autonomy. Consequently, several decrees beginning with those from the 1993 reforms, have devolved autonomy to the university thus changing the steering of higher education which was highly centralised to the ministry, to the ministry’s role being more of a supervisory role (Doh 2007). The autonomy in Cameroon HE can be looked upon in three dimensions: in terms of financial management, regulation and decision-making and academic management. The financial autonomy would be looked at in the light of the Presidential Decrees from the 1993 university reforms then amended by Decree No. 2005/383 of 17 October 2005.

According to the system and university level administrators who were interviewed, the autonomy is well affirmed by the 1993 university reforms. Because of this notion of interaction with socio-professional actors the 1993 decrees granted autonomy for

the universities to broaden their financial bases, outsource funding from external or community stakeholders and to be able to provide basic infrastructures from some of their own finances. Until 1993, no third party was involved in the financing of higher education in Cameroon. However, it was becoming clear even when there was only one university¹⁰⁴ that it will be difficult for the government to continue to bear the entire cost of the higher education. For the first time, a token amount of 50.000 FCFA¹⁰⁵ was introduced as registration fee to be paid by the students (as the immediate beneficiaries of the education). In addition, the universities were granted autonomy to conceive professional programmes in partnership with other socio-professional partners from whom differential fees are paid to generate extra income¹⁰⁶. This autonomy is much enjoyed by some of the universities like Douala which seems to dominate in working in partnership with socio-professional actors and enterprises to conceive programmes. Through these partnership programmes the professional needs of the students and the enterprises are addressed, then the university receives extra monies.

It has to be said that since it is the state which finances universities in Cameroon, there are two overseeing structures: the Ministry of HE, then the Ministry of Finance (MINFI) which assumes the supervision of the financial aspects of universities. The universities have to conform to stringent government regulations. This stringency is because under Article 8 of the Decree No. 2005/383 of 17 October 2005, the budgets are stated to be “public”, state or government resources; the taxpayers’ money. Secondly, the stringency results from continuing government scepticism regarding the likelihood of excesses from the application of the autonomy and its consequences such as misappropriation and generally, the concern for value for money. As laid down by the Decree (ibid.), the rectors or vice-chancellors are expected to render accounts and submit annual reports on the execution of the budget to MINFI.

However, even if the main source of the university’s income is the subvention from the state, the universities are autonomous in terms of their management. The Cameroonian university is a legal personality. It takes its initiatives and risk and it is responsible for its actions. Respondents at the University of Douala observed that such autonomy was very necessary to enable them to take fast decisions. For instance, “*whenever we are contacted by external partners we are bound to react very fast. If you have to follow the regular procedures, that can take much time. If it has to take much time, that partner may lose interest in the deal*” (Q8). Besides, having moved from a centralised role to supervision, it could be observed that the role of the Ministry was changing to that of formalisation and regulariser of procedures. The respondents observed that they can design their programmes and even take the risks of launching them before the procedures are regularised later

¹⁰⁴ The University of Yaoundé (see presentation of the higher education system in 2.2).

¹⁰⁵ Approximately 100 USD.

¹⁰⁶ This has not been possible for all universities because of a general atmosphere and culture of resistance on fee payment and the government’s intervention and political perceptions about fees (see also Njeuma 1999).

by the Ministry. That would have been difficult in previous years (Q8). Respondent Q8 concludes that in reality what they have as difficulties are “*procedural problems, not autonomy*” and much of which may be internal. Also, there has been decentralisation in financial management from the ministry to the universities and from the university to its respective establishments (faculties and schools) down to departments. Also, the recent changes in the orientation of the missions of the universities would seem to have been changing the nature of university governance, whereby decision making instances such as senate, council, committee of deans and directors and sometimes faculty boards become vetting organs than real decision-making bodies.

According to one respondent (Q9), this implies that the traditional instances of decision-making only meet to vet and approve decisions that must have been taken in the operational units of the university than those decision instances taking the decisions. In situations like that of the University of Buea, respondents claimed that one of the reasons for the creation of “problem-based” special units was to mandate them to act fast. Drawing on Q9, the creation of those units goes through the vetting mechanism which gives them a mandate to operate without referring all the time to the hierarchy for every decision that has to be taken.

The coordinators of such units can sign letters and do whatever they want. They have their own accountants. What the hierarchy waits for is the quarterly report to see what is happening. These units have their own steering committees which are empowered to develop micro policy for them; micro-management is their responsibility. Usually the Vice-Chancellor doesn't even see what is happening with them until he gets a summary of the quarterly or final report. The term we use here is that they are *decentralised specialised units* of the university (Q9).

However, some excesses are stated to have been observed in the autonomy that was granted to the universities by the 1993 reforms. As traditionally closed institutions, the universities in the pursuit of their autonomy seemed to be becoming too conservative and to a certain extent, not very responsive. This autonomy produced some discrepancies between the universities' activities and those assigned by the government, to the extent that the autonomy had to be rethought and reregulated in the 2005 decrees. One of such reregulation could be evident in the inclusion of external non-university members on the university councils. Respondents revealed that the rectors seemed to have become very strong and autonomous “*to be able to do and undo*” (P2). They had previously been acting both as rector (head of institution and vote holder) and chairpersons of the university councils. The 2005 decrees separated the position of rector as the presiding authority of the university council thus creating a new position termed “*President du Conseil d'Administration*” (PCA)¹⁰⁷. Finally, it had been observed that the pre-2005 Cameroonian

¹⁰⁷ Chairperson of the Council, same as Pro-Chancellor in the Anglosaxon Universities of Buea and Bamenda.

university was highly bureaucratised and remained a replica of administrative bureaucracy in the public service. Due to the necessity for flexibility, such bureaucracy had to be rethought in the 2005 decrees. Article 27(2) of the decree regulating financial management in the state universities delegates signature to the deans and directors of faculty and school with limits to which they can commit the budget (Decree No.2005/383 of 17 October 2005). In certain cases, subventions which are destined for some university establishments with specific priority missions are transferred directly into the accounts of the establishments. These are the cases of the faculties of medicine and other professional schools.

5.5 Implications of the Socio-economic Mission on Structural Organisation

The theoretical and analytical framework of the study (cf. 4.1 & 4.9.2) suggested that any effective reform towards socio-economic development affects the structural organisation of higher education. This subsection will therefore present three categories of structural reforms that were identified to have resulted from the new orientation for higher education to make more effective contributions to national development in Cameroon.

5.5.1 Structural Expansion and Differentiation

The recent orientation of higher education to socio-economic development in Cameroon would seem to have necessitated the examination of the system's capacity in terms of quantity, number of institutions, participation, typology of the institutions and to a certain extent, regional distribution and localisation. Unlike the previous period (1962 to 1993), when it took thirty-one years to create more than one state university, it has taken the Cameroonian government only five years to create two more universities; the universities of Maroua and Bamenda. In addition to these two universities is a marked increase in the number of faculties and programmes in the older universities. One of the peculiarities that accompany these two recent universities is their more applied orientation. There are through these two universities, attempts at more regional responsiveness; the case of the Advanced Institute of Sahel (cf. 5.2.2). Although other factors such as the political and regional pressures and a more favourable financial climate should have favoured the creation of these two new universities, the pace of their creation and orientation was seen to convey the new impetus of higher education as a major driver of the growth strategies in Cameroon. The respondents argued that the current state of affairs necessitated that any readjustment or extension of the system's capacity be based on qualitative and quantitative considerations (P1).

As previously stated (cf. 5.3), the dominant concern for the creation of the five extra universities during the first 31 years of higher education in Cameroon was access. Given the passage to eight universities and an evolving private sector, concerns about typology and relevance have emerged. There are questions about institutional identities, specialisation and how to increase the efficiency of their missions. The Cameroonian higher education authorities envisage “*institutional differentiation*”, as a means of “*exploiting and maximising the potentials*” of universities with perspective towards pure “*research institution*” and diversity towards more applied institutions (Sectoral Policy Document, SPD 2010, 9). One of the arguments from the SPD is that since the government may no longer be the dominant sponsor of the higher education, there is a necessity to take into consideration the specificities of institutions. With the example of research, the argument goes that the financing of such institutions would be based on *contracts*, no longer with the Ministry of Higher Education but through a special government research agency that will be created by the government. Initial training may continue to be assured by the state based on quantifiable results but then, only part of the research can be sponsored by the state through the research agency (SPD 2010, 9). The cited case of the regionally-relevant or applied establishments (see 5.2.2) also suggested some degree of diversity.

One of the structural differentiation that could be observed to be articulated in the policy documents and according to the respondents as a means of reinforcing the contribution in socio-economic development was internal differentiation. That is, in terms of an orientation towards the insulation of research from the teaching cycles through *Doctoral Schools* (DS) and the creation of *Doctoral School Councils* (DSC). The second orientation is the creation of *Technological Poles* (TP). The DS perspective was more visible in one of the institutional case study, the University of Douala. With a generally-known weak research output, the policymakers observe this doctoral school concept, within which there are supposed to be different research groups, as an important starting point for the revitalisation and development of research in Cameroon. The policymakers argue that the DS reinforces the efficiency of research in national economic development. This, according to one policymaker (P2), requires that research be aligned to seek solutions to the priority themes in the GESP. Another strategy apparently envisaged is the involvement of professional and external development actors in the decision-making instances of the DS. In addition, they envisage the institution of regular seminars where the doctoral schools present their research work to socio professional and economic actors, their employment search strategies and show that they are working on real societal problems (SPD 2010, 10).

Among the other efficiency gains and economies of scale expected from the DS concept (according to its proponents) are that it is self supportive and self-regulated in many ways; senior researchers support the younger ones and vice versa, with students supporting each other during, before and after doctoral school seminars (P1 & P2). The policymakers envisage that the concept will lead to greater concentration of efforts within the confines of DS. There are also other perspectives that the DS concept guarantees the training and

recycling of workers within the teaching and research profession necessary to sustain the HE system as well as creating outlets for the creation and renewal of specialties. As for others, it increases the employability profiles of graduates and creates opportunities for their insertion in academic jobs (SUP INFOS 2010b, 25). The *Technology Poles* were observed to be conceived as centres of excellence with protected status for project groups working on priority technological themes of the GESP. Its proponents argue that such poles may be entrusted with the mission of defining the necessary *savoir faire* to be mastered by the country, the manpower requirements for Cameroon to become a producer of its own technology (Sectoral Policy Document 2010, 9).

The reorganisation of postgraduate research which is advocated system wide or at policy level in Cameroon is operationalised in the universities through a combination of both vertical differentiation between teaching and research and horizontal differentiation of research into specialised sub-groups. Doctoral schools and research groups currently exist at the Universities of Douala and Buea in the following broad themes:

Table 13: Research groups and themes at the Universities of Douala and Buea, 2010

No.	University of Douala	University of Buea
1.	Communication, Identity & Development in Cameroon (Cameroon-CIDEV)	Languages, Education & Preservation of National Languages
2.	Sciences & ICT	Linguistics and National Languages
3.	Material, Energy & Sustainable Development	Translation, Interpretation, Terminology, Lexicography and Social Development
4.	Environment	Education Development in Cameroon: Challenges for Research
5.	Physics and Application	Biotechnology and Biodiversity for Health
6.	Business and Performance	Agriculture and Sustainable Development
7.	Health	Reconstructing the Historical & Cultural Heritage of Cameroon
8.	Science and Engineering	Gender
9.	Research and Exploitation of Natural substances	Media and Democratisation
10.	Public Policy and Governance Decentralisation	Health and Wellbeing
11.	Institution, Law and Society	Material & Renewable Energy, Biodiversity & Earth Resources
12.	Politics, Economic Globalization, Growth and the Fight Against Poverty	Environmental Issues, Monitoring, Pollution, Risk Assessment and Mitigation
13.	Heritage and Ethics	Mathematics and its Applications, ICT

14.		Evaluation of Law Reforms
15.		Information, Knowledge Management for National Development

Author's collection/translation from UD and UB Research Management and Policy Guide

The above themes confirmed a claim by one of the respondents (Q9) that their research themes are no longer chosen at random but in consonance with the Growth and Employment Strategy Papers (GESP) and with regard to the priorities of the millennium development goals as well. Another important novelty seen to have taken place in the organisation of university research is the university policymakers' attempt to boost interdisciplinary and applied research in such a way that the structure reflects the distinction between teaching and research on the one hand and then, teaching, basic research and applied research with priority for applied research on the other (P1 & Q9). According to the respondents from UB, this priority for applied research and structural distinction could be made easier, if for the sake of management, the above broad priority areas and themes, in the table above, were organised into fewer mega specialised units. These units are expected to have sufficient equipment and facilities for high quality research. Meanwhile the departments would be allowed to develop mostly infrastructure for teaching (Q9).

Within the Faculty of Science at the University of Buea, there were already four of such centres namely: The Biotechnology Unit, the Clinical Diagnostic Laboratory and the Remote Sensing Laboratory (being converted into the Climate Change and Remote Sensing Laboratory) and the Laboratory for Emerging Infectious Diseases (BUN 2010). According to one of the policymakers, the idea for reducing these themes into broad interdisciplinary mega structures is that they should actually be built physically but they should draw their personnel from the departments. This means that a productive academic researcher would be accredited both to the department and the centre. *"Because they are multidisciplinary centres, they will allow the academic-researcher to interact with colleagues of other disciplines to solve particular problems"* (Q9). According to this respondent, these mega specialised units will not be subject but problem-based. Although the academic researchers concentrate on problem-based interdisciplinary research, they continue to do basic research. This university manager (Q9) believes that there is seldom basic research without an application motive in mind. As such there is no reason that any of them (basic or applied research) should displace each other. Interviewee Q9 explains that

The specialised units are supposed to be the arm of the university that when fully developed will make money for the university and will involve teachers in making money. They are also thought of as the units that would be much more empowered to employ, register companies and to do work for the community for which they will be remunerated (Q9).

The idea, according to the respondent, is that the university can maintain its identity as an educational institution, when “all actors and units are not involved in this business of income generation” (Q9). The reason evinced was that the whole university and teachers should not be distracted from actually teaching and in which sense, those in the specialised units become like workers of the business companies. This implied that “*when they are putting their knowledge in the specialised units, they do so as consultants and they are available to these units*” (Q9). Unlike in the other Cameroonian universities, the idea of science parks which is under consideration seems to have been silenced at the University of Buea. The respondents argued that the number of teachers was very small and too much was already demanded of them. Therefore the university can participate in income-generating activities by creating units, these units having the capacity to even employ and pay salaries but they are supposed to be self-financing. In this case, the university will “*merely host them and then it is they who will be expected to interact more closely with the community*” (Q9).

5.5.2 Programmes and Degree Structures The LMD/BMP Harmonisation Reforms

Two principal theoretical perspectives validate the assertions about programmes and degree related reforms that have recently taken place in Cameroon higher education; notably the transition and harmonisation to a simpler degree structure termed LMD (*Licence, Mastère and Doctorat*) or BMP (Bachelor, Master and Ph.D) since 2007. The first perspective related to these reforms is based on the perception of globalisation, which is how actions in one locale can come to have significant consequences on distance others (Castells 2000). The second perspective is about how changes in beliefs and conceptions about the use of knowledge (higher education) can have on the structures in higher education.

Prima facie, the degree structure reforms in Cameroon can be said to have been influenced principally by the Bologna Process which took place in Europe since 1999. It is necessary to note that most African countries are former European colonies. After independence most of the African countries adopted the European colonial cultures and structures in education (see Castells 2001, 213; Doh 2008). Because of this colonial history and educational affinity, academic mobility largely took place in ex-colonial networks. With most of Europe having adopted a common degree structure through the Bologna Process, such ex-colonial networks were seen to be fading in favour of global networks (Doh 2008). There was therefore the necessity for commensurate adjustments in order to avoid the risk of losing mobility and comparability. Doh (2007, 62) observes, in addition that, the Cameroonian degree harmonisation reforms were influenced by trends which overlap at the sub-regional and regional levels; as a CEMAC country (see Libreville Declaration 2005) and as a Francophone African country. Doh (2007) further points out that the trends

should have reinforced the harmonisation focus of the higher system in Cameroon which initially needed to reduce the cultural diversity which followed the Bicultural, French and Anglo-Saxon (colonial) models of higher education that were inherited from the colonial history. Prior to the pre-LMD/BMP reforms, this harmonisation was simply perceived in Cameroon as a strategy aimed at reconciling the existing cultural divergences between the two higher education systems (Doh 2007, 30). Attempts to reconcile the two systems produced a lot of controversies before the reforms.

Besides this colonisation thesis and background are other general arguments which have been advanced for integration and harmonisation processes starting from the Bologna Process and then followed by countries in other continents like Cameroon. In terms of the globalisation thesis, there are several issues from globalization which challenge the nation-state's capacity to achieve its public policy objectives unilaterally without cooperation with others (Doh 2008, 3). One of such area is in higher education and this has recently called for the necessity for internationalization. For instance, there are requirements for more visibility and therefore harmonisation in the qualifications of national systems. Internationalisation and harmonisation represent some of the strategies to make higher education more responsive to the global societies, economy and the labour market; a way of taking control of globalization and responding to its challenges (Kalvemark and van der Wende 1997). Other consensus centre on the necessity to respond to competition requirements from the global labour and business markets and which diminish the power of national states to set criteria for academic and professional qualifications (Beerkens 2004, 19; van der Wende 2000).

In terms of the changes in perspectives about the use of knowledge, there is most significantly, the recent awareness of the potential of the knowledge society (Drucker 1987; Gibbons et al. 1994). The fact that global economic competition is perceived to be knowledge-driven magnifies policies in knowledge sectors like HE. Concerns over competition help explain the recent push for institutional harmonisation of qualifications, which can be strategically seen from two perspectives: first, to render the degrees readable, comparable and thus competitive globally; second, to improve the employability of graduates as the qualifications simultaneously link their intellectual powers to employment and are readable and comparable for potential employers. These reasons are still related to the first perspective in the sense that the globalization of labour markets has also reinforced the necessity for greater mobility. Graduates as the cream of the workforce should be able to circulate. This requires transparency and comparability of their qualifications.

As concerns Cameroon, the adoption of the simplified structure through the LMD was necessary to respond to the needs of the national economies of the CEMAC sub-region and student employability challenges. There was the need to increase transparency between the national systems in the CEMAC Sub-Region, the African continent and other parts of the world. The Cameroonian HE system had also taken advantage of the

global trends of harmonization to provide a more logical solution to its national quest for harmonisation. Prior to the LMD reforms, there had been several inconsistencies which provoked the necessity for harmonisation in Cameroon. The existence of the more simplified Anglo-American system of three tiers in the Anglophone and of the French system with multiple degrees, sequences and intermediary degrees was a cause for concern in terms of systems coordination. It was never easy to establish their equivalences and not all the equivalences existed in both systems. This is because the degrees stemmed from different systems, pedagogical foundations, weighting traditions and rationales (see Doh 2007, 59). Each system generally arrives at its own definition on the “*clustering of knowledge and sequences*” (Clark 1983, 49). These situations caused problems of equivalence and comparability between the subsystems. The lack of transparency between the two subsystems was further transformed to the employer’s inability to interpret their equivalences and sometimes with confusion. This is because with such structural divergences in degrees, employers themselves are hardly in a position to make valid judgments about the value of qualifications (van der Wende 2003).

With the recent economic mission that is bestowed on the higher education system in Cameroon the degree harmonization process seems to have gone beyond the simple quest for transparency and mobility. The recent harmonisation (LMD/BMP) reforms in Cameroon can be observed to have combined reflections about the principle of employability, quality assurance, transparency and transferability. In the case of the University of Buea, it is argued that although the degree structure “*does not change*” the original BMP structure that existed in its Anglophone system “*it sharpens it*” (see the BUN 2007, 8). New options have been introduced to ensure professionalism in academic training, with new professional programmes created according to the BMP structure. For instance there is the advent of new professional masters and doctorate degrees according to the BMP structure. This is as opposed to the previous dispensation when these two degrees were predominantly research-based. In addition, the new options depict a new division of labour in the teaching and learning process in favour of student-centred learning. According to UB authorities, student-centred learning has the advantage in that it facilitates the integration of the graduates in the global and national job markets (BUN 2008, 7). The new emphasis, according to the Cameroonian university policymakers, is that “*delivery be made with a purpose*”. “*The student should be able to employ himself or be useful to the job market*” (Q13). Respondent Q13 reveals that there is emphasis on application with the end goal of productivity. This implies for instance that

A student of theatre arts should be able at the end of the study to write and execute a drama which he/she can take to the market and not just the theory of what it means. If the student is doing literature, he/she should be able to write short stories that can be published for others to use (Q13).

The respondent (Q13) expressed the importance they attach to the student doing a good proportion of learning; otherwise he/she will not be able to do the production part (Q13). The respondent observed that the job or business markets are very conservative and self protective in the sense that they want to see and maximize their interest in the training offered by universities. Thus, it is to the interest and advantage of the student to have these learning skills. The belief is that

When a student is able to produce, the employer can see qualities and gains in employing the student. The student should be able to solve the employers' problems. The student should be able to work in such a way that the industry can see itself making profit; so that he/she (the student) can survive, the industry can also innovate and survive from his/her skills (Q13).

The above theoretical perspective is situated within the emphasis for the development of the economic sector through knowledge. According to the above respondent,

Boom no longer comes from the traditional type of production such as coffee and cocoa. There is the necessity for entrepreneurship and creativity for the survival of industries. It is the idea of creativity that we are trying to reflect in the curriculum. As much as many items are added to the curriculum, so does the necessity to increase credit hours and these have implications for resources (money) and infrastructure (Q13).

The same respondent (Q13) observed that the infrastructural demands of the recent reform may also explain why a good proportion of the learning should be done by the student because such additional components increase the number of teaching hours and thus the burden on teachers. Other respondents (P5 & Q9) remarked that such changes in teaching and learning required changes in the mindsets of teachers and students for the system to operate effectively and to accommodate the new learning mode (Q13). *“If a teacher thought that teaching was to regurgitate the same thing over and over, the call for creativity means creativity in the handling and in transmitting knowledge”* (Q13).

5.5.3 Extension of Management and Administrative Structures

Four recent significant changes can be identified to have occurred in the management and administrative structures of higher education in Cameroon following its recent economic missions since 2005. The first change was through the inclusion of representatives of the private sector, industries and government ministries in the governing councils of the universities. Related to this first change is the creation of the PCA (Chairperson of the Council) and as government representative as well. The PCA represents an addition of a new upper layer position in the university administration and it is appointed from the external environment of the university. The institutionalisation of this PCA seemed to

have stemmed from concerns about government's difficulty to penetrate and follow up the missions assigned to the universities. In the current dispensation, the rector is in charge of routine activities and still a vote holder of the university meanwhile the PCA ensures the regularity of the missions of the university administrators and ensures the execution of the resolutions of the Councils by the rectors and can question them on certain management issues (05/0005 of 17 October 2005). The PCA can therefore be concluded as a disguised form of government penetration of the universities.

The second change is the recent creation of the office of the "*Vice-Rector in charge of Research, Cooperation and Relations with the Business World*" (VR/RCB) (Decree No.2007/317 of 4 November 2007). In previous dispensations, it had been VR in Charge of Research and Cooperation. Because of the new missions and orientations to the universities, the government decided in 2007 to add the business relationship facets into the appellation. This, according to respondents, is because the "cooperation" seemed not to have been emphatic enough about the new and outward orientation towards socio-economic actors, industries and socio-professional milieus (Q10). This office and function of the VR in the top management of the university could be seen as a means of opening up the university to its external socio-economic environment. The VR/RCB is a central structure for issues relating to the external environment of the university. Among these types of structural changes can be observed the office of the VR "in Charge of Academics" which became VR in charge of "*Academics and the Development of the Information and Communication Technologies*" following the same decree. The respondents revealed that it was necessary to emphasise the orientation and government expectations from the HE system in Cameroon.

Another move which could be observed as aiming to open up the university to the external socio-economic environment is the recent creation of a new institution wide organ in all the Cameroonian universities called "*Strategic Orientation Committee*" (SOC). The committee comprises of members from socio-professional milieus and is presided over by someone from socio-professional milieus, who is highly qualified. Fifty per cent of the committee is supposed to be composed of personalities from the socio-professional milieus and fifty from the university (Q7). The respondents revealed that it is this committee which determines the strategies and orientation of the universities and decides on the university programmes in terms of their market relevance and the possibility to address the expectations of the job and socio-professional worlds (P1-P2).

Asked if the authorities were aware of some of the implications of involving external socio-professional actors in the faculty and school boards, a respondent replied "that is why we call it '*Orientation Committee*' and not '*Faculty*' (governing) *board*" (P2). This implied that the SOC is actually separate from the faculty governing board; the SOC dealing with issues of socio-professional insertion of the curriculum and the faculty boards with the technical, academic and routine matters of the faculties (P2). Respondents (P1 and P2) observed the awareness of the negative implications of the excessive involvement

of external members in the university's structure. However, they noted that external socio-economic and professional actors were necessary evils to deal with since they come with the finances and also take part in the final absorption of the students. Respondent Q7 argued that these socio-economic actors and industries were there as witnesses to validate the university's contribution to socio-economic development and the university's accountability to its major funding stakeholder, the government.

Another phenomenon that would be seen as a conscious attempt to open the Cameroonian universities to external socio-economic actors is the creation and existence of mediating structures at some faculties and departments called "*interface structure*" and "*interface platform*". These faculty and departmental interface structure was fast becoming a system wide practice and seem to earn different appellations in the different universities. In its Article 16, the University-Industry Charter of 2010 in Cameroon prescribes that the industries work with universities to set up these interface structures in order to: promote and sustain their relationships, to put at the disposal of each partner the necessary resources, to manage activities necessary for their relations, identify and match training demand and supply emanating from the university and industry and finally, to identify and match demands and supply between them (see University-Industry Charter 2010). At the University of Douala, this basic unit mediating structure is called "*interface platform*". The policymakers observe that these interface platforms are meant to allow the university and respective units to be informed of the needs of industries and enterprises such that they can consequently orient their teaching and even research programmes in response to such needs (Q7 and Q8). In most of the units at the University of Douala (UD), the creation of these platforms with industries/enterprise seemed discernible. Almost all the programmes at its Faculty of Economic and Applied Sciences were cited to have been created after intense concertation and studies with enterprises. This creation of interface platforms at UD is facilitated by the fact that at the institutional level, the National Federation of Industries and Enterprises (GICAM) and even the Douala City Council are members of the UD Council. The interface platforms were seen as structures for permanent collaboration between the industry world, the socio-professional milieu and the university.

At the Central Administration of the University of Buea, there was a recently-created central structure called "Business Unit" (BU) under the Deputy Vice-Chancellor in Charge of Research, Cooperation and Relations with the Business World. The BU was at its infancy and still to be given status. Asked about its functions, it was observed that the BU is supposed to play roles similar to those of the Technology Transfer or Central Consultancy Offices. It is, according to respondents, supposed to encourage cooperation links between the university and industries. It is reportedly supposed to encourage the establishment of businesses with industries and on campus (Q10 & Q13). Besides this Central Business Unit at UB are faculty and departmental mediating (interface) structures

termed “*Consultancies*”¹⁰⁸. A case in point is the recent consultancy at the Advanced School of Translation and Interpretation (ASTI). This consultancy brings together present and past students who are translators and interpreters into a consortium that is web based, then, they outsource translation and interpretation jobs and do them. Respondents revealed those concerned in these types of consortia are paid handsomely and a small percentage is ploughed back into the university. The university status and prestige serves as a collateral in the jobs they do (Q9).

5.6 Incentives for Socio-Economic Activities

A few types of incentives aimed at promoting linkages between the university and its external socio-economic environment could be observed to have been recently instituted in Cameroon higher education following the recent emphasis to make its socio-economic role more visible. These include in a majority incentives for activities with external socio-economic partners like industries or activities which yield external incomes into the university. These incentives could be classified to be both non-pecuniary and pecuniary¹⁰⁹. The first type of (non-pecuniary or regulatory) incentive concerns legal instruments, which relate to third mission termed “*support to development*” (see the 2001 Law on Orientation of HE). The Growth and Employment Strategy Paper is also facilitating as it serves as a reference document for the socio-economic activities of universities. One of the major legal frameworks that could be seen to likely enhance the direct engagement of Cameroonian universities into socio-economic activities is the University-Industry Charter of 2010 (see 5.7.3).

At the time the interviews for this study were conducted, the respondents revealed that they were waiting for another decree which makes it mandatory for all Cameroonian lecturers to be involved in third mission (P1–P2). This new text was expected to emphasise socio-economic relevance (third mission) in the evaluation of the academic researchers, either through the economic relevance of his/her research, industry-linkage and other forms of collaboration with external socio-economic actors (P1–P2). These two preceding respondents reveal that the awaited text integrates research related to industries and even consultancy work as part of the academics’ career and promotion. In previous cases of evaluation and promotion it was classical¹¹⁰ research and teaching that were taken into consideration (P1 & P2). Another recent text in Cameroon higher education called “*Habilitation à dispenser l’Enseignement Professionnel ou Technologique*” (HEPT)¹¹¹ creates a status for professionals working in the industries to teach in the universities (Arrêté

¹⁰⁸ Another appellation at UB with roles similar to those of the interface platforms at the UD.

¹⁰⁹ In most cases regulatory.

¹¹⁰ Term used by respondents which suggests basic or academic research (for the sake of science).

¹¹¹ Accreditation to offer practical professional and technological training in universities.

no. 10/0393 of 16 November 2010). The respondents revealed it was a way for both the university and industry to open up to each other. It was to be a means of motivating professionals from the industries to come to teach in the Cameroonian universities. Respondents revealed that it had previously been academics who went to industries, though timidly. The text was therefore aimed at facilitating mobility between both parties, especially for industrial workers to come closer to the universities (P1& P2). The HEPT creates a new career path for professionals working in industries to be able to teach and train in technological subjects and also to move between industry and the university.

The first pecuniary incentive which relates to a revision of the 1993 reforms is the decentralisation in financial management notably Decree No. 05/2005 of 17 October 2005. According to the decree, the sum of the resources are distributed for common services of the university and the university establishments (faculties, schools and down to departments) (Article 10 & 11). The above decree stipulates that 65 per cent of the funds from the state be allocated for the general university's services and 35 per cent for the faculty/school. The reverse holds for the distribution of fees, 65 per cent of which goes to the faculty/school (generator of the resources) and 35 per cent to the common service of the university. The decree stipulates that the funds generated from the other universities' (autonomous) activities such as cooperation, loans and donations should be used according to the terms and purposes for which they are obtained (No. 05/2005 of 17 October 2005).

Some respondents held that this decentralisation in financial management was also meant to motivate the faculties and schools to take initiatives and risks as well as to speed up their activities and interactions with external stakeholders. The fact that it was formerly the rector or vice-chancellor as the only vote holder of the university gave the impression that financial management concentrated entirely on the enterprise (institutional) levels of the university to the exclusion of the operational units. However, decentralisation of the university's budget to units has been deemed insufficient from the perspective of incentives, per se. Some respondents felt that extra measures should be taken to incentivise the individuals who bring income-generating projects to the university than their units or structures (Q8). This respondent believes individual initiators of income-generating projects should be recognised and remunerated. This will encourage them to be more imaginative and creative (Q8).

Despite the legitimacy deficiency that the remuneration of initiators of external projects still faces in the current regulatory framework of the HE system in Cameroon, it was already practised in some universities. Monies that come from non-government sources into the University of Douala are divided in three categories: a portion goes to the central budget of the University, some to the establishment (faculties, schools and institutes) that are concerned in generating such funds and lastly, to the lecturers that initiate, run or sustain the projects (Q8). This implies that teachers who create market-friendly and professional programmes that bring in extra income receive double rates compared to

those of their counterparts in the classical and theoretical programmes. This means that more and more teachers come up with projects in which they partner with socio-economic partners (Q7). Another form of incentive is attributable to the remuneration of teaching hours. Teachers at UD who are involved in industry partnerships or third mission research for instance, are paid the total of the extra hours. While the remuneration of extra hours is a government criterion the bonuses for socio-economic activities at the University of Douala seem to be the result of an internal arrangement and regulation.

5.7 Knowledge for Socio-economic Development

In the preceding section (5.1 & 5.2.1), it was observed in the empirical data that the orientation and strategy that seem to have been adopted towards more involvement of the Cameroonian higher education system in economic development is first the applicability of the university's teaching and training through professionalisation and of research through applied research. This sub-topic aims at discussing the orientation to applied research and multidisciplinary and interdisciplinary which seem to be construed in Cameroon as some of the major pathways for the accomplishment of applicable knowledge.

According to the respondents, the new orientation towards applied research demands that research should be geared towards having a positive economic and social impact on society. R8 reported that besides theoretical and basic research, the HE system should place more emphasis on research which is beneficial to industries and enterprises. Like professionalisation which turns out to be cost intensive, the orientation towards applied research implies the higher education system stepping up the research budget. Respondents observed the need for investments to improve both the quality and quantity of research labs. Q7 argued that *"to do applied research you need money, you need laboratories"*. Q8 observed that previously, the laboratories in the Cameroonian higher education system had been teaching laboratories. The first thing for this respondent (Q8) was *"to put in place real (applied) research laboratories which are capable of addressing the needs of socio-economic actors and all of those require funding"*.

Because of the state's inability to provide sufficient funding for higher education due to other competing demands, the respondents observed the indispensability of turning to other sources for the funding of research in general and applied research in the Cameroonian universities. The logic which seems to be applied for supplementing the meagre research funding in Cameroon is for the prospective beneficiaries of such applied research to shoulder the cost. The respondents argued that, in consideration of the economic environment of higher education in Cameroon, the state does not have the means to finance university research entirely. But they believed that industries and socio-professional organisations are capable. Respondent P2 also observes that *"Cameroonian universities now have the capability and potentials, especially the human resources, to do heavy research but they don't have the money"*. The result of the perspective towards

industries and socio-professional partners could be seen in the utmost need to establish a connection between universities and industries. From another perspective, R14 found a serious attitudinal weakness namely that the public sector (government and its ministries) do not yet have the culture of using research results. As such this weakens the position, value and status of research. According to this respondent (R14) *“if research is sponsored by an industry, the industry is waiting for the information and results. The use of the results grants value to the research and more and more industries can come after the university for research”*. R14 concluded that it was high time to encourage industries to see their links to research.

With regard to interdisciplinarity and multidisciplinary¹¹², it can be said that the blend of different disciplines and theoretical bases has timidly existed over the years in Cameroon and seemed to have been misconstrued to be relevant only to a few specific programmes, especially the science fields and research. However, it could be observed during the current study that this interdisciplinary and multidisciplinary practices were beginning to be emphasised and formalised as a way towards the application of science and the more socio-economic contribution of higher education in Cameroon. One respondent stated that *“more and more, the world is moving towards interdisciplinary and multidisciplinary cooperation whether in teaching or research, especially when the knowledge has to be applied somewhere”* (R10). The rise of interdisciplinarity and multidisciplinary in Cameroon can also be attributed to the more robust professionalisation policy which demands in certain situations, that components of certain programmes be added to others. In the previous dispensation in Cameroon, the need for multi and interdisciplinarity mostly emerged where the research or applied research agenda required. Respondents revealed that the application dimension has come to be looked upon as an example for emulation in teaching.

Interdisciplinarity could be seen as a prerequisite for the approval of any new programme at the various levels of the system. Q8 revealed that each time they designed a programme, they ask themselves about the environment in which the activities of that programme operated. If the environment required a component from another programme they would integrate it in that programme. If they were, for instance, designing an engineering programme they asked themselves questions such as

...is this engineering student not going to manage human resources? What if at one time, he/she becomes the head of the firm? Isn't he/she going to need management and leadership skills? From that perspective, we automatically integrate the component that will provide the related skills or prescribe that the student takes the courses from another programme (Q8).

The respondent (Q8) revealed that no programme was expected to be approved at the level of the university council without such conditions being met and it was also a prescription

¹¹² Term used by most of the respondents as understood in Cameroon.

of the Ministry. This, according to Q8, implied that programmes could not come up “*only with the teaching conditions and only around one discipline, without looking at the practical environment in which the practice of that discipline operates*” (Q8). Although interdisciplinarity was evolving earlier with other disciplines it could be observed that it was mostly practised in the science fields and research in Cameroon. It seemed to have been led mostly by the biological and chemical sciences and therefore provided avenues for the generation of practices that could help other disciplines which engaged in solving direct societal problems. By definition and nature, some of the research projects were necessarily interdisciplinary. R16 doing pharmacological validation stated that “by definition our work is interdisciplinarity”. R17 expressed the understanding of inter or multidisciplinary in the following quote:

If you look at my research and background, I was trained first as a molecular biologist and then I went into public health. If I take my research on equity and cost effective analyses on malaria, you will realise that it is more of a socio-economic nature and I really do not have the expertise as an economist or health economist or anthropologist or sociologist. Then if you look at the hard core sciences, as a molecular biologist, ok, in my first training I was exposed to an amount of immunology but there are by and large, things that I need to do that require better immunological skills and that will require that I bring in people who are immunologists (R17).

This interdisciplinary approach also suggested the “*integration of biostatisticians with the social anthropologists then, to the public health biologist to address one or two aspects of the projects*”. (R17). According to R19 “this particular research in drug discovery is interdisciplinary. Drug research indispensably cuts across several disciplines”. Respondents (R16, R17 & R19) were unanimous that research nowadays is not the way it used to be in the past. The tendency according to R17 is “*to spread out and be multidisciplinary to be able to bring the simple solutions to the questions that plague the population*”. R17 stated that the multidisciplinary theory was a plus because it provides grounds for equal opportunity and the participation of many in its practices. “*Everybody has a word to say*”. “*One may cite the six blind men who went to visit the elephant and each described it in his own ways*” R17. In this sense multidisciplinary, according to the respondents, adds more value to research.

5.7.1 University-Industry Partnership in Cameroon

As was the case above with applied research and interdisciplinarity, it could be observed that whereas Cameroonian universities had over the years been hesitant and slow, there has in the recent years been a growing awareness about the necessity for partnerships with industries. Again, such partnerships have often been seen in Cameroon as the domain or to be of relevance only to certain disciplines and thus led to a first dimension

of university-industry partnership, which can be described as *programme-driven* industry linkage. For instance, the linkages often resulted from the chemical, engineering and some biological and management sciences which obligatorily required practical application and collaboration of the industry and firm. These programme-driven linkages have been mostly initiated and run at programmes or departmental levels, are mostly formalised through the respective heads but seldom well structured from an institutional or system's perspective. In certain cases, the linkages have been initiated between individual teachers and industry. Once initiated, they are in some situations, formalised in the departmental and institutional structures but seldom at the system level. This first dimension of university-industry linkage in Cameroon has been used to place students on internships, student and staff exchanges, training courses, joint organisation of seminars and colloquia amongst other related activities (see UB Memoranda of Understanding 2007; 2008). For their part, the industries and enterprises, on most occasions, receive students for internships, may finance all or some of the internships, receive and finance the visits of university lecturers and equip their laboratories for use by the students and visiting lecturers or those of the universities (Q8).

A second dimension of the university-industry linkage in Cameroon has been *industry-driven*; whereby industries and enterprises move towards the university for services which the university is appropriate and competent to provide. This dimension has mostly taken place in the form of contracts or commissioned research in which case, the university provides the services or conducts research for and on behalf of the industry. A third dimension of such university-industry linkages which is becoming prominent in Cameroon is that where the industry (not the university) has to provide a particular service for the university. This is the case in a recent five-year partnership between the University of Buea (UB) and the National Forestry Development Agency (ANAFOR), whereby as a part of a support in kind, ANAFOR was expected to provide technical support “*for the elaboration and implementation of the University's Tree Planting Project*” (see MOU of UB 2008).

However, it can be seen above and said that for all the 50 years of the existence of higher education in Cameroon, university-industry partnership had never received a permanent and sustainable status, either from a legal, system or political point of view. This status in university-industry partnership seems to have been reinforced by the recent economic development focus of higher education in Cameroon. One of the ground breaking events that has taken place in this direction has been the signing, on 20 December 2010, of a permanent Charter (pact) between Cameroonian universities and government represented by the Ministry of Higher Education and the industry, represented by the National Federation of Industries and Enterprises (GICAM). This charter resulted from the necessity to work out a general operational framework as well as give such relationships a more formal, legal and sustainable status (Respondents (P1 & P2)). The charter aims at providing to all forms of university industry relationship in Cameroon, a “climate of legal

security, clarity and confidence” (Charter, Article 2). As a general objective, the charter reinforces the interactions between universities and industry through a common shared vision to realise the Growth and Employment Strategies as well as putting in place a follow up mechanism for the partnerships.

It may be interesting to note that the terms and procedures culminating to the signing of the University-Industry Charter was subject to serious debates between the Cameroonian higher education authorities/government and the private sector, industries and enterprises. One such debate was the call by industry for the government to amend its fiscal policies, if the industries were to sponsor universities. Drawing on the respondents, the industries requested to be given some fiscal/taxation incentives for involvement with the public universities. The industries wanted to be sure of a return on their investment in the universities. The industries asked questions such as “*if I put my 2 billion FCFA into the university, what will be my taxation benefits?*” (P1). This fiscal debate partially stemmed from the industries not seeing their actual interests in universities and where such interest existed they were not similar in nature. For instance, while some industries see their interest lying in training their workers, others see their activities in terms of research to be done in universities. Some saw their interest in terms of innovations and R & D while others were sceptical because they were not sure they would retain the students after the sponsorship; the students might not even use that knowledge in the country (P1). As for the higher education institutions, they looked at it in terms of the fact that the university is a service provider; students and lecturers are an important labour force for the laboratories and industry. The universities therefore requested that such relationships be regulated to recognise the staff and students as workers. The respondents acknowledged that it is very easy to send students on internships in industries but there is the necessity to check the conditions under which these students are working on and on whose responsibility the students are there? If there is an accident, who will be responsible? Who is using the results the student obtains? Who is the proprietor? (P1). It could be observed that the industry prevailed over the university in those debates because the universities seemed to be more desperately in need of extra funds. However, it is also important to mention that during these recent debates in Cameroon, the industry showed greater interest than before, which therefore facilitated the establishment of the charter (P1).

The University-Industry (partnership) Charter in Cameroon takes the form of a tripartite agreement between the government, the university and industry which can be likened to the triple helix¹¹³. Industry is operationalised in the charter as a “*legally-autonomous unit*” which is “*producing goods and services for the needs of individuals and society*”. According to the charter, the University is a “*higher education institution having the missions of producing, transmitting, disseminating and renewing knowledge, skills and etiquette*”. As for partnership, it is defined as “*an association of different partners, whom*

¹¹³ By Etzkowitz and Leydesdorff (1997; 1998), Etzkowitz et al. (1998), Etzkowitz (2002; 2003), Etzkowitz et al. (2008). Also see 4.5.1.

while maintaining their autonomy, accept to join their efforts in order to realise a common objective” (University-Industry Charter 2010). Among other issues regulated by the charter is the provision of information for the “*evolution of trades and skills*” between both parties, issues of vocational training and applied research for industries, research and development, career plans and professional integration of students, training of university personnel, continuing education, co-supervision of research work, service provision and expertise, material and intellectual property ownership. Finally, the charter stresses on the necessity for maintaining the integrity of scientific research and confidentiality and articulates on issues concerning the collaboration contracts, financing, follow up mechanisms and durations (University-Industry Charter 2010).

5.7.2 Intellectual Property Rights and Ownership

Another important phenomenon observed in the present study was that the recent economic development focus of the higher education, especially the need for partnerships with industries and other socio-economic actors seems to be intensifying debates about intellectual property rights and ownership in the Cameroon policy circles. Intellectual property, as defined within the context of one of the universities (UB), relates to “any invention, discovery, improvement, copyrightable work, integrated circuit, trade mark, trade secret, licensable new knowledge and related rights” (UB Research Policy and Management Guide, RPMG 2008, 16). The debates have had to touch on related issues of material property and results ownership. There are questions about who will own the laboratories and equipment. In particular, the issues on ownership of research results and their use in Cameroon were being called into serious question.

The evolution of the debates towards intellectual property rights contrasts with the previous era where there was little or no concern on the subject in Cameroonian higher education policy circles. Never in the history of higher education in Cameroon had such debates been as strong as in the recent years (P1). On a question to know why the debates on intellectual property rights have recently intensified so much, respondents revealed that “*Nothing or very little ever came up in the past that needed discussions about intellectual property rights, ‘sharing this or that’. So there hadn’t been any experience to share on this or that*” (R19). P5 stated that

Before, our universities were doing research as research and not for use. For example, they could only be working on mathematical and physical theorems and so on. These are not the types of things to worry about intellectual property but when you start working on and about the society, especially in partnership with other parties, issues of ownership naturally emerge (P5).

It could be observed that the University of Buea had recently stipulated, in its Research Policy and Management Guide (RPMG), how such issues of intellectual property rights

were to be managed. While describing the clauses on intellectual property rights in the RPMG as “*broad policy statements*” and “*still in their infancy*”, R16 believed that there were still many such issues in the Cameroonian university to be codified. And, to the extent that such broad policy statements have not been, experientially, carried to their logical conclusions, it was “a little difficult” for R16 to evaluate the intellectual property regime at UB and Cameroon. Some of the respondents revealed that, sometimes, there are studies which result in patents. If that were the case, the university would allow the researcher to file the patent outside the country or turn for support to the African Organisation for Intellectual Property. None of the universities in Cameroon have patent office “because patents are quite expensive to register and to follow” (R17). Some rare patents were observed to exist in the Cameroonian universities. For instance, R16 was known to possess twelve patents, all of which had been obtained abroad.

With regard to the debates on results ownership, the main weakness was partially attributable to the structural discrepancy of research and higher education (see 6.1.2 & 8.2.1). The argument goes that because most of the third mission research and respective funding have been left at the mercy of foreign and international organisations the latter are those who receive the research results. All the respondents reported that the results and copyrights of their publications went to the sponsors who are mostly foreign or international. This phenomenon has been seen to weaken the applicability of the research results and research as whole for local development purposes. A related argument holds that “*if it is funding that is provided locally, then there are obviously options for exploiting the results locally for the benefit of our society*” (14). Two opposing schools of thought could be identified on this issue. R14 reported that “we look abroad to get the grant but most of the work we do is local”. What this respondent seems to agree with the others about is that the results obviously go to their sponsors abroad but the dissemination may be carried out locally. The respondent asserts that most grants require a section on dissemination and “*if one of your milestones is not aimed at impacting on policy and dissemination, usually, you will not get the grant*” (R14). R16 takes on a similar view as follows:

Well, those who fund research will obviously expect to own the results. Whether they exploit the results or not is the subject of the agreement that is reached at the time the funding is provided. The results are usually published. Maybe if you have somebody who is smart enough, he/she will pick and move it forward’ (R16).

R16 believes that if research is left to the mercy of the international market and funders, then the Cameroonian government is not serious about research. This is because, “*you cannot depend almost entirely on foreign research funding to solve your own local problems*” (R16). The respondent also highlighted that there are control and evaluation problems as well as the vagaries of the market and ethical issues which emerge when the government does not finance research (R16). Respondent R14 seemed to be optimistic at the recent orientation, through the University-Industry Charter, to get industry to finance university

research in Cameroon. *“It is a way to get university research being put into use and thus increase its socio-economic development focus and relevance”* (R14). This respondent reveals that

The linkages and networks are very weak. The government needs to spur a lot more. Perhaps it is the Ministry of Scientific Research and Innovations that has to galvanise all the research output from universities into a central pool and ensure that they are disseminated to prospective users (R14).

The rationale and strategies for creating and investing in the new applied research labs seemed to point to some perceptual tensions or the necessity for combinations of different strategies based on their different rationales. There seemed to be more necessity and formal moves to define and structure issues of intellectual and related property rights. The University-Industry Charter states that in the event that research is carried out between parties, “each partner shall remain the owner of his pre-existing knowhow. *“Know-how”* is defined as *“any transferable technical knowledge which is not immediately accessible to the public and for which a patent has not been taken out”* (University-Industry Charter, Cameroon, 2010, 7). The Charter is based on a system of co-ownership, whereby each partner “shall be owner of the results, he/she generates, but shall concede rights, be they exclusive or not... to other partners in the fields that belong to them...while taking into consideration the different contributions of partners and level of risk undertaken (University-Industry Charter 2010). At the institutional level, UB stipulates at first sight that

The university owns any and all IP created through the use of its resources or facilities supported directly by funds administered by the university, developed by employees within the scope of employment, assigned to the university or agreed in writing to be a specific commissioned work (UB RPMG 2008, 16).

The ownership clause adds that *“the university lays claim to IP that meets any of the above criteria regardless of where the IP was created”* (ibid.). The argument in favour of the university’s ownership, as conveyed by the ownership clause, is based on the employer-employee relation; whereby all the academic researchers are classified as employees of the university. A second dimension of the ownership clause at UB recognises the creator’s rights whereby *“he/she shall have a portion of any and all benefits accruing from the sale, distribution and licensing of the IP”* (RPMG UB 2008, 17). The third dimension recognises the fact that the results of research done within or without the university may be the product of specific agreements with non university actors. In such exceptional situations, their agreements *“supersede the provisions of the policy guide but are not expected to infringe upon the rights of the researcher to publish research findings”* (RPMG UB 2008, 17). UB takes on a moderate or middle position by apportioning different percentages of the proceeds of any IP; 30 per cent to creator, 30 per cent to University Administration,

10 per cent to the creator's faculty and 30 per cent to creator's laboratory and research programme (RPMG UB 2008, 18). A final element that has been perceived to accompany the debates on intellectual property rights in Cameroon higher education has been the creation of structures to provide general oversight over IP policies within the university. There is the case of the "*IP committee*" stipulated in the RPMG (2008, 18) of UB. The charter as the overall instrument for the entire HE system prescribes the setting up of interface structures to handle such IP and ownership issues between partners (University-Industry Charter 2010).

5.8 Tools and Drivers of the Reorientation Policies in Cameroon

5.8.1 The Use of ICT

Although recent devices like computers and internets would seem to be more conspicuous and synonymous with the new information and communication technologies (ICT), certain schools of thought hold that the definition of ICT should indispensably include traditional devices such as telephones, televisions and radios. This is because of the difficulties of distinguishing between traditional devices like telephones and new ones like internet. In other words, some traditional devices like the telephone continue to accompany the recent ones. It is increasingly common that there can be phones with internet as well as radios, media and televisions centres with high computing and digital capabilities (OECD/DAC 2005). In the study ICT was broadly understood as the various communication devices ranging from computers, internet and their relatedness to the traditional devices and respective infrastructures and know-how. There is again a body of literature that seem to concur with the correlation between a country's level of industrial and economic development and possession and adaptation in the use of ICT. To this school of taught, ICT becomes one of the proxies for evaluating the economic development of a country and constitutes one of the four pillars of the knowledge economic intensiveness and classification of nations (see Knowledge Economy Indices of the World Bank). What seems to lack evidence, in the case of developing poor countries is whether this possession, density and adaptation in the use of ICT contributes in pro-poor growth; whether they significantly contribute to the benefits of the poor or enable them to participate proportionately in economic life than the rich people (Ravallion & Datt 2002).

Another perspective holds that ICT is a thing for the rich; it can mostly be procured by the rich (privileged) people who have good incomes. This is also because ICT equipment may not be readily available to the poorest class due often to widespread illiteracy, poor infrastructure and lack of financial resources (Nji 2004,125 in the case of Cameroon). Another extreme but related perspective holds that the degree of poverty affecting some classes of people requires that priority be given first to basic needs such as food, shelter

and health care and not to the acquisition of modern tools like ICT. Aside from the rhetoric about ICT as an indispensable tool and proxy for socio-economic development and industrialisation, it was necessary to find out from the actors of the higher education system in Cameroon about the weight attached to ICT and corresponding investments and infrastructures, upon the declaration on the use of knowledge through higher education in poverty reduction. Also, the researcher sought to examine the knowledge that the contextual reality of Cameroon and related perceptions of the policymakers on the use of ICT may create or add to the bodies of literature.

From a holistic and system perspective, one of the respondent (P3) argued that ICT is a necessary tool for poverty reduction as it is supposed to facilitate the economic activities of the poor and “this is why ICT has been strongly articulated in the growth and employment strategy” (P3). Other previous studies (Scott et al. 2005), for instance, in Mozambique have shown that when farmers, traders and wholesalers have access to phones, their activities become more dynamic and their products more diversified due to the speed of communication and information. Although such studies may seem not to provide enough evidences as to whether the dynamism in their economic activities leads to lower prices, they suggest that as products can move quickly, there are differences in returns which may draw on the increase in the volume of activities. Respondent P3 uses the example of a farmer in a small locality in Cameroon, called Foubot.

This farmer produces tomatoes in bulk. The tomatoes are usually perishable and stand in the bush far away from the towns. The farmer does not have money for transportation to the township and may not even know the township. That farmer is able to get the buyers by phone, thus able to escape from the waste that might have resulted from the tomatoes going rotten (P3).

Other perspectives hold that ICT is not only a tool that facilitates life for the poor rural population but enables them to make strategic and more rewarding choices. Respondent P3 cited the case of Bali Nyonga, an old airstrip town still maintaining its international Aviation (IA) Code that can be retrieved from the internet.

It is possible to know the weather in Bali Nyonga from the IA forecast. The farmers can send their children to the internet to check the weather of the next day, so they can choose to go to the farm or not and thereby have the possibility of switching to more productive (perhaps home) activity, if it is going to rain (P2).

Such an example, according to P3, may explain why the Cameroonian government through the GESp places emphasis on “*popularising*” the use of ICT and making it possible for all citizens to use them (GESp 2009, 63). During the study, the Cameroonian government was seen to be engaged in creating community telecommunication centres to facilitate this flow of information to render the markets in the community centres more dynamic. It was reported that higher education would by implication, be needed to provide training,

manpower and capacity building for the training of the community centre staff and ICT use; higher education will be expected to provide the related human resources (P3 and P4). Some specialised training establishment, in the case of the Advanced Technical Teachers' Training College, Bambili were observed to have been assigned the responsibility to train the trainers of secondary school students in ICT.

Besides, there is clearer evidence of the use of ICT in production and technological innovation systems; in influencing a high volume of production, its use throughout the value chain and contribution in multifactor productivity and capital deepening (OECD/DAC 2005). Respondent P5 talked of the relationship between ICT and the service economy and in the management of information in general and about the economy. The Cameroonian economy has been seen to be increasingly dominated by services in recent years, which is where the combination of HE and ICT find more relevance (P5). P3 observed that ICT is needed in terms of the industrialisation of the country and also for the efficiency of the production system. *"When we look at the system of production across the world, we observe that a majority, especially the most successful ones, are highly digitalised"*. According to this respondent, it is not only that ICT can produce efficiency in service delivery, higher education like the educational sector in generally, is a (social) service sector. As such ICT and HE go hand in hand to produce efficiency in the production of higher education services to which the service sector of the economy is most highly in need (P5). ICT is seen as particularly indispensable in higher education, as one of the country's foremost knowledge sector. Some scholars (Marginson & van Der Wende 2007) claim that without ICT, HE would be almost impossible in the era of globalisation. Put in milder terms, HE will not be efficient in its processes and missions without ICT. Respondent P3 observes that *"You know, ICT is generally considered a tool. Tools are used to improve the quality of life, they improve human communication and interactions. This implies that this ICT has a lot of influence in the conduct of the affairs of higher education"* (P3).

Respondent P6 reported that the policy embarked upon by the higher education system in Cameroon cannot be efficiently implemented without ICT. According to this respondent, professionalisation and the recent degree structure and credit system, for instance, add many things to the curriculum with one of the consequences being that it increases the workloads of teachers and students alike. Thus, there is a necessity for *"new instructional media"* to enable the higher education system accomplish its mission *"including that the students have to do part of the learning and work themselves and which can be facilitated by ICT. We have to make use of ICT as a useful gift which has come to facilitate the curriculum and instruction processes"* (P3). The above opinions held that ICT would facilitate the socio/economic relevance and improve the participation rate in Cameroon higher education. The priority to ICT, according to the policymakers, is about ensuring that all graduates are capable of using ICT in all their academic and professional projects (Sectoral Policy Document 2010; SUP INFOS 2010b, 9). A related perspective highlights the importance of open and distance learning in reinforcing the capacities

of the staff in the private sector and industries without them necessarily displacing themselves to the universities. The aim of this perspective is to improve the performances in socio-professional milieus and in developing the Cameroonian knowledge economy. These explain the *raison d'être* of the various centres for distance learning in Cameroon (see SUP INFOS 2010c, 21).

Another important role that renders ICT indispensable in Cameroonian higher education is to connect the universities to the rest of the world and which explains, according to most of the respondents, the existence of institutional websites for all the Cameroonian state universities. Respondents (P3 & P5) cited the fact that the universities have to know about themselves and be able to learn from each other. This also explains the existence of the inter-university network in Cameroon. An interface digital structure for the universities could be identified through the Centre for Distance Learning with the objective to be exposed to best practices with other parts of the world. Related to the connection role in higher education is the internationalisation thesis. Q14 noted that ICT is supposed to enable the higher education system to participate in international education and research agenda. ICT was claimed to play a role in research; in bridging the research divide, internationalising Cameroonian research and increasing its outputs (Q14). It seems germane, to recall from most of the respondents that the greater involvement of the academic staff of the University of Buea in third mission through internationally-competed and won research grants is attributed to the advent of ICT in recent years; their capacities to outsource such international grants. This has been seen to significantly increase the university's research budget which was around 0.5 per cent in 2005 to about 5 per cent in 2010. The above brings in the notion that ICT and by implication, global thinking provides new sources of resources for the developing country's university in the Cameroonian context.

Finally, in terms of the national economic system thinking, R18 observed that ICT is able to fill in the connection and interaction gap, first between the different national sectors. The opinion holds that higher education should be connected with the different national sectors to enable the sectors be informed, interact and be able to appropriate the various services that can be offered by the higher education system and this can be facilitated by ICT (P5). Meanwhile, according to respondent R18, higher education can be correspondingly informed of the needs of those sectors through ICT and respond commensurately. In the guise of the perceived necessity, ICT can be observed to have influenced changes in the orientation of the steering of higher education through a new concept termed *Gouvernance numérique* (Digital Governance) in Cameroon. This term according to respondent P3, "*is about how to steer and coordinate higher education with ICT*". Digital governance in Cameroon covers from university administration and management to training and research through ICT and even to the networks and websites (P3). This respondent also expressed concern about increasing enrolments as follows

With the increasing number of students in Cameroonian higher education, how are we going to manage the teaching? How are we to manage the grades and marks? It is necessary that we acquire the necessary tools and software to manage our work. This is what we call digital governance (P3).

As much as ICT is regarded as being able to perform uncountable and inexhaustible functions both from the national system and higher education perspective for the socio-economic development of Cameroon, other respondents believe that not all is positive about it. Respondent R16 expressed concern that brain drain especially in knowledge sectors like higher education in Cameroon would have inevitably increased in recent years due to ICT; ICT provides opportunities for academics staff to be aware of global opportunities and thus leave the university in countries where the opportunities are few (R16). R18 suggested that there are cultural issues that have traditionally led to efficiency and monitoring in higher education which must not be glossed over. The respondent suggests a conscious blend of the digital and traditional modes of delivery in higher education. To the above challenges may be added the scarcity of infrastructure, financial resources and capabilities for steering teaching and research through ICT (R16).

5.8.2 Infrastructural Development and Investments

On the strength of the preceding perceptions on the use of ICT in Cameroonian higher education for national socio-economic development, it may be deemed necessary to begin this subsection with an analysis of the introduction of ICT infrastructure. Besides, the use of computers for secretarial purposes, the introduction of ICT infrastructure in Cameroonian Higher Education may be estimated to have begun in the early 2000s through a computer acquisition programme dubbed *one-teacher-one-computer*. The one-teacher-one computer programme was based on a public-private understanding between the Ministry of Higher Education and some major private firms whereby each academic employee was advanced the possibility to procure a computer on a monthly instalmental credit basis. This acquisition moved on to the next phase which was the digitisation of principal offices and subsequently, to major units of the university. The next phase in the first half of the 2000s was the creation of government subsidised cyber businesses and websites on the campuses of the universities. Never the less, with a stronger socio-economic development focus after the mid 2000, a system-wide infrastructural development in Cameroon higher education can be observed; in terms of tools like ICT and buildings which have come to be described as a “boom of infrastructures” (SUP INFOS 2010b). Again this boom of infrastructures coincides with and may be attributed to a better national financial climate but does not however preclude the fact that it is a result of conscious priority. In terms of ICT can be cited two virtual universities and telemedicine centre for the country and sub-regional levels as well as various open and

distance learning programmes, some of which were created as system-wide programmes or by respective universities.

Various major ICT infrastructures for tele or virtual teaching moreover, fall under a national structure called “National Institute for Digital Governance in Higher Education” (*L’Institut de Gouvernance Numérique Universitaire*) (SUP INFOS 2010c). Among these are four major infrastructures and programmes. First, there is the University Centre for Information and Communication Technologies (UCICT) as a key institute specialised in ICT and for dissemination of ICT practices to the higher education system. The UCICT is also involved in capacity-building for university personnel and in the management of digital resources. These are, for instance, libraries and student record services. The second is the Institute for the Promotion of Services, Creativity, Innovation and Technologies (*L’Institut pour la promotion des Service, de la créativité, de l’Innovation et des Technologies*) (IPSCIT). The IPCIT aims at promoting innovation in digital issues. The third is the Interuniversity Centre for Documentary Resources, for the diffusion, production and provision of access to research materials for Cameroonian university researchers. The last in this national framework is the *National Centre for Distance Learning*.

As part of the infrastructural boom that has followed the recent economic orientation of the higher education, there has been an exponential increase in immobile infrastructures notably ultramodern classrooms, libraries, amphitheatres and offices as well as various infrastructural rehabilitation processes. This infrastructural boom dominantly draws in part on the budget of the Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE) sponsored from the HIPC funds and are geared to host and increase its related programmes capacity in technology, medicine and education. A more demanding element, as revealed by respondents, is the degree structural reforms under the Bachelor, Master and Ph.D (BMP) or the *Licence, Mastère* and *Doctorat* (LMD) as well as the extensive professionalisation policy in Cameroon which have necessitated infrastructural expansion. These infrastructural developments that have been brought about by the professionalisation and harmonisation policy in Cameroon go along with the second facet of the economic development focus of the higher education, applied research which has necessitated the creation and expansion of laboratories.

Chapter Six

The Systemic Environment of Higher Education in Cameroon

6.1 The National but Loose Innovation System in Cameroon

In every country, there is a system operating within the national geographical borders with different components, parts, sectors and sub-sectors to which Cameroon cannot be an exception. The difference due to the National Innovation System (NIS) theory is the extent of “system thinking” which characterise operations within a system (national borders). As perceived by some scholars, it is the degree of “*organisedness*” and “*relatedness*” between the elements and entities within the system (Sengel et al. 1994; Checkland 1993). Systems may not necessarily be systemic and some national systems are more or less systemic than others (Etzkowitz & Leydesdorff 2000, 112). This NIS presupposes that such system thinking be reflected by the extent to which knowledge is introduced into the system, the linkages and interaction between the sectors and learning between the sectors and between the producers and users of the knowledge. This assertion again suggests that one of the strengths of the NIS is in the degree of dynamism and relationship between actors and institutions involved in the knowledge economic diffusion and development processes. Systems of innovation consist of increasingly complex collaborations across national borders (Godin & Gingras 2000; Etzkowitz & Leydesdorff 2000, 112).

The first missing link which is tantamount to undermine the efficiency of higher education in its socio-economic role in Cameroon is the absence of the NIS. There seems to be a system in Cameroon but this system is however marred by weak linkages and low levels of interaction between actors, elements and institutions. Some of the activities of the universities reveal that the university’s contribution to socio-economic development and poverty reduction may be more direct than it is assumed or intended to be. However, such activities were seen in the study to be limited by insufficient macro support, weak linkages and weak interconnectedness which can be illustrated by two examples below:

Respondent R12 was a principal investigator of a research project which had as the main goal to develop devices that can be used to electrify rural areas in Cameroon. Their team was at the point of manufacturing prototypes for rural electricity supply. This respondent argued that if there were sufficient funding, their activities could be scaled up

to help the national electricity corporation (SONEL) to produce power plants of a higher capacity instead of using the smaller ones for the rural areas. The respondent observed that they could also set up industries with private partners to manufacture some of these prototypes on a large scale and sell them to the rest of the Central African region.

Respondent R16 was also a principal investigator whose research interest was in drug discovery, specifically pharmacological validation. This involves conducting scientific research to ensure that certain traditional medicinal plants actually cure what the (charlatan) traditional doctors claim that they cure. The respondent revealed that once they had done the validation and obtained the results, it became a very difficult, if not, impossible task to go from there to develop products that can be taken to the market. The respondent argued that more capital was needed to carry out formulation and registration of the product but the “national environment just ignores” them at that point. One reason for the difficulty was that the means are not available for the university to extend its activities to product development. Also, most often the results of such projects were obtained when the terms and financing of the project were ending and the terms of reference and finance of the projects, which are most often externally-funded, might seldom include product development. Below is the opinion of R16.

Our activities are handicapped by the fact that there is no structure, means and prospects to take us from scientific results to product development. We could have more direct relevance and impact on poverty with products in the markets if 1. We start manufacturing the drugs 2. If those drugs get to be used. 3. If you start working with a particular medicinal plant and you can demonstrate scientifically from the lab that the plant can generate income, you are directly impacting on poverty. Most often our work does not go out of the laboratory, “nobody takes us out of the laboratory” (R16).

The lack institutional interaction was cited by respondents from the example that the Ministry of Public Health or Energy may be running a programme on malaria or solar energy respectively but academic researchers who may be researching the same topic in the university are seldom invited or integrated into the national programmes at the practical or political levels. Similarly, there seemed to be a structural discrepancy between the university and the Ministry of Scientific Research, whereby university research is seldom integrated into the general pool of research findings. Consequently, the potentials of the universities are seldom exploited or realised to their maximum.

Given a strong innovation system with interconnectedness and linkages the results of electricity and drug discovery research of the two respondents above would be taken over by the related ministerial departments in Cameroon for exploitation, sponsorship and commercialisation and dissemination of the results. The two examples above imply that very much is being done by the universities in Cameroon but they end up being closed up in the academic system (perhaps only through publication). One principal investigator (R12) believes that if the university researchers have the proper government or system’s

(institutional/financial) support the country and its citizens will be able to benefit more directly from what they are doing. Rural electrification, for instance, is one of the main developmental challenges of Cameroon (R12). The potentials of drug discovery for health and the national economy cannot be overemphasised. However, as observed by one of the respondents, “*the resources have not been invested into it and this is a general problem for university research in Cameroon*” (R16).

From the above example, it can be argued that the NIS among others can enhance the university’s contribution to socio-economic development, hence poverty alleviation and the development of the university, hence a win-win partnership. This system as an interactive model of innovation has corrected the traditional linear model which characterized the production system or economic and technological development. The innovation system approach considers innovation as an interactive process among a wide variety of actors (Malerba 2002, 49; Miettinen 2009, 41). The traditional view with the linear model was that basic R & D simply provides the foundational knowledge for innovation which then becomes a good to be diffused to users. The university had a simple role, to do basic science and research on which the rest of the innovation was built. Consequently, it was difficult to find examples where pure basic research led directly to products. On the other hand, it could be easier to find examples where innovation in industries was made by users, involving very little, if at all, any science (Cowan 2005, 5). The above therefore raise questions about the role the university was playing in the linear model. The interactive spirit behind the National Innovation System will increase the impetus of the university and reinforce its position as a major actor and player in national innovations, socio-economic development and growth. In addition, the NIS can increase the direct utilitarian dimension of HE (third mission) and improve interaction and collaboration between the university and other actors and institutions of the national system.

The second perspective that reinforces the university’s socio-economic role through the NIS is the emphasis on the necessity for learning, feedback and backward linkages between the different actors in the innovation system. This is as opposed to the traditional linear model which was simply uni-directional and which depended only on one stage feeding the next. The philosophy behind the NIS suggests that universities are no longer seen as doing mostly basic research. There are different types of major actors or institutions which are supposed to feed the entire innovation process with knowledge or information and the information flowing between actors and institutions (Cowan 2005, 5). Because the system model attaches importance to the roles users can play in the innovation process, universities can have feedback and learn from the national system. In the linear model they participated in innovation but were seldom provided with feedback. These backward linkages and feedback therefore provide the opportunity for universities to adapt and adjust their services, activities and processes and which consequently lead to or improve the innovation process. As a result, universities become major players in

national innovations from which marketable goods are produced. The learning that takes place through users in the innovation process has important implications for economic theory (Lundvall 1998, 24). Lundvall argues for the importance of the competences of users to be strengthened. Previously it was the producers' perspectives which dominated. However today, the NIS attaches importance to the feedback from users. There is the necessity to study "interactions between people, what was learned, how, by whom and what level of work in the organisation" (Lundvall 1998). This suggests the involvement of other disciplinary areas such as psychology and sociology regarding how learning takes place in firms, organisations, institutions and among users and producers (Miettinen 2009).

An innovation system would likely increase the possibilities for the university to commercialise its activities for instance, in the form of protecting novel inventions. The new growth theories also provide the bases for such assertions. The increased impetus to knowledge to be comparable to other capitals imparts value to the originality of new innovative ideas and knowledge where the originality of ideas is rated as an indispensable springboard in every innovation process. This calls for the protection of such originality and leads to an increase in the (market) value of universities' activities. Since the speed of learning has become a key in the globalizing learning economy, new knowledge that is not easily transferable to other localities becomes of special importance (Lundvall 2002b). As the site where most of the original ideas and sciences for innovation and technologies originate, the university could take advantage of the interaction and learning in the system perspective. Scott (2003) argues that most of the external competing knowledge producers of the university are either deeply enmeshed or parasitic on the university. If they are not, they build on the basic potentials, products and foundations laid by universities. For instance, although some of the knowledge is produced outside the university and in firms and through product development, the production is mostly carried out by university graduates.

The National Innovation System provides the opportunity for universities to strengthen their financial bases. In buttressing the importance of the strengthened role of the universities Cowan (2005, 6–7) asserts that there are a lot of patentable, marketable and economically valuable ideas in the university and this makes the universities contribution to wealth creation almost as direct as it is possible to be. This suggests that the NIS reduces financial dependence on government and increases self reliance and autonomy of the university. A more direct connection and relationship with other sectors of the national system, for instance, industries, science and technology as well as companies for R & D suggest that the NIS concept offers new career and financial opportunities to academics as they could easily move between industries and the universities. Another perspective holds that the university's interaction with its socio-economic system reinforces academic performance and provides the opportunities to widen its teaching and research agenda (Shattock 2005, 17). Finally, the NIS offers the opportunity to reduce the traditional

information asymmetry that exists between the university and its external stakeholders. It provides prospects to increase the visibility of its activities and accountability in terms of socio-economic development.

6.1.1 Weak System's Demand Side and the Professionalisation Policy

Another innovation system-related missing link is about the professionalisation policy in Cameroon. In addition that professionalisation may generally reinforce the risk of over education (overskills) in the system (Hartog 2000), it has been argued that the innovation system gets complete when the supply side for the skills is matched by demand side (Camoli et al. 2009). It has also been proven from "*How Rich Countries Got Rich and Why Poor People Stay Poor*" (Reinhert 2007) that for the successful cases, it is a result of the simultaneous provision or flow of better educated people with situations where the jobs and skills are in demand. Reinhert (2007, 320–21) argues that "...*nations that address only the supply side of educated people end up educating for migration*". Lall (1992) remarks that physical capital would be inadequate, if there is lack of technological capabilities. In other words, if skills are created without technological efforts, efficiency will not increase dynamically (Lall 1992, 170).

Although the professionalisation policy in Cameroon should have been simultaneously and coincidentally backed by some of the recent major projects in Cameroon as the demand side, the systemic perspective provides a caution which not only suggests the nation's innovative capacity to sustain such policies but linkages, interaction, learning and the ability to stimulate and incentivise demands for the skills. Continuous innovations in a broad sense remain indispensable for every developing country that has the ambition to grow and create more and better paid jobs for its citizens. Such jobs may be opportunistically created, in addition to which the importance of investment, hard work and efficient use of resources. The emphasis here is that technical and organisational innovations are indispensable to keep the momentum of the job creation and economic development flowing (Lundvall et al. 2003, 2).

6.1.2 Adverse Effects of Loose Macro Linkages to University Research in Cameroon

Without reemphasising the generally low funding for research and R & D that have been seen to characterise almost all developing countries, this study identified a serious inconsistency to the innovation system's theory which is tantamount to undermine the role of the universities in knowledge based economic development in Cameroon. This was indicated by the structural separation between the university (which is in charge of training and research) under the Ministry of Higher Education (MINESUP) and

the Ministry of Scientific Research and Innovation (MINRESI) under which there are institutes carrying out professional research. The consequence is a lack of status for university research which is reflected in a lack of system strategic planning, low funding and a lack of central funding for research done in universities under MINESUP. The sectoral research budget that accompanies the national research policy in Cameroon is lodged in MINRESI and this MINRESI was however, claimed by the respondents to run parallel to the universities. As for higher education, there is the ministry's (MINESUP's) running budget and the university budget. There are however, some meagre funds like the mobility and professionalisation grants at MINESUP to sponsor trips for academic researchers as well as the Research Allowance and Modernisation Grants which are more like salary bonuses (cf. 2.2.3). These meagre grants do not have a steady status and the ministry does not have a central budget for research done in universities or the higher education sector in general. It is implicitly the universities that lodge and allocate monies for research through related budget heads and lines that are created on their initiatives from the bulk of their budgets and which do not have any permanent status either.

The absence of any central budget for research done in higher education as well as the parallel operational framework of MINRESI suggests that there is no central strategic plan for university research in Cameroon. By deductive reasoning, if there is a central (system) funding for university research, there would be a strategy or plan for the use of the budget with respective conditions. Conversely, if there is strategic plan for research there would certainly be its financing plan. As such, it could be seen that the university or university research does not exist and is not structured in the national research and innovation system in Cameroon. The absence of this central research funding and of national strategic plan for university research limits the university's position as an actor in the national innovation system of Cameroon. In a nutshell, the lack of system status and recognition with all the cited implications suggest that a large portion of the country's knowledge potential is being neglected, which is a serious weakness and given that it is no longer clear from which knowledge organisation major innovations and technological breakthroughs emanate. Again, it is not clear if what the professionals in Cameroonian research institutes do, the academic researchers in the universities cannot do. Neither is it clear if their prior trainings are significantly different.

The lodging of the meagre funds in the universities' budgets may suggest that university research in Cameroon is being steered fragmentarily or may lack some central coordination to relate university research to national needs. Also, the lack of a central fund, strategic plan and lack of central coordination for university research implies that research evaluation was being left in the hands of the universities. The outcome is that the responsiveness and evaluation of the research done in universities, as seen by the respondents, is weak and accounts partially for the emergence and evolution of the researcher-led research (hence third mission and entrepreneurialism) in Cameroon. This leads to the desperation among university researchers, who mostly turn to international

donors and with implications on how the results of such research done with the grants from international donors are used. One of the consequences is the slight effect on the contextual and societal relevance of university research in Cameroon. Respondent P1 concurs that “*Cameroon is in need of a more permanent/sustainable evaluation and funding system for university research*”. Most academic researchers in Cameroon continue to work on themes that are based on their individual preferences and those of their funders, most of whom are foreign and to whom they give their results. The results are seldom used for national benefit (P1). P1 cites the example that any researcher can just decide today to work on Mars without asking how the research and Mars respond to the problems of the Cameroonians.

No!! The problem of the Cameroonian today is not about knowing the planets. It is about having food, drinking clean water, having good roads, good air to breathe and atmosphere...not having mosquitoes and malaria. These are the important themes that serve all the different segments of the population, both the ordinary man and those of other classes (P1).

Respondents P1 and P2 remark, with regard to research carried with university funding that their reports are mostly left to the honesty of the researchers. There is very little follow-up. Respondent R17 argues that follow-up of any money disbursed to individual academic researchers and groups and their related results remains one of the main challenges of research in Cameroon. What obtains, in most cases, is that it is financial auditing that may be carried out to regularise the use of the funds rather than the technical aspects and relevance of the research (R17). P1 perceives that a central funding body could enhance the evaluation and efficiency of university research in Cameroon. As most of the funding through individual researchers is obtained from abroad, so do the results go abroad rather than being used nationally (R16). The general outcome of the above weakness is that the input of university research to national production and innovation in Cameroon is at its weakest. The sparse and diverse natures of the external grants create a situation where in compliance with the regulations and results required from their external donors, Cameroonian academic researchers can be seen to be mostly responsive to their external partners and not necessarily to national needs. Gaillard and Zink (2003, 22) narrate researchers' experiences in Cameroon whereby they perceive they are becoming more of “workers” and “mercenaries of donors” or “objects” than “subjects” of research because of the tendency for their national government to allow research to be at the mercy of donors. The experience is that “*they mostly hand over data to sponsors*”. The researchers and the nation do not reap the benefits of this research. “*They don't see where the results go. The donors do with the results as they please and they mostly fund research according to their own interest*” (Gaillard & Zink 2003, 22). Cameroonian researchers (according to P1 & P2 in consistence with Gaillard & Zink 2003) mostly act like “simple collectors of samples”.

The generally low level of research funding in Cameroon (at least compared to the GDP) and university research in particular, coupled with the fact that the bulk of its research funding comes from external grants implies that Cameroon does not give priority to solving its problems or at least may have left its problems which are to be solved through research in the hands of foreign partners. Gaillard and Zink (2003, 14) observe the phenomenon to be equal or more as a matter of priority. When at a certain moment a sector of national life is perceived as being strategic from a political perspective, it receives commensurate political weight. Gaillard and Zink argue that although the setting up of the numerous research institutes in Cameroon before the 1980 crises drew on petroleum products, it portrayed a genuine political will to train and have access to the scientific elite (ibid.). It will be recalled that when the National Scientific and Technical Research Council (*Délégation Générale de la Recherche Scientifique et Technique*) was created in 1976, it was placed under the coordination of the Prime Minister. Research gained political weight during that period. In countries that prioritise technological development and innovations for their economies their aspects of national life like research which is their natural process receives commensurate political weight¹¹⁴. It can therefore be asserted that low priority for university research accompanies a generally low national research culture and lack of political impetus. This would be a serious impediment for the evolution towards a knowledge economy in Cameroon.

Another major missing link in the national innovation system thinking is the absence of trust and understanding about the use of knowledge and research in general, in particular, university research. This lack of trust can be analysed from a vertical perspective whereby the government does not trust research and a horizontal perspective whereby socio-economic actors like industries do not trust in the use of knowledge that comes from university research. There is also the resilience of old notions resulting from the high unemployment in the 1980s which questioned the relevance of higher education and a very low tradition of trust and belief about research. Respondent R17 cited the example that industries in Cameroon could actually resolve most of their problems by bringing them to the university but they prefer to take them abroad. *“They will sit with us at the same table abroad and answer questions within the context of the country”* (R17). The industries, according to this respondent, would not come to *“tap into the knowledge which remains after all that has been relegated which is not relevant to the progress of science but for the benefit of society”* (R17). This lack of trust is not only confined to Cameroon. It has been argued that industries prefer to take their problems where they can be sure that the problems have been resolved before than relying on new knowledge. They usually perceive new activities to be low profitably (Rodrik 2007, 101). Another aspect of the research culture which the respondent observed should be taken out of the universities and given to politicians is that *“if decisions in Cameroon have to be driven by evidence,*

¹¹⁴ Upon its commitment to engage in knowledge based economic development and to use the innovation system concept for planning its science and technology policies, the Science and Technology Council of Finland has been headed by the Prime Minister, since its post crises years of the 1990s.

then the evidence can only come from research” (R17). This respondent would suggest that *“parliamentarian should be able to go towards researchers to find out what they have done and what they can do”* (R17). R14 reported that even when research is done in Cameroon and done efficiently, *“the results are seldom utilised”*. According to another respondent (R15), *“Cameroon is one place where research is not with the people, there is still no place for research in Cameroon”*. R15 who was researching on malaria reveals that

If you are working in villages, the people wouldn't understand what you are doing or you are using them or their guinea pigs for. They do not understand that you need research results to inform policies. They don't understand that you need research results to improve their health situations.

The above respondent (R15) suggested that Cameroon should prioritise research both in terms of funding and promoting the culture and sensitising the people because the people have not been brought up to understand research.

6.2 The Need for Windows to the Ivory Tower: The Case of Mediating Structures

Another major observation in the ongoing transformation process in Cameroon is the variety of interface structures which on the one hand link with the theoretical framework and thus reinforce arguments for their necessity as the means of opening up higher education to its external socio-economic environment. However, in direct comparison with the analytical framework, it could be revealed that all the interface structures in Cameroon were in-built and internal in the higher education system without external, connecting and bridging organisations or structures to mediate between the university and the socio-economic environment. A general absence of external and autonomous bridging structures which should link the university to societal problems, could be noted. To an extent, the observed interface structures in Cameroon could be likened to the operational level structures, depending on the arguments and perspective of the actors and policymakers. However, such governance and mediating structures and organisations (see 4.9.1) that enhance connections in the innovation system were lacking. It can be acknowledged that one governance level organisation exists in Cameroon which can serve as an interface structure between higher education and society. This is the case of the Cameroon Academy of Science (CAS), which is co-run by the Ministries of Higher Education and of Scientific Research and Innovation, but its role which seems to largely revolve around awarding scientific prizes and publishing articles, fell short of the expectations of the system's analytical framework. In this section, we will use “Windows” to describe from a holistic perspective, the kinds of frameworks that open

up the university to its external socio-economic environment variously called bridging, intermediate or mediating structures and organisations.

The importance of these mediating structures is based on the premise that the socio-economic mission of higher education is an additional burden that risks stressing and distracting the university. These entail identifying the various mediating mechanisms that can take over the responsibility for scanning the environment to inform the university and the socio-economic environment about the services that the university can offer. Evidently, external interface structures can be indispensable for construction of national innovation system and in enhancing interactions and learning. Besides the feasibility of the broad approach for upgrading and building capabilities, it is typically the case that important organisations may exist in developing countries but the critical linkages between the organisations are lacking (Szogs et al. 2009). There is therefore the importance of linking mechanisms. Some scholars agree on the need for mediator structures because the innovation systems (IS) in developing countries are mostly “emerging IS”. Many are “systems under construction”. The organisations exist but the critical linkages between users and producers and the university are inexistent. Szogs et al. (2009) argues that the innovation system’s literature has been vague on how those systems can be built and the interactions enhanced. Some examples of governance and operational as well as internal and external mediating structures can be seen below:

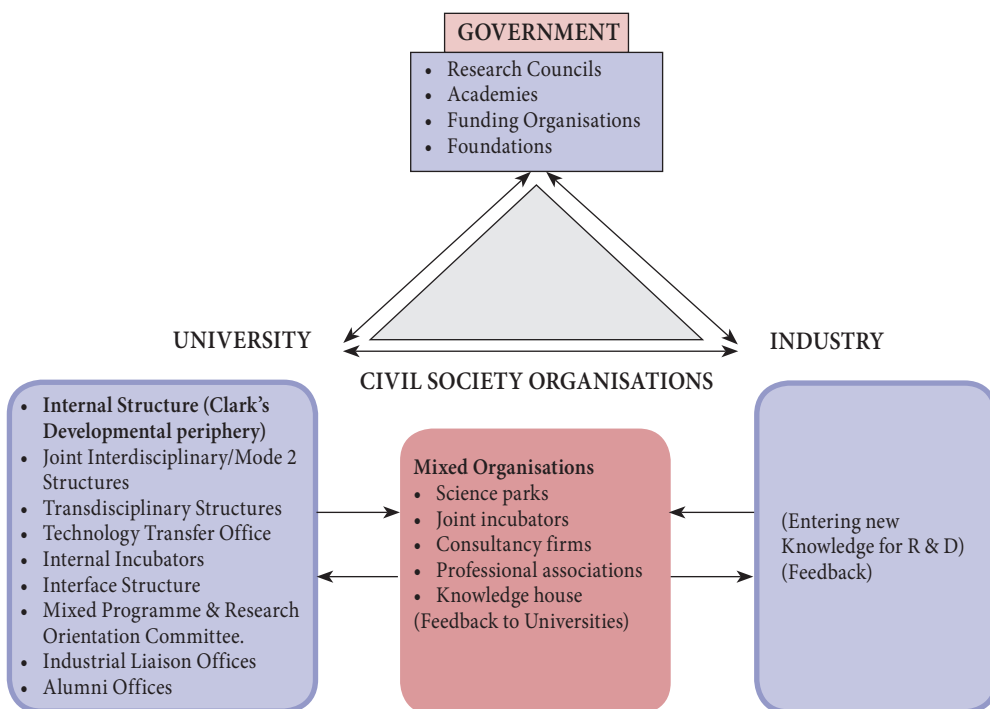


Figure 7: Mediators in the Government-University-Industry Nexus for Socio-Economic Development

Based on a study on knowledge transfer between knowledge systems and firms in Tanzania and also those in El-Salvador, Szogs et al. (2009) conclude that bridging institutions compensate for the weaknesses that exist in innovation systems (also according to Sapsed et al. 2007). They help to scan, gather and communicate information about the potentials of the organisations (Lyn et al. 1996; Wolpert 2002). They can be useful in reducing search and transaction costs between organisations. They help in the identification, location and absorption of relevant knowledge and assist in adaptation to new applications, sectors and industries. By tying different actors together and enabling them in interactive learning processes, bridging organisations in developing countries perform a fundamental overall task of building innovation systems (Szogs 2008; Szogs et al. 2008).

As an additional perspective, the diagram above included internal interdisciplinary, Mode 2 and transdisciplinary structures which execute the blend of disciplines as the internal coping mechanisms in universities. While universities may be seen as ivory towers whereby non-actors will hardly understand what is happening within, it is similarly difficult within the university with various black boxes called departments and disciplinary structures. A Linguist and Physicist sitting in the same room may not understand what each other is doing. This means that cooperation and communication between different disciplines may be generally low. There is the necessity to look for approaches to increase communications for application. This was seen in the Cameroonian case of the University of Buea, where a policymaker (Q9), argued about setting up such specialised interdisciplinary units “*whereby academic researchers can come from any department and work*”. The respondent (Q9) believes that these specialised interdisciplinary structures were absolutely necessary when it comes to interdisciplinary communications and transaction, applicability and the objective of making money. Those specialised units, according to Q9 “*may be empowered to employ, register companies, pay salaries and do work for the community and would be expected to be auto financed. Meanwhile, the academic researchers will not be distracted from their teaching and basic research*”. Respondent R15 also reported that the Biotechnology Centre is “*a unit where academic researchers can come from any discipline and work when applicability obliges*”. Such internal interdisciplinary structures were seen in the study to provide a communication forum for academic lecturers from the different departments and to outsource and blend the necessary interdepartmental competences for application.

6.3 The Community Innovation System in the Pro-poor System

Observably, most analyses of the relationships and roles of higher education and the university in the innovation and production systems follow a *fait accompli* from those of innovations studies and policies. This *fait accompli* may also be attributed to an original *fait accompli* from mainstream macro economic theories. The *fait accompli* is that the NIS literature and policies seem to follow the assumption on the relationship between

the performance of the NIS and economic growth which then spills over to the entire population to alleviate poverty. Although context-specificity is recognised in most of the NIS literature and policies, they fail to capture and systematically address the specific needs of socially-inclusive and poverty reducing innovations. One such would be the distributional effects of innovations (Altenburg 2009, 33–34). As observed by Altenburg (2009) the policies may often be biased towards addressing selective measures to deal with certain market failures and may end up with inappropriate conclusions. There would seem to be the weak premise, even in those developing countries faced by poverty, that because the poor, especially in the rural communities are poor, usually illiterate and uneducated, ignorant, hungry and psychologically tortured by hunger, they cannot be listened to. They have nothing to contribute. This situation can be captured by a French adage “*ventre affamé n’a point d’oreil*”¹¹⁵. Most governments continue to be the only conceiver both for the policies that will be implemented and the growth that is expected to trickle down to the poor.

However, it seems that it is paradoxically the policymakers who are ignorant and who usually know far too little about these people in the rural communities (Bertelsen & Muller 2003, 123). Bertelsen and Muller (2003, 123) propose on the necessity to consider that these poor people in the rural communities are highly knowledgeable and skilled and certainly not ignorant as the public is told. As a consequence of the wrong perceptions, a significant social and productive potential in the poor rural communities is being disregarded in development and innovation policymaking. Again, this is because pro-poor policies are often selected from prescribed poverty reduction options (Muchie 2003, 59). Similarly, most of the HE policies have (often) followed these traditional assumptions that the growth that will result from the effective contribution of higher education in the national production and innovation system can then alleviate poverty. Such growth can even be less efficient in reducing poverty in countries like Cameroon as a developing country that characteristically has high inequality (Ravallion 1997; 2004). In this section, we would postulate the adoption of a pro-poor innovation in the form of a Community Innovation System (CIS) to reflect the Cameroonian context and with the university playing a central role as a knowledge institution.

While the NIS and specifically, the broad approach remains the most popular one advocated for developing countries for various reasons (see Lundvall et al. 2002), this section takes the discussion further in concurring with those scholars who have postulated the necessity of mainstreaming the poor rural communities and their related technologies in the national innovations of Africa (Muchie et al. 2003; Altenburg 2003; Nji 2004; Bertelsen & Muller 2003, 123). It is imperative to state that this conception is a result of reflections with two of the above authors (Muchie & Nji). What this study adds to these recent contributions is the perspective on the role of universities. This is consistent

¹¹⁵ Direct translation: “A hungry stomach has no ears”. Literary meaning: A hungry man is an angry man (and does not listen to anything).

with the earlier argument (cf. 1.1) that in the absence of alternative knowledge institutions the university in Africa remains the main knowledge institution towards knowledge economic and technological development. The CIS here results from the community angle which was added to reflect the peculiarities of the developing countries to the Triple Helix, thus producing the Quadruple Helix (see 4.9.1 & Figure 5). This community angle therefore becomes fully blown to stand as a subsystem of its own in the national innovation, thus complementing the national innovation system in terms of poverty reduction issues. The thrust of the argument is that rather than circumventing through the whole hurdle of contributing to growth which then trickles down, it is possible that universities in developing countries like Cameroon can actually have direct contact, focus and connections in tackling the issues of poverty with the rural communities through the CIS. The CIS therefore renders the NIS more inclusive in terms of innovations and development policies in poverty-stricken nations.

Drawing on Muchie and Muchie et al. (2011; 2003), a CIS will depict the system's capacity to mobilise and use resources, organise knowledge and human capital training, and deploy institutions, put in place incentives and regulations to carry out favourite experiments on activities and functions that are undertaken by citizens at the grassroots and in the local communities. This entails focussing on being able to convert the tacit and explicit knowledge in the local communities into innovation. It also implies identifying and applying the knowledge converted into innovations to address the social and environmental challenges at the grass root levels. The philosophy postulated behind the CIS is that the rural communities can be made to become modern without necessarily becoming urban and industrial. Rather than governments thinking mostly in terms of the "rich" forms of innovations and becoming globally competitive, it becomes necessary to see innovation from the perspective of being locally adapted, embedded and socially inclusive. This implies an innovation system that is broadened to capture the rural community and articulate both the commercial as well as the non-commercial and social demands of R & D and innovation. This conceptualisation entails involving the rural communities and their knowledge in the commercial dimension of national innovations. The social dimension would imply using both sides of R & D and social policies, where social policies are partially conceived as R & D and innovations and where R & D and innovation policies are partially conceived as social policies (Arocena & Sutz 2010). As such, the CIS with a perspective on the commercial dimension would create more value for the knowhow of the rural communities; the non commercial dimension can help to provide sustainability to pro-poor policies in the innovation and industrialisation frameworks of developing countries. Consistent with this line of thought, there is the indispensability of learning to convert Africa's problems of transformation into challenges of innovation and learning (Muchie 2003, 47, 51).

6.3.1 Theoretical Bases of the Community Innovation System

The perspective on the CIS combines the national innovation system which constituted the theoretical framework of the study with the relational concept of “social exclusion” (Sen 2000; Silver 1996, 387; Lenoir 1974/1989). A few contradictions from the innovation system’s theories deserve clarification as to how the conclusion on the importance of the CIS has been arrived at in this study and how it can work. Because of the open systemic environment under which sub systemic and organisational transformation like higher education take place and the influence of the system environment on the latter, the NIS is maintained as the national framework for the construction of the CIS and the university’s adaptation. As long as the study is focussed on higher education institutions and because of the weaknesses of complex and multiple elements that constitute national innovations, it would be impossible to omit the triple helix as characterising national innovations because of the university in the analyses. This would also be because the triple helix particularly recognises the leading role of universities in the innovation system. Nevertheless, the triple helix would admittedly at a certain point be found to be narrow and partially unconnected to the realities of developing countries when it fails to operationalise the definition of industries in developing countries and omits to capture the entire economy which may be largely informal¹¹⁶. However, the perspective on the construction of the CIS maintains the triple helix to represent a narrow, ready-made framework from which analysis of national innovation, as a starting point, can transit from simple before complex national innovations, including at sectoral or regional levels. The novelty is that because of the weakness about industry, the focus on the CIS is on the “Community” as the operational framework for a pro-poverty innovation system. One thing that reduces the frustration of the author about the adoption of the combination of the broad national innovation system (Lundvall 2002; 2007) and triple helix (Etzkowitz & Leydesdorff 1997) amidst contradiction is that both schools of thought converge on the “national” environment as a starting point for analysing any innovation system and that “internal” transformation certainly takes place in their institutional spheres.

The adoption of the concepts of social exclusion respects the logic that no concept of poverty can be satisfactory if it does not take adequate note of the disadvantages that arise from being excluded from shared opportunities enjoyed by others (Sen 2000, 44). National innovation systems in developed countries are different from those of developing countries and their different national systems are supposed to cater for different needs. It is suggested according to the attempt to identify the differences between developed and developing countries (cf. 4.4) that such distinctions are dependent on certain variables and factors which produce gaps amongst the population, hence exclusion. This is the case of the knowledge society which may visibly stand as a factor of division between

¹¹⁶ This perspective on the weaknesses of contextualisation by the triple helix may tend to give reason for the broad approach of the NIS (Lundvall 2002; 2007).

current developed, industrialised nations and developing ones. This knowledge society does not exist everywhere, if at all, not certainly the same and where it does exist, it does not affect everybody in the same way. Hence, evolutions toward the knowledge society are a discriminatory phenomena that produce exclusion. As cited later in the context of Cameroon (cf. 8.1.6) social exclusion is as old as history. It is not unusual that national governments in developing countries continue focussing on competitiveness and industrialisation meanwhile the poor in the rural areas suffer, with static lifestyles and lack of essential services. Economic development policies become too biased towards certain so-called development paradigms which produce and exclude a particular segment of the population. These biases towards the knowledge based society and innovation risk exacerbating the inequality gaps that have characteristically remained wider in developing countries.

Obviously, innovations are meant to improve the quality of life. They can lead to new markets, extend the product range, reduce labour costs, improve production processes, reduce the use of materials and environmental damage, replace products and services, reduce energy consumption and above all, lead to the economic competitiveness of nations. However, whenever innovation is examined in terms of inequality it has been shown that it generally leads to social inequality (Rogers 2003). This implies exclusion from common facilities or benefits that others enjoy with significant handicap that impoverishes the lives that individuals can enjoy (Sen 2000, 44). Innovation could lead to national developments that favour certain classes and sectors as well as sectoral and individual capitalism thus creating a situation of exclusion between the “have” or “have much” as against the “have-nots”. With national wealth from innovations that favour the participants, sectors and classes involved in the innovations and to which the distribution of the fruits of the innovation favour, such disproportionate distribution will discriminate against and deprive the non-partakers. Amartyr Sen’s (2000) taxonomy about “passive exclusion” appropriately describes the first type of exclusion where exclusion comes as a result of policies that have not been designed to bring about such unintended outcomes. This passive exclusion directs attention to inclusive innovation policy making. By contrast, there is also “active exclusion” which is designed as such to attain certain desired outcomes (ibid.). An example can be taken from visa restrictions as deliberate policies to exclude others.

6.3.2 The Pro-poor University in the Community Innovation System

The role of the university is important with regard to the CIS. The thesis herein will take a practical approach which involves mainstreaming the technologies and know-how of the poor rural communities in the development of the national innovation systems through the use of national professional institutions like universities and in the programmes of universities. Arguably the university has for so long remained the ivory tower distant

from the poor rural communities. Besides, the university is paradoxically one of those institutions that has traditionally produced the unintended outcome of social exclusion¹¹⁷. The university has traditionally been focussed mainly on the production and shaping of elites through graduates and for “high programmes” for sciences, most of which may not easily relate to or trickle down to the almost 40 per cent of poor rural communities in the context of Cameroon. The practical approach adopted in this study involves the university as an appropriate practical (professional) institution taking a leading role to transform and legitimises those indigenous technologies and know-know of the rural communities into national innovations and in the provision of economic values; with the poor as partakers of its proceeds. The example of one of the respondents (R16) in the study doing pharmacological validation (cf. 6.1) may appropriately reflect the universities role towards an economic productive CIS and NIS. In a well structured NIS and knowledge society with a CIS and appropriate incentive and inclusive intellectual property regime, it will be possible that the poor will be part of such works. In the event that the results of the research were affirmed, with patents and drugs put on the market, the charlatan doctor, most often from a rural area would be part of the property rights or at least the proceeds. The same would apply to other tacit knowledge, experience and technology from the poor rural communities. The above example suggests that one of the leading roles of the university in knowledge driven poverty reduction strategies is to codify the huge amounts of traditional know-how in the poor rural communities with view to legitimising their economic values.

Although there may be other factors, there is the example that the earlier generations in Cameroon, as in most African countries, at least 50 years ago lived longer than the current generation; when they were used to their local traditional medicine which later began to be abandoned for so called “modern medicine”. How the cocoyam stem cures snake bites or leaf X cures disease Y should be some of the questions that university researchers in Cameroon should be able to ask and research with support from the government and create market values for such knowledge. Recent innovations in Asian medicine, most of which should have been questioned earlier for lack of scientific rigour may suggest the role of higher education. The recent developments in the conceptualisation of the innovation system also make it possible for all segments of society to participate in the national innovations. Innovation is not only about *new to the world* innovation. It is not only about science and technology innovations. It could simply be about *doing, using* and *interacting*. It is not only about new products but could also about new methods

¹¹⁷ Others contend that higher education and education generally creates equal opportunities and prospects for social and physical mobility (see Canton & Vanniker 2001) but elitism may be intense in developing countries where participation in higher education or its prospects is low. From a theoretical perspective, higher education serves as a screening and filtering mechanism (ibid.). Once individuals or graduates are screened or filtered from the poor socio-economic backgrounds in the context of developing countries like Cameroon, higher education makes them the elite of the society and by implication leaving the residue and thus gap with the poor rural population.

(processes), new source of supply, exploitation of new markets and new ways to organise business (Schumpeter 1969). It could also be “learning by doing” (1962a), “learning by using” (Rosenberg 1982) and “learning by interacting” (Lundvall 1985; 1988). Innovations may go with various types of knowledge such as codified, experiential and tacit knowledge and as in the simplified taxonomy by Johnson and Lundvall (1994), the “*know-what*”, “*know why*”, “*know-how*” and “*know-who*”.

Rural Africa possesses a lot of indigenous and tacit knowledge in the form of “*know-how*” and “*know-what*” that can lead to innovation but which, however, remain unacknowledged and underdeveloped (Dahms 2003, 332). Different types of innovation certainly take place in different sectors and are contingently induced by differences in technology, strategies and contexts (Pavitt 1984; Freeman and Perez 1988; Jensen et al. 2007). Dahms (2003, 332) suggested the necessity of including such indigenous and tacit knowledge in Africa as a practical element in formal education and training and to support their further development by enhancing collective learning and the exchange of information between the communities. Some African countries are already taking the lead in mainstreaming the participation of the poor rural communities through their related knowledge and collaboration in their higher education. These are the cases of units for herbal medicine and other indigenous knowledge for Ghana, Uganda and the evolving indigenous knowledge systems for countries like South Africa. Through the CIS the university will be able to collaborate more easily with the poor rural communities, receive incentives and design projects for poverty reduction and also address elements of poverty. The university would be able to tap into, legitimise and create economic value from the huge amount of unexplored resources and know-how that pertain to the poor rural communities in Cameroon.

Since the study is about the role of universities in innovation systems, it brings to the limelight the iconisation of universities by the triple helix. The involvement of the university in the CIS suggests active engagement and support from governments, industries, universities and other actors in the community’s efforts to create and transform the community’s knowledge into innovations. This supposes constructive policies by governments, universities doing top research which identifies the knowledge from the communities and industries helping to convert the community knowledge into innovations. A pro-poor innovation system in the form of the CIS raises questions about the triple helix (TH). This is first because of the expected leading role of the university. There will be questions about the operational definition of industry according to the TH. The TH will be seen to have captured the empirical reality of the linkages between the two operational actors, the university and the industry but without the broader picture that contextualises and characterises developments in a developing country. The TH is a reality from the perspective where universities are known to mostly run after and collaborate with (major) industries and *vice-versa*. This situation is not confined to developed countries from which most of the cases of the TH emanate. This study conducted in the

context of a developing country also confirmed that universities merely run after major industries. Very little or no memoranda of understanding exist between the Cameroonian universities and small and medium size enterprises (SMEs), let alone doing business with the poor rural communities. This suggested that much still remained unattended by the Cameroonian universities in terms of economic development. The observation to be made about the operational definition of “industry” in the triple helix would be that it remained limited around big industries. The TH weakens the role of the university in the context of developing countries whose economic development policies are basically (or supposed to be) pro-poor, thus necessitating a strong role and collaboration of the university with the population and the poor rural population whose plights, such economic development policies dominantly seek to ameliorate.

According to Lundvall (2007, 3) the triple helix cannot represent NIS. This is because of its narrow perception of the role of the university in terms of the prominence of science and codified knowledge. This would be a serious distortion of the reality for developing countries where most of the knowledge from the population may be tacit and experiential and which easily drive the *doing, using* and *interacting* mode of innovation. Above all, the TH crowns the “industry” whose role may be very limited in the developing country’s situation like Cameroon, where by contrast most of the sectors of the national economy may be informal, SMEs and small urban businesses as well as a dominant rural population. If this thesis is acceptable, then it makes sense to assert that the triple helix has been narrow for the context of developing countries. These weaknesses of the triple helix, which stem from universities around major industries and the exclusive nature of the TH’s definition of knowledge, gives reason for small scale programmes like the US example of Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) Programmes. Such programmes are important to help universities do business and technology transfer with all segments of the economy, including small poverty reduction business. In the USA, the SBIR & STTR ensure that the nation’s small, high-tech, innovative businesses are a significant part of the federal development efforts.¹¹⁸

6.4 System Sharing in the Funding for Higher Education in Cameroon

By system sharing, it is intended here to examine perspectives on how different stakeholders in the national system may take part in the financing of higher education in the developing context of Cameroon and thus enable it to perform a more efficient supply side function to the national (innovation, production) system. This is obviously because of the inability of the government to shoulder the cost alone. In the study, some scepticism was raised about the ability of the government to sustain the funding of higher education

¹¹⁸ See mission of the SBIR/STTR at its website (referenced).

in Cameroon. This is because the recent orientation of higher education in Cameroon poses more challenges of funding, thus adding to the already traditional general challenge of low funding. For instance, the professional and technological components of higher education are generally very cost-intensive. Professionalisation alone imposes many financial burdens on higher education; from the financial impacts of increases in credit hours, cost of internships to the need for more infrastructural capacities, related tools and instruments.

The funding challenge in Cameroon is crucial at a time when the system is undergoing a major transition to mass higher education amidst a traditional atmosphere of financial austerity. New cohorts of students through life-long learning, continuing and even adult education increasingly add to the system. Social beliefs on the importance of higher education, occupational, technological, population and skill demands (as per Trow 1974) seem to be on the rise. At the same time, the higher education subsector competes for government funding both internally with other subsectors of the education system, all of which, in turn, compete with the other national sectors. While the cost of higher education may generally seem to have dramatically risen, due to a rise in per student cost and new technologies in recent years, the global knowledge economy puts pressure for more quality education and research. Research in particular is normally cost intensive. As a result, there is a need for sources of incomes other than the government. The Cameroonian policymakers therefore envisage more entrepreneurialism as an inevitable means of raising money from non government sources in view of supplementing the government funding which has traditionally remained low. Cost sharing becomes one of the panaceas for the funding of higher education in Cameroon.

The need for cost-sharing can be buttressed by other concerns about the robust professionalisation policy vis-à-vis the risk and its tendency of shaping and increasing the brain drain that constitutes one of the main challenges on the human resource development agenda of Cameroon. If all disciplines and students are professionalised without commensurate increase in demand side responses (also in terms of remuneration), the professionalisation policy would have paradoxically provided more competences for the students to be easily absorbed into global labour markets to the detriment of the sponsor, Cameroonian government and when Cameroon is a low income country. Such professionalisation and emigration equally reinforce, guarantee and sustain the private benefits of HE and at the same time increase the prospects of inefficiency on the use of the state investments in HE. The following subsections will examine some mutually-reinforcing strategies and related arguments that can strengthen and sustain higher education as the supply side of human resources to the national system in Cameroon.

6.4.1 Theoretical Arguments for Private Cost-sharing

Drawing on Teixeira et al. (2004), Doh (2008) argues that funding policies that take into consideration differences in individual demands for higher education and are based on a rational assessment of potential net benefits may do more justice both to the state and the graduates than simple social policies and government interventions. This suggests the relevance of cost-sharing according to the differences in individual demands and private benefits. This perspective on cost sharing is grounded in the traditional mainstream economic analyses about education notably, the human capital theory, where higher education is seen to generate substantial private benefits; both monetary and non-monetary. Higher Education increases individual productivity and consequently, it is an investment from a private perspective (Schultz 1961; Baker 1964; Baar 1998). There is a correlation between individual education and life-time earnings (Psacharoupoulos and Woodwall 1985; Blaug 1965). Similarly, this productivity prospect will be seen to exist in greater magnitude when the graduates are equipped with the diverse professional skills under the proclaimed professionalisation policy. Higher education renders people more aware of new opportunities and capable of seizing them (Teixeira et al. 2004).

In addition to the investment benefits, there are consumption benefits such as higher incomes, non monetary returns, job satisfaction, personal development, greater prospects for social and physical mobility and participation in social life (Canton & Venniker 2001; Baar 1998). Higher education is a profitable venture from a private perspective, irrespective of the monetary returns. The survey of the non-pecuniary benefits of higher education indicates that they may even be of the same magnitude as the financial ones. To the above, may be added non-wage remuneration, intra family productivity, child quality, own spouse's health, consumer choice efficiency, marital choice, attainment of desired family size, own children's education amongst others (Wolfe & Haveman 2000). Scholars (Asworth 1997; Canton & Venniker 2001; Blundell et al. 2000) assert that the social rates of returns can be quite substantial if the benefits are set aside from the direct and indirect costs. For instance; the private return of undergraduate degree in the UK had been estimated at 17 per cent and 37 per cent for men and women, respectively. Meanwhile, the international rate for an extra year of education may be between 5 per cent and 17 per cent (Blundell et al. 2000).

It would be argued here that cost-sharing, be it upfront or loan and deferred payments, may seem imminent for the Cameroonian context both for sustaining the robust skill development policies amidst the high risk of brain drain that inevitably results from individual egos and based on assessment of the individual benefits. Besides the private benefits that justify cost-sharing, it seems evident that the state is no longer the only consumer of higher education. Over the years, a private sector has emerged, notably in the tertiary and even informal sectors, where people may be in more dire need of knowledge than the state, and which may have surpassed or is likely to expand and surpass the public formal sectors. In addition, globalisation has reinforced the transition of the use of

knowledge from local to global. The fact that labour markets have become global widens the scope for the application of knowledge. Global markets offer more employment opportunities and with competitive remunerations that challenge those of low income countries like Cameroon. These global opportunities increase and reinforce the individual benefits and thus the arguments for private cost-sharing in higher education. The Cameroonian government like many others in Africa should have been more inclined to finance higher education in its entirety when the state was the dominant and only consumer of knowledge and the national economy was predominantly public and local.

6.4.2 Deferred Payments and Subsidies

Besides the flat registration fee of 50000FCFA and some few cases like the University of Douala with differential fee payment for non-traditional programmes and the outsourcing of part of the higher education to private institutions, Doh (2008) argues *a priori* in favour of flexibility in the payment of the fees for those in the public sector. Flexible payments justify differences in the labour market friendliness of programmes as well as the labour market impacts of differences in levels of studies, rather than flat fees for all students. The argument is based on recent experiences whereby the students from the more market-friendly programmes like management, banking and finance and accountancy at the University of Buea would have been seen to be much solicited by their recently emerged markets (the service sectors). Besides, there seems and continues to be a strong increase in private demands for such programmes. Because of their greater market relevance and immediate job prospects, they become the more student-solicited programmes. The effect is that they are the most congested departments which pose difficulties of capacity imbalance to the university management and thus the necessity for various difficult coping mechanisms.

The situations of the market-friendly programmes will be similar to those of technological and medical programmes whose graduates are easily hired or retained abroad. It is only fair that if some citizens are easily placed in the job-market to the detriment of others, then it is important that they bear part of the investments that provide added advantage from others. On grounds of equality, it makes more sense that if the university systems will admit students who will not use the education in the country for non-participants to benefit from the spill over, then such students must be made to participate in the investment especially as the non-participants, citizens of the same country, may be deprived of such opportunities. Differential or flexible fee payment is rooted in the informational perspective of the human capital theory about the “*filtering*”, “*sorting*”, “*screening*” and “*signalling*” roles that different academic qualifications play in relation to their labour markets (see Arrow 1973; Stiglitz 1975; Weiss 1995; Canton & Vanniker 2001). This suggests that through such qualifications, the potentials and innate abilities of university graduates are appreciated and reported differently to the labour

market (the knowledge users) based on which the graduates are filtered and sorted out. This informational role of higher education is generally the productivity-adding role (Arrow 1973).

Given the reality that the state is no longer the sole user of higher education in Cameroon and foreseeing the smartness of the recently emerged private sector, especially the service sectors through the new information technologies and mobile telephony, Doh (2008) envisages the necessity for private sector subsidies to compensate for government investment in higher education, termed “*higher education tax*”. This perspective is premised on the experience that when the private sector hires human capital, they only want to pay for its use and when they acquire physical capital, they want to pay both for the capital asset and its use (Varghese 2004). Although it may be argued that this private sector already pays taxes to the state which, in turn, finances higher education, the use of government sponsored graduates in the public sector justifies upfront state subsidy for their education rather than state subsidy when the human capital is used for private sector profits which the state never masters or hardly controls. Doh (2008, 12) cites as an ideal practice, the GET fund in Ghana, whereby 20 per cent of value-added taxes may be set aside for the development of the educational sector.

From an equality perspective, the previously cited cost-sharing measures; be they upfront differential or flat payments and their increases inevitably exclude students from the poorest backgrounds. Doh (2008) proposes an incrementally formulated approach which combines *a priori* some means-tested loans for students from the poor socio-economic backgrounds and some form of deferred payments for all graduates. This implies that students from the low socio-economic backgrounds could obtain education almost free through loans or with appropriate pricing where necessary, with direct sponsorship from the government. Meanwhile all, from the low or better socio-economic backgrounds, will be subject to some deferred taxation payments as a means of sustaining and recycling the funding of the system. The conceptual approach adopted is the income contingent tax whereby repayments are calculated at a particular percentage of the graduate’s subsequent earnings until the loan is repaid (Baar 2002). These income contingent loans and taxes automatically and instantly respond to changes in the earnings, whereby people with low earnings make low repayments and in some cases, people with low life-time earnings do not repay in full. This income contingent loan and respective tax has been seen to protect their borrowers from excessive risk (Baar 2002; 1998). This formula would be seen relevant in the context of Cameroon with more stratified economic statuses and greater inequality that may characterise many developing countries. The formula suggests efficiency gains in terms of access across the different economic strata.

The above perspective does not exclude the possibility that when governments want to gain insight into some particular programmes that may be instantly relevant for immediate or future development objectives, cost-sharing mechanisms like tuition fees, loans and taxes may be temporarily ignored. This is particularly true in situations where

market failures to supply the necessary human resources are envisaged. Governments take measures to counter the negative effects of cost-sharing such as providing tax-free scholarships and grant supplements where there are foreseeable failures of the demand-driven and market mechanisms. At the same time, it is advisable that the role of the government should not end at the level of regulation as might have been the case within the first decade of private higher education in Cameroon. From the perspective of equality again, there would be the necessity for government subsidy to the private institutions as another form of cost-sharing because the latter likewise make a significant contribution to broader national objectives. They shoulder part of the national burdens of higher education in Cameroon. Similarly, grants and scholarships for students in the private institutions can reduce the cost of their education, promote access and sustain their quality. Such grants and loans assure the privately-sponsored students that they are not discriminated against by the type of institutions they enrol in.

To complement the preceding strategies, Doh (2008) also examines certain areas of intervention which can help to reduce the cost of higher education in Cameroon. There is the particular case of student housing in Cameroon which had been left at the mercy of the market. Their private owners use the opportunities of the implantation of universities in their respective regions to exploit and make stupendous profits. The interviews reveal that some intervention was being done in the case of UB, in collaboration with the City and Divisional Council of Buea to impose criteria and thresholds on student rents. The estimates indicate that the average monthly rent per student may be close to half of the annual registration fee of 50,000FCFA, usually with highly questionable quality and payment conditions such as one upfront instalment. While many students pay all these rents up front, it becomes very difficult for the students to pay the token half of the fees in the first semester (R14), with consequences on their degree of concentration and performance. In countries where economies and the lots of the citizens have been seen to be transformed from serious economic crises to well performing economies based on knowledge, innovations and education, the amount of trust (social capital) for education and higher education would be higher, consequently civil society collaboration and participation also increase. These higher social capital and belief in the productivity of education can be exemplified through the tradition of “*student rates*” in the Scandinavian countries whereby the external socio-economic operators easily accept and cooperate to award reduced rates for student housing, restaurants, local and interurban transport and medical care, among others. By accepting to reduce the prices of these amenities, these external socio-economic operators indirectly participate in the funding of higher education in those countries since the reduction helps to defray part of the costs of students’ education.

6.4.3 Incentivising the Supply Side of the Production and Innovation Systems

In the preceding section, the feasibility of various cost sharing and recovery methods for the sustainability of the higher education system was examined, also, as a means of increasing the human resource supply in Cameroon. Although government subsidy to higher education represents about 70 per cent in Cameroon, the funding may be seen to target greater access to the detriment of quality and developmental programmes. It could be observed from the review of the policy documents and interviews that no loan and by implication no repayments and recovery methods for government subsidy exist in Cameroon. Similarly, there were no sustainable national scholarships or tax-free study grants. Admittedly, there are some spontaneous and ad hoc student grants which are sometimes provided by the Cameroonian government to reward excellence but whose status has remained highly unsustainable, unstructured and susceptible to political climates. Most, if not every country that has been seen as developed, industrialised, transformed to emergent countries (thus knowledge economies) and even some developing countries would be seen to use some form of loans and graduate taxation system. These loans and taxes stimulate, guarantee and sustain the supply side of human resources for the national innovations and production systems.

Besides, some of the schemes are used for recovery of subsidies, which equally sustain the supply side of the system. In the case of developed countries, these supply side incentives usually include: fellowships for graduate students, grants and loans to undergraduate students, university research funding, fiscal exemption for foreign researchers and most recently, skilled immigrant programmes. Sometimes there is adequate pricing of higher education according to socio-economic backgrounds. The thrust of the argument is that these diverse schemes guarantee the continuity of access to the most costly development programmes which are tantamount to be affected by the generally low level of funding to higher education. Admittedly, there would be some weaknesses and risks in loan and graduate tax systems which may relate to the developing context of Cameroon and the absence of appropriate infrastructures and management tools. These weaknesses may be attributed to an immature tax system, high default rates and the challenges of means-testing, high employment, mobility and brain drain. There are also challenges of getting students and parents report private incomes. There are those related to the fact that the economy may be dominated by the informal sector. Such challenges could be limited with more robust loan systems and commensurate employment and tax records.

With regard to brain drain, especially of graduates abroad, default on loan and subsidy recovery can be mitigated and made possible with the increasing convergence of global digital and information management systems as well as international regulatory frameworks. Who would have imagined that in 2011, it could be feasible for Cameroonians in the diaspora to participate in home elections? It will be possible that student loans for

those who graduate from Cameroonian universities and reside abroad can be tracked down and recovered from their elected countries of residence. High graduate unemployment and underemployment may also weaken arguments for graduate tax recovery. Employability and by implication, the prospects of recovery from graduate incomes can be a function of the demand side. This is because a weak national demand side for graduate skills may correspondingly weaken the rationale for cost recovery in HE. In addition to fellowships and loans to increase the supply side, some developed and emergent countries have been seen to stimulate the demand side of their human resources. Such demand side incentives include fiscal deductions on R & D expenditures, fiscal credits to R & D, reimbursable grants to hire scientists and engineers, fiscal deductions for venture capital, public venture capital, research grants for university-industry linkages, public and public-private industry, R & D labs and joint institutes.

6.4.4 Funding Third Mission and Results in Poverty Reduction Activities

One of the issues repeatedly highlighted in the study has been the university's inability to secure and sustain discretionary funding for running the various interface structures (business and extension units) thus sustaining the university's engagement in socio-economically useful activities. This lack of discretionary and exploratory funds limits the proactive efforts of the university to go towards socio-economic operators (Q10). Exploratory funds for socio-economic activities may be appropriately captured in the concept of third mission funding, variously called venture capital and seed funding, in which PBF may be used as the allocation mechanism. The problem of attention, prioritisation and sustainability of third mission funding is not confined to Cameroon universities alone. It hardly acquires a sustainable status in most countries even when recognised as indispensable (Hakatenaka 2005).

Arguably, the recent engagement of universities with other societal stakeholders has been driven much more by the necessity to acquire extra funding opportunities to supplement their scarce resources (resource dependency according to Gornitzka 1989) than being considered as their core activities. Hatakenaka (2005) proposes the adoption of permanent funding streams based on formula to sustain incentive and support third mission activities. Duke (2002) posits that public funding should be provided for third stream activities. According to Hatakenaka (2005), one of the first strategies for such public funding is to provide demand-side funding in areas where markets do not work to promote economically and socially important activities which are unlikely to be paid for by user communities. Secondly, "*pump-priming*" funding for starting and experimenting with new activities, to enable universities jump-start including in areas unlikely to be paid for by the community and to induce cultural change (ibid.). Another reason is that permanent or sustainable funding for third mission activities reduces the university's

dependencies on project bids and the uncertainties and inefficiencies with which projects may be associated (Mollas-Gallart & Castro-Martinez 2007, 323). According to Hatakenaka (2005, 13), one of the most fundamental instrument is to instil economic and social impacts as values within universities, rather than more crudely to promote a specific set of third stream activities. Finally scholars (Hatakenaka 2005; Duke 2002) recognise that third mission funding is not easy to design because of the diversity of needs and each university responds to its own external needs in its own ways (ibid.). Also, one of the consequences is that third mission activities naturally tend to be extensions of teaching and research to the detriment of academic values.

One of the major concerns and challenges that seem to pervade the preceding sections, according to the respondents, is the relatively insufficient funding for higher education. While this challenge holds true for Cameroon like any other country in the world, we postulate that the allocation mechanisms for the use of the university's finances can maximise both the efficiency of the university and its contribution to its national innovation, socio-economic system and poverty reduction. Again while the preceding concerns were related to the quantitative aspect (amount), we postulate on the qualitative and strategic aspect of the use of the funds being accorded to the higher education system in Cameroon. This reveals the need for incentives, how to administer the incentives and the incentive structure itself.

The nature, speed and demands from the innovation and socio-economic systems suggest that there will be more pressure for accountability and results about the use of funds both from government and non-government stakeholders. Higher education will be placed in a tight corner as it faces the paradox that most of its activities are characterised by the use of knowledge and the results are hardly certain, measurable and quantifiable; especially research and generally, embodied knowledge. The demands suggest that the activities and missions of higher education cannot be placed on a level platform. There is a necessity for strategic priorities in the concentration of funds wherefrom differential funding criteria¹¹⁹ come into play. By virtue of the nature of the innovation system, market and competition dynamics also surface when the university has to ensure results for its activities in response to the national innovation system. In the light of the above perspective, this section raises questions about the Research Modernisation Grant (RMG) that represents one of the most substantial research funds in the Cameroonian HE system (also see 9.3.8).

The classical platform on which this RMG is awarded to the academic researchers in Cameroon questions the ability of the system to achieve the necessary results. Some respondents reveal the experience that only few academic researchers may use the funds for light activities like subscribing to journals or buying simpler utensils and consumables which emerge in the course of their activities. Curiously, it does transpire that the RMG originally emerged as a response to the academics who had been clamouring for increase

¹¹⁹ Case of performance-based funding being drifted into by most developed and industrialized nations.

in salary. Because an equal opportunity clause in Cameroon prevents the government from discriminatorily increasing these academics' salaries because they are civil servants, but can pay them for extra work like research that they do that other professional corps in the civil service do not do, the RMG was brought in as a solution. The background of the RMG suggests it is more of a disguised salary increase than research grants. If Cameroon is jealous of the relevance, performance and results of its research, then it is inappropriate that it may accord research grant on such weak operational dynamics and classical platform (equal bases). The status of this RMG as a heavy salary bonus suggested again that there was no steady national research grant in Cameroon.

Although performance-based funding (PBF) in higher education has been identified to be dominant in the developed countries, it is expressed differently according to context. Cameroon supports itself with an institutional performance-related scheme at the University of Buea (UB), whose conceptual framework can be used to enhance performance on some its missions. Viewing the prominence of performance based funding in developed countries, the study (Samfoga Doh 2009) sought to find out how urgent and prioritised missions of higher education are funded in a developing country like Cameroon. At the system level in Cameroon, most of the funding schemes were based on the traditional pattern of bloc funding based on expenditures. At the university level, a scheme called the Staff Development Grant (SDG) was identified at UB, which seemed to possess most of the features of PBF. This SDG was aimed at ensuring the urgent achievement of results to one of its strategic objective, capacity-building as the university was newly-created. Samfoga Doh (2009) argues that the conformity of the SDG to PBF was based on the related instruments and rationale. Amongst these were that a lump sum was set aside from the university's main budget for the specific purposes. The proposals were submitted in competition for specific grants then examined by committees. Contracts were signed between the university and the staff. The staff had to submit reports for the use of the grants as a precondition for award of future grants. Samfoga Doh (2009) finds a correlation with PBF in terms of the efficiency and accountability rationale behind the scheme. This PBF was an incentive scheme to accelerate the academics' performance and productivity. The SDG involved instruments such as contracts and reports to check the information asymmetry between the sponsor and the agent.

The main argument is that because the academic researchers' work involves knowledge, it becomes difficult for the university to follow up and understand what they do except by the use of such engagement and reporting mechanisms. There is also the use of market mechanisms (competition and proof of previously accomplished project before receipt of subsequent grants). The performance indicators in the SDG included completion of projects, publications and promotions (ibid.). The study (ibid.) concludes on certain advantages of productivity, efficiency and performance resulting from the SDG. It improved the research productivity, promotion rates, academic profiles and outreach activities of the university (see Samfoga Doh 2009). PBF generally serves as extrinsic

monetary reward for staff to be efficient. The market dynamics enhances the quality and prospects for better success rates as the best is selected from many. Based on the respondents' revelations in the study (ibid.) that their staff development-related projects would not have been thought of in the absence of the small incentive scheme, Samfoga Doh (2009) highlights that the SDG spurred innovativeness and creativity. The study also highlights the importance of the SDG in enhancing social capital and the third mission of the university as the staff had to join forces to conceive projects to apply for the SDG .

Chapter Seven

Third Mission and Entrepreneurial Practices in Cameroon Higher Education

7.1 Third Mission of Higher Education in Cameroon

In the theoretical framework¹²⁰, third mission was conceived of as the university's generation, use, application of knowledge and other capabilities and facilities for non academic service, for its external environment (Duke 2002; Molas-Gallart & Castro-Martino 2007; Molas-Gallart et al. 2002) (cf. 4.6). In this section, the conceptualisation of third mission shall be concentrated on as the "societal service"; meaning the service role of higher education to its immediate society or external environment. The adoption of this service component follows the perception of the Cameroonian policy makers and actors about third mission as indicated by the dominant use of the word "service"¹²¹ for third mission during the interviews and some of the policy documents. In Cameroon, the service (third mission) component of the university's activities is governed by the 2001 law on the orientation of its higher education. Also, the New University Governance Policy reemphasises that higher education should not to be involved only in the transmission of knowledge but of know-how, *savoir faire* and competence (Sectoral Policy Document, SPD 2010). It is useful to state that the service component of higher education in Cameroon takes the same interpretation but perhaps different languages according to different mission and vision statements of the universities. There are the examples of the universities of Buea and Douala whereby it takes the form of "outreach" and "service" respectively. This difference in language and by implication, perspectives may corroborate the concerns about third mission as an ambiguous and conflicting term (Molas-Gallart & Castro-Martinez 2007, 323).

The word "service" itself is controversial, especially when the financing of "service" is taken into consideration (Montesino et al. 2008, 10). While politicians and other related

¹²⁰ In Chapter Four.

¹²¹ Interchangeable with "*support for development*" as contained in the main legal framework, the 2001 law on the orientation of higher education in Cameroon.

publics, who are seldom involved in the processes of knowledge generation and diffusion might be known to define service or third mission in formal broad objectives (usually social outreach), treasury departments for instance, may focus on revenue flows, cost implementation and orientation towards the increase in income streams to the university. While other groups such as industries might favour issues of technology transfer (ibid.), the meanings which the academics may make of third mission may be different. They may usually be suspicious of its impacts and want to maintain the primacy of academic objectives. Whereas the University of Douala (UD) may see their third mission (services to the society) to involve the conception of teaching programmes in partnership with socio-professional milieus, thus emphasising linkage in teaching programmes, the University of Buea (UB) may instead see more feasibility in the use of research for the service (third mission). For instance, while the UD emphasises that all teaching programmes should show linkages with socio-professional partners, UB's emphasis is that all research should have a social and economic relevance to the community. Thus, while the UD bases its system on teaching and income generation from differential fee payment from programmes developed with socio-economic partners, that of the UB may seem to be based on the socio-economic relevance of research without necessarily implying the economic impacts (generation of income) to the university.

7.1.1 Current Dimensions and Indicators of Third Mission in Cameroon

In respect to the definition and importance of categorisation (cf. 4.6 and 4.6.1), the following dimensions of third mission activities being practiced in Cameroon higher education could be identified.

i) **Generation of new knowledge:** With the current concerns highlighted in the study that research done in Cameroon or at least the results are seldom moved on to their logical application, user or market ends, it can be contended from Table 14 that the dominant aspect of service being conveyed by the researcher-led third mission in Cameroon is the generation of new knowledge. This is confirmed by one of the respondents:

I think most of the work, basic/applied research that we do is to generate knowledge. For instance, my team is currently synthesising and developing new molecules and testing them for pharmacological activities and perhaps providing the opportunity to identify new molecules that can be subsequently used to develop drugs (R16).

ii) **Human resources and national workforce:** This traditional and dominant function of higher education seems to be glossed over in accountability discourses when higher education institutions are asked to show proof of their contribution to socio-economic development. This human resource dimension of third mission constitutes one of the reasons why the present study adopts the perspective that third mission must be defined as an immediate, direct or some measurable or visible impacts of the university's services

to society. This is because by virtue of its mission, the university has traditionally rendered services towards socio-economic development, one of which is the human resource dimension. Besides, any attempt to trace how higher education and its respective embodied knowledge work and contribute to society may seem unrealistic due to the invisibility or immaterial nature of knowledge. In Cameroon, there is obviously this function matching Laredo's (2007, 447) first dimension of third mission, called "*Human resource*".

Besides the general pool of graduates employed in the national system, this dimension reflects the transfer of embodied knowledge in graduates and of competences acquired through research to industry and "mission-oriented" public services (ibid.). According to Laredo (2007) this dimension requires a distinction between R&D and non-R&D positions. In addition, the university itself is a main employer of knowledge workers. Besides the university as a whole, some of the principal investigators of the third mission projects in Table 14 reveal that through those projects they were able to create job opportunities, they recruit doctoral students, administrative and research assistants. The policymakers argue that students and academic staff on internships and placements in some of the industries also constitute a workforce for industries.

iii) **Commissioned research:** Since its creation in 1993, the University of Buea (UB) has almost statutorily been doing commissioned research for major companies in Cameroon like the National Refinery Agency (SONARA) and the national agriculture production company, Cameroon Development Cooperation (CDC), which is the second biggest employer after the state (MOU 2007). The academic researchers may often be asked to analyse effluents flowing from the factories into the sea or do the monitoring and other analytical work for SONARA. Similarly, CDC may have problems with pests and UB would be asked to go, assess and give a report.

iv) **Advisory Services and Consultancy:** During the research for this study, the University of Douala (UD) was in a partnership with the National Hydrocarbon Company (French acronym, SNH), the major state owned petroleum company in Cameroon. This partnership was aimed at setting up a geosciences and geology programme with a laboratory for analysing geophysical data specimens for the company. This implies in reality that the mining and petroleum industries in the region can contact UD to help them analyse their specimens and the potentials of the specimens. A similar agreement was being signed by UD with the Forestry Agency (ONAFOR) in Cameroon. In terms of consultancy the Advanced School of Translation and Interpretation (ASTI) of the University of Buea provides a web-based consultancy whereby it outsources translation jobs and commissions its past and present students to do the translation job. This consultancy creates earnings for those who do the translation as they may commensurately be paid without it going through the university administration.

v) **Commissioned Training:** Occasionally, the Universities of Buea (UB) and Douala (UD) are known to organise special training sessions tailored to the specific needs of industrial and public sector staff with a view to imparting specific management or

administrative skills. UB was observed to organise regular training sessions termed *Finance for Nonfinancial Executives* for industries with which they have formal relationships. Upon the recent government decentralisation reforms in Cameroon which created several regional entities, the UD recently engaged in the training of the local and regional council staff by imparting skills to politicians who might never have been involved in the management of those entities and public affairs in general.

vi) **Industry-tailored Programmes:** Programmes conceived at the request of industries and enterprises to address some of their needs were seen to abound at the UD. These are the cases in the University Institute of Technology with programmes such as *Logistics, Transport and Food Safety* which are commonly conceived of in partnership with the specific industries or enterprises. In addition to these, is the university project on the production of seeds for rural agricultural needs.

vii) **Contract Services:** At the time of this study, the University of Buea through its language experts was involved in a contract with the National Ship Building Company (*Chantier Naval*) to write instructions for the use of the company's equipment in the simplest language such that workers with modest levels of education could operate the company's equipment without difficulties (Q9). This can be attributed to the fact that when materials come from abroad, they may sometimes be written in the most technical and cryptic language, which makes it difficult for workers with the lowest level of education to understand. Similarly, UB had earlier been involved in a contract with the Ministry of Public Health to translate messages for an HIV/AIDS campaign. The National Advanced School of Engineering was also observed to be involved in a 2 billion FCFA contract with the Ports Authority of Douala to produce management software for the company.

viii) **Capacity-building:** This dimension of the university third mission in the context of poverty reduction is illustrated by research project of one of the respondents (R18). The respondent reported that through the project they look at the various land statutes and ordinances in Cameroon and identify where there are weaknesses in order to build the capacity of the various actors who deal with the law or those like women who may be generally affected by the law. This capacity-building may take place through the organisation of refresher courses for the various actors. This respondent (R18) recalled that when they went to a certain region to provide training to the divisional officers (DOs), the trainees were quite impressed that they had not been in the classroom for so long or received any further training since they entered public service after graduation. The respondent reported that the communities were benefiting from such capacity building exercises in terms of the knowledge that is conveyed to them on how to better manage their resources. Similar dimensions of capacity-building third mission such as the research project called "Decision Support for SMEs on the use of production" and "Partnerships in higher education on the strengthening of Ph.D training..." appear on the list of projects in Table 14.

ix) **Advocacy:** As cited above, by doing research on women and land rights in Cameroon, R18 implies doing advocacy and enlightening the rural population, especially the women who may be ignorant of their rights. According to the respondent, “*if they have right to land, they will obviously invest for long term benefits on land. They will have more food security and the land will serve as collateral for them to get loans with direct impact on alleviation of poverty within the rural women*”. R14, who was carrying out a study with the rural population in terms of their rights and claims upon the construction of the Chad Cameroon oil pipeline, argued that although this study did not have much impact on policy, it raised the awareness of the rights of the local population which had been affected by this huge project. Similar projects on Table 14 such as “Road Safety” “Customs and fundamental rights in Cameroon” (Table 14, Column 2) take on this advocacy dimension.

x) **Continuous and Distance Education:** This is illustrated by the university’s flexibility to accommodate the non-traditional cohort of students, notably workers from the public and private Sector. In the universities of Douala and Buea, the non traditional cohort of students who may be working can have classes outside the normal teaching hours with a view to upgrading their working and academic profiles. Continuing education is complemented by distance education in the case of the universities of Buea and Yaoundé for the non-traditional cohort.

xi) **Dissemination:** Dissemination of research results to the public characterises one of the dimensions of third mission that has recently been given a lot of attention in most of the Cameroonian universities. This takes the form of exposition. The case in point is the 2008 Expo Days, termed the *Business and Employment Forum* and the *Science Week* of the Faculty of Science at the University of Buea.

7.1.2 Models of Third Mission in Cameroon

An assessment of the activities of the Cameroonian universities which relate directly to society reveals the dominance of projects by academic researchers who apply for and obtain international grants to carry out research on certain community phenomena. This would be described as *researcher-led* third mission according to the dominant pattern of research in Cameroonian universities termed “*researcher-led research*” (see Gaillard & Zink 2003). Similarly, the interactional and income generation dimension of such activities may be translated as “*researcher-led entrepreneurialism*” in reflection of the *scientist-led model* (Goktepe-Hulten 2008) which is the dominant channel of the university’s interaction with its socio-economic environment in Cameroon. Below are the related researcher-led projects from the institutional case studies (cf. 3.2.1).

Table 14: Research Projects at the Universities of Buea and Douala from 2005 to 2010

No	University of Buea	University of Douala
1	Application of molecular biology techniques to tropical diseases	Communication, identity and development in Cameroon
2	Grants for malaria	The Sawa cultural space
3	Malaria venture	Culture and integration of the people
4	Research on Cameroonian medicinal plants	Preparing Media Support Packages (CDROM) for Self, Distance, Assisted or Network learning.
5	Resistance of urogenital infectious agents to antibiotics: seeking solutions from medicinal plant in Cameroon	Vegetal and composite fibre, design and testing of materials
6	Grand challenges in global health initiatives	Production and Use of Biogas
7	Partnerships in higher education on the strengthening of Ph.D training in Africa (South-North, South-South collaborative project)	A study on a model of agglomerated Cement
8	Geohazards Monitoring Project	Fuel production from vegetal materials
9	Peaceful application of nuclear techniques (Influence of seasonal changes in hydrology on nutrient cycling in West African tropical mangroves)	Abrasive materials
10	European and developing countries clinical trials partnerships for a postdoctoral position	Pollution, use of plants & cost-efficiency in water treatment: The case of Mgoua stream in Douala
11	Malaria pilot project	Vegetation diversity and milieu difference in land & water-logged ecosystems of the Douala Region
12	A project to establish a drug discovery centre at UB	Erosion and sedimentation in the coast of Cameroon: sedimentology and remote sensing
13	T-cell responses to variant surface antigens of plasmodium falciparum	Water quality from traditional wells in Douala City
14	Influenza surveillance in Cameroon	Photodissociation of molecules for atmospheric interest: application for atmospheric pollution
15	Characterisation of erhlichia SPP infecting cattle in Cameroon	Evaluation of natural radioactivity in the Mount Cameroon region
16	Global forum for health research	Non-compliance of HIV/AIDS therapy (PLIOHAS) in Cameroon
17	Cameroon pipeline project	UD/ HIV/AIDS Observatory

18	Climate variability and climate change in Northern Cameroon	Death and aging in Cameroon : socio-cultural, economic and medical perspectives
19	Application of genomic and proteomic approaches in the characterisation of human and bovine tubercle bacilli and implications for disease control	The impact of the use of Local fermented milk products
20	The impact of land tenure practices on women's right to land in Anglophone Cameroon and implications on sustainable development	Studying the influence of some medicinal plants
21	Networks of Excellence Project	Decision Support for the orientation of SME & SMIs on the exploitation of production tools
22	Correlation of bark phytochemicals from annickia chlorantha with physiological and environmental variables across a forested African Landscape	Micro-hydraulic centre in rural areas
23	The influence of seasonal changes in hydrology	The quality of serodiagnosis of widal in Duala: Influenza Malaria-Typhoid
24	Climate friendly waste management	Road Safety
25	Mechanisms of erythrocytic infection and anaemia in malaria	Hydrogeology of the Douala Basin
26	Research and innovation management for African and Caribbean countries: towards successful stimulation and dissemination of research results (RIM14AC)	Production of didactic materials for Secondary Technical education at ENSET
27	Women's movements & the struggle for Socio-political space in the grasslands of Cameroon	Research on new anti-inflammatory drugs & analgesics in the Cameroonian medicinal plants
28	Training workshop at the Max Plank Institute for psycholinguistics	Evolution of the antifungal activity of essential citrus oils against phacoramalaria angdensis in Cameroon
29		Symposium on the geology of the Gulf of Guinea and the first meeting for the harmonisation of the stratigraphy of sedimentary basins in Cameroon
30		Customs and fundamental laws in Cameroon

31		The structure and dynamics of the industrial system: Design & simulation of industrial demographics, agro-industrial activities & industrial networks in the Littoral Province
32		Digital divide and social interaction: a comparative analysis of the diffusion and use of internet in Central and Western Europe

Source: Universities of Buea/Douala 2010/2011 Annual Reports.

Broadly speaking, the research projects in Cameroon as above point to the university's involvement in addressing national health, environmental, economic, energy and food security and their internal capacity needs in higher education and education. One observation that could be made on the topics is that categories of third mission may differ according to country's contexts and priorities. Whether the research projects are applied or basic was not warranted by the scope of this study. Besides the topics as indicators of third mission, these research projects by individual researchers and research groups would generally be the dominant activity that brings incomes from nongovernment sources, notably from international donor and research organisations. The case of the University of Buea with 5 per cent of its budget (in 2010) coming from internationally-funded research has been cited. Although, the dependence on these external sources of research incomes has been criticised (6.1.2) as a cause of inefficiency, evidence of negligence to research and aids dependence with implications on lack of context applicability, some respondents argue that the research is usually applied to national contexts and priorities. One interviewee argued that "*most often, we look abroad for the money but most of the work we do is local*" (R14)

Generally speaking and without contradiction, third mission through dissemination in Cameroon easily fits with the social dimension in terms of what we identified earlier (cf. 4.6.1) as "*social third mission*" by Montesino et al. (2008) and most often with limited intention of generating economic benefit and little cost for the final service user. This kind of third mission, though traditional, suits where there is already an established social and relational contract between the university and the government or some stakeholders in terms of funding, such that the university uses part of its budget to finance such activities (ibid.). Examples of such services can be non-academic dissemination, media communication, voluntary contributions to the community (of labour, expertise, educational outreach) social networking or contribution to public policy (Padfield 2004; Montesino et al. 2008, 10). A look at the diverse entrepreneurial or income generating activities of UB in broad categories such as registration fee, property sales and usage, sundry income, medical services, development fund which accounts for about 30 per cent of its budget suggest that they do not fall into any category of third mission. As such their

income activities are not coterminous with third mission but for the research projects. This is because most of those income generating activities may be mostly targeted at internal users and stakeholders in the university such as the students. Only the research projects qualify as the social dimension of third mission.

There could be situations in which part of some research grants is conveyed to the central administration of the university or where staff in the administrative chain of the research projects receive some bonuses. However such monies to the university would seem not to be of any significance or the main objective of the project and were revealed to be merely aimed at defraying the administrative costs of the project. The University of Douala, through the generation of almost 15 per cent of its budget from professional, technological and university-industry conceived programmes, and through differential fee payment could be said to present a picture of the second dimension of third mission called “*enterprising third mission*” (Montesino et al. 2008, 10). This second dimension usually aims at diversifying the sources of income through services to society, industry and other institutions and/or former students (ibid.), thus generating economic benefit for the university. However, the cited case at the University of Douala could simply be a partial picture as it leans towards Laredo’s (2007, 447) category of “*human resource*” and “*contracts with industries*” (cf. 4.6.1); a majority of those programmes serve the interests of its internal clients, the students and only partially of the enterprises.

In light of the above, it can be asserted within a broader categorisation of third mission, that it is dominantly the first two, *social third mission* and to a lesser extent and only in specific cases, “*enterprising third mission*” that abound in Cameroon¹²². What seems to be nonexistent is the innovative third mission. This is supported by a respondent in the study (Q8) that the universities in Cameroon were not yet involved in issues like technology transfer and participation in firm and industrial innovations and research and development. R8 argued that they were heading towards innovation. The respondent observed that “*as long as Cameroonian universities do not start taking into consideration the needs of industries in terms of training and research, notably applied research*”, they would not integrate themselves fully into innovations and the entire production and innovation system. This integration takes place in terms of “*transfer, conception and even the production of technologies*” (Q8).

7.1.3 The Dominance of the Researcher-Led Third Mission in Cameroon: Case of UB

In the preceding section, *researcher-led third mission* (by implication entrepreneurialism) was employed to describe the dominant model of third mission in Cameroonian universities. This appellation was resolved on because of the dominating pattern of

¹²² In terms of the categorisation by Montesino et al. 2008.

research termed *researcher-led research* being done in Cameroonian universities and can be likened to what scholars (Goktepe-Hulten 2008) describe as *scientist-led model*. This type of researcher-led third mission was seen to be determined by and dependent on the individual academic researchers making contacts and competing for funding from external sources than being structured and funded nationally or institutionally. Asked about the factors that contribute to attract external research funding, the idea of a better quality and calibre of academic researchers over time was advanced in the case of the University of Buea (UB). This quality could be implied in the fact that those externally-funded grants are competitive; “if UB can get a good amount of money from the international arena, it means its researchers are competitive and are doing a very marvellous job” (Q10). Another respondent argued that the increase to 5 per cent of the university’s budget should be seen in terms of the number of staff which has increased as well as their maturity over time (R19). In 1993, when UB was opened, a majority were junior staff, holders of Master’s degrees or among the lowest ranks of the system. In 1998, only 1 per cent was full *Professors*, 8 per cent were *Associate Professors*, 34 per cent *Lecturers* and 57 per cent either as *Assistant Lecturers* or “*Instructors*” (Njeuma et al. 1999, 15). Thus, 91 per cent of the academic staff were at the lowest two ranks and only 9 per cent at the professorial levels of the system. In 2010, there were already 15 Full Professors (P), 20 Associate Professors (AP), 125 Lecturers (L) and 158 Assistant Lecturers (AL) (2009/2010 Annual Report, 7) as below:

Table 15: Distribution of Teaching Staff by Faculty/School, University of Buea, 2009/2010

No.	School/Faculty	Teaching Staff			Grade				
		Master’s Degree	Ph.D Degree	Total	P	A P	L	AL	INST*
1	Arts	22	41	63	4	2	23	33	1
2	ASTI	8	5	13	0	1	5	7	0
3	Technology	0	1	1	0	0	1	0	0
4	Education	9	11	20	2	2	5	11	0
5	Engineering	0	2	2	0	0	2	0	0
6	Health Science	14	11	25	1	1	8	14	1
7	Science	39	82	121	5	12	48	47	4
8	Social & Management Sciences	51	37	88	3	2	33	46	3
	Total	143	190	333	15	20	125	158	9

*Instructor: Not statutorily recognised within the system but created discretionarily within universities

The above indicates a major improvement in the quality of the staff and academic profile thanks to various system and institutional instruments and incentives. Not only that there are many more academic researchers at UB, but the profiles of a good percentage have significantly improved. Also, unlike in the 1997/1998 period, when the majority of the staff did not hold terminal (doctoral) degrees (Njeuma et al. 1999, 12), 146 were holders of doctoral degrees in 2007. By 2010, there were 189 (58.5 per cent) of the teaching staff with doctoral degrees (2006/2007; 2009/2010 UB Annual Report). Capacity-building towards promotion and the award of doctoral training grants have been some of the strategies to improve UB research productivity through schemes like the Staff Development Grant (see 6.4.4 & Samfoga Doh 2010). Also, the current ministerial text guiding recruitment into the university teaching corps in Cameroon has since the early 2000s made it mandatory to have a doctorate before recruitment.

According to respondents, exposure to the new information and communication technologies (ICT) and the internet have facilitated the academic researchers' ability to outsource many more types of grant applications. Today, the lecturers at UB have access to internet on campus and off campus, individual, group internet and office internet which make them more exposed to the world. One respondent summarised that the major factors are "*increase in the number of the staff, access to ICT, the maturity and quality of the staff*" (R18). Another factor was that many lecturers returning home to UB from abroad were still holding onto the contacts and links they made at their Alma Mater and which are facilitated by the ICT and global mobile telephony. Another respondent revealed that sometimes those links abroad and to external grants application may be facilitated by some alumni of UB who play very important roles in linking their former teachers (academic researchers) from home. There is also the importance of role models, of professor-supervisors who help to transmit the grants competition cultures to their junior staff, students and researchers. Many examples were cited by academic researchers who believed that they emulated the notion of "*grantsmanship*" from their senior professors. According to one grantee, "*I copied this ability to apply for externally funded grants from my supervisor; how to go about it, how to do it. My supervisor did not only teach me to get my certificate, but he also taught me "researchmanship" or "grantsmanship"*" (R19). Another opinion holds that winning such external grants may not be easy.

Someone needs to project you. It was Dr. X's desire that I win grants and start a good laboratory and research team...He sponsored my trip to attend grant writing workshops, scientific conferences and to present my work. These were good exposure for me. He always insisted that I must generate data good enough to be published in high impact journals (BUN 2009, 11).

The above researcher wishes delightfully that she could be able to assist young colleagues in the same manner because of the importance of such projections. There is also the important impetus which the university institution can accord to a specific activity

which becomes significant in promoting and maintaining a culture of that activity. In the middle of the 2000s, very few academic researchers won externally-funded research grants at UB. It became highly prestigious to present in the university's congregation and New Year meetings the very few lecturers who had won externally-funded grants. Not only was it prestigious but it became a show of excellence, external recognition and of the international connectedness and societal relevance of the academic's activities. Some of those grants were aimed at problem-solving with significant relevance for the country's development. The symbolic importance of the university administration in promoting the *grantman's*¹²³ culture at the UB may not be underestimated. R19 stated "*the university appreciates the winning of such grants and recognition is important motivating factor. It spurs you to do more*" (R19). What might not have been revealed by the respondents is the historical origin or background of the researcher-led third mission and therefore researcher-led entrepreneurialism in Cameroon, notably, the economic crises of the mid 1980s to 1990s. One of the consequences was that during the crisis period especially between 1990 and 1996, most, if not all government-sponsored research programmes in Cameroon were stopped except those which ran on international grants. As necessity is the mother of invention, most of the academic researchers resolved to seek for research funding internationally. The crises led to the rise of "grantsmanship" and the culture of "consultancy" at the bequest of foreign institutions and organisations (Gaillard & Zink 2003, 22).

When asked about the motivations behind activities and research projects of the academic researchers, three dimensions of the motivations were mentioned. The fact that avenues of research funding and launching of new calls for application, whether from external bodies or the small university and faculty grants was the foremost motivation. These avenues of funding were said to motivate the academic researchers to design the projects. Samfoga Doh (2010) earlier cites cases of academic staff in UB who admitted that they could never have created or thought of their projects but for the funding scheme by the Staff Development Grant. The second dimension of the motivation could be described as being driven by the socio-economic needs of the country, patriotism and love of development. The respondents in this group argued that the prospects and applicability of their scientific knowledge and research motivated them to apply for research funding to solve some of the societal problems of the country and such applications were usually granted on the basis of the pertinence and relevance of their research topics. "*I had been working on this project before I had the financial support. I saw the need for electricity generation for rural areas in Cameroon*" (R12). According to R17,

There are quite some nice things which I could like to do to satisfy my ego as a molecular biologist, 'maybe earn big money somewhere' but I don't do those. There is satisfaction in using science to address some of the chronic societal problems in a developing country like ours. The information I derive from the research on malaria may not add

¹²³ *Grantsman*, term (jargon) used by some respondents

to my progress as a professor but would be essentially useful to the national health control programmes (R17).

The third dimension of the motivation draws on serendipity or self-interest. R12 stated that *“I saw some need for myself, doing something for which I can extend, develop and use the results to make a living when I retire”*. There is also the autonomy that such external grants accord to individual academic researchers. R19 remarks that those external grants permit one to *“have control over one’s research, without necessarily going through other authorities”*. In addition could be cited, related publications which result from some of the research projects which can be used for promotion to higher ranks (R17 & 19). Finally some fringe benefits were also cited as motivating. *“Sometimes, there are benefits like petrol coupons or extra allowances designed in the grants that are important to improve on one’s personal lot”* (R19).

7.1.4 Poverty Reduction as Third Mission, Funding Status and Beneficiaries

Asked how well the interviewed principal investigators and researchers in the study believed they were addressing poverty or the socio-economic needs of the country, through their projects, one of them stated that *“the research that we carry out is directly geared towards the development of the country. For instance, I am working on health priorities of the country”* (R 15). Another respondent in the health domain reported as follows:

I work on two poverty-related diseases, tuberculosis and malaria. Being related to poverty means that I am directly addressing issues under the ambit of development. The questions that I turn to ask are those that are directly related to these diseases and are those that should be able to alleviate poverty, while at the same time understanding from the environment itself some of the lofty questions that could be addressed with my knowledge of molecular biology. Even the questions that I answer are generated directly from the population (R17).

This respondent believes that his research area will be one of the most strategic and even socio-economically cost-effective in the sense that Africa loses about 12 billion dollars each year to a disease like malaria and according to the respondent, it all needs about 3 billion dollars to bring it under control.

By researching the efficacy of the drug and what will be equitable, we are directly introducing into how malaria can be properly managed and put under control. By asking the right questions and using the data that is generated on the impediments for proper use of the therapy or other interventions and telling the government on exactly where the bottlenecks are, we are in a way helping to reduce these infections in this poverty-stricken nation (R17).

R16, whose research was on drug discovery believed that their *“activities have the potential to interface or they interface neatly with the socio-economic environment but only to the extent that there is an enabling environment”*. R12 revealed that the research they do has poverty alleviation and socio-economic development of the country in mind. *“I am doing research on the development of devices that can be used to electrify rural areas. You know in Cameroon, more than half of the rural areas are not electrified”* (R12). This respondent indicated that these rural areas are not electrified because of the high cost of the traditional equipment, the degree of extension and insufficient generative capacity. The respondent believed that micro hydroelectricity and wind turbine generation of electricity for which they are about to manufacture prototypes can help reduce the cost, extend and improve the generative capacity in Cameroon. R18 also observes that their research on gender, women and land ownership is addressing poverty. The respondent stated *“If you are aware of the Growth and Employment Strategy of Cameroon, there is a whole chapter for gender. And, for women to contribute to poverty reduction, they must own factors of production, one of which is land”* (R18). The respondent argues that within the current dispensation, the customary laws have tended to disfavour women and this is a major handicap to the poverty reduction strategies.

Despite the activeness and dynamism of the academic researchers in Cameroon, funding for third mission and poverty reduction activities as the above still seemed to be generally nonexistent and without any permanent status. In the words of one of the respondents, the new demands for linkages and working with external socio-economic actors *“is a very big task”* they have been given, *“unfortunately, the means are not available”* (Q10). Most of the respondents revealed that although the call for more visibility in the contributions of higher education and universities in economic development has been very strong in recent times in Cameroon, they (the government), HE policymakers and the universities were still finding it hard to give a steady funding status for those activities. For instance, the university administrators were said to continue perceiving the financing of exploratory activities from the university budget as too risky (Q10). This respondent (Q10) proposed the creation of a special budget head to sponsor activities for interaction with socio-economic actors and for business ventures. This, according to the above respondent, is because, *“you cannot sit in your office and contact businesses in Douala, Yaoundé and Bafoussam. It is not enough to send emails or make phone calls, certain businesses require face to face meetings”* (Q10). Most of the respondents noted that most of the university’s initiatives are handicapped by the lack of venture budget and sometimes, simple logistics like cars and telephone to make business contacts. Viewing these discrepancies, UB policymakers express their vision to create and fuel a university-industry budget head to accompany its ambition of attaining thirty external university-industry partnerships, of at least one link per department, by 2015 (see UB Strategic Plan and Annual Report 2009/2010, 13).

Exemplarily, it was revealed that the University of Douala (UD) funds all prior and exploratory studies for the conception of university-industry partnerships; from programmes' conception and usually also the equipping of the laboratory (Q8). However, they noted that in general it is the money that is gained from the programme that comes to defray the running costs of their related projects. Respondent (Q8) pointed out that there are also funds to run the activities of those newly-created interface centres (cf. 5.5.5). There are cited examples that when visits are to be undertaken by lecturers to firms, they are financed from the university's budget. In addition, there were other categories of funding or budget heads to finance the field trips and internships for students to firms. The UD university managers observed that such funds are necessary to motivate the lecturers to create such partnerships with enterprises because they are also in need to improve their resources; government resources are insufficient.

Asked about the benefits of the university's involvement in national socio-economic development to the different stakeholders (the individual academic researchers, the university, society and the poor), one respondent argued for the academic researchers that *"such involvement will be interesting for their personal career since 'socio-economic impact' has been recently included in the evaluation framework"* for academics in Cameroon (Q7). This perspective is supported by respondent Q10 that *"at the end of the day when such societal-relevant activities like research are done, the academic researchers will use them for their promotion, change of grades and even psychological satisfaction"* (Q10). The previous respondent (Q7) added that these academic researchers' lots, career development and economic growth will improve with more incentives to motivate them. As for the university, *"it would have the opportunities for more resources to supplement their usual insufficient funds"* (P6). Q10 observes that such activities also promote the image of the university and *"gives it a higher standing"*. As for the poor, they benefit statutorily and naturally from the fact that *"the ultimate goal of any university outreach is to improve on the social and economic conditions of the society"* (Q9).

Regarding the industries as the most conspicuous stakeholders of the university's activities, Q10 quoted the case of the CDC, the two major national brewery companies, *Brasserie du Cameroun* and *Guinness SA* and *SONARA* with which UB does joint research. Not only do these companies fund part of their activities, they also help in part of the training of their students through student placements on internship. The industries were said to benefit *"in the sense that the university helps to solve some of their problems"* (Q10). Another respondent (Q5), situates the university's role and benefit in socio-economic development, hence poverty reduction within his own broader understanding of knowledge economic development. Nowadays, *"society needs high quality education, not only in terms of theory but relevance. Science for science will never bring money. So you have to take science and use it innovatively for solving problems. That is what we call knowledge economy"* (Q5).

7.2 Entrepreneurialism in Cameroonian Higher Education

It is generally agreed upon in Cameroon that entrepreneurialism would be one of the main strategies for funding or supplementing the funding of the higher education system in general whose responsibility seems to be difficult for the government to shoulder alone. In a narrower sense, the entrepreneurial perspective has recently been reinforced further by the robust professionalisation policy. It is widely believed that if the HE system is to maintain and sustain this professionalisation policy, in addition to its traditional access needs and the recent applied research agendas, there is the necessity to devise sustainable entrepreneurial strategies for generating non-government funding. The argument holds that professionalisation in itself as well as some of its vectors like the technology and professional education are cost intensive. In addition, research is stupendously costly. There is the perception that the cost of higher education would be increasingly borne by the beneficiaries, students and enterprises to whom such professionalisation and research are tailored. According to one respondent (P5), *“even in the country where you (the researcher) live, the university system does not have enough money, the university has to look for extra money to supplement the little that is available”*. Another reason is that most of the professional programmes’ conception is largely sponsored by donors as temporary projects whose funding usually ends after a few years. This is the case of the current Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE) in Cameroon sponsored by the World Bank. The sources and the temporary nature of the funding of such programmes raise questions about their sustainability and the country’s financial viability. In terms of knowledge intensive socio-economic development, notably the application of research in R & D, the argument is that the beneficiaries, the industries have to be involved in partial or co-funding of such research and even in paying for the university’s competences. There is the argument in Cameroon that it is the industry that has money and not the government because of the low income level of the country and many other sectors and social issues increasingly compete for government funding.

Due to concerns about financial sustainability, especially about the professionalisation and applied research agenda in Cameroon, there is an articulated vision and expectation that all the Cameroonian universities should be able to be financially autonomous by the year 2015 and to provide plans to that effect (Circular No. 05/2005 of 17 October 2005; SPTPCHE 2007). When asked how possible it was that the university might finance itself entirely by 2015, the first respondent (Q7) argued with respect to the University of Douala (UD), that *“although one may not state with certainty, given other uncontrollable variables when universities have to depend on government money which is not in its control, it is, however, possible”*. This was seen in the fact that UD was already able to finance itself for up to 52 per cent from the statutory tuition and differential fees through professional programmes that are developed with socio-professional partners. The tuition fees of some

of the income generating programmes with socio-professional partners could be as high as 20 to 30 times the statutory fees prescribed by government. The second respondent at UD again stated “*it is possible*”, however,

that is to be on condition that the government provides the necessary means, the finances and creates laboratories with applied objectives with industries. If the government does not do this, I am afraid that the main source of the university’s non-government income will continue to be the registration/tuition fees (Q8).

The third respondent, who replied in terms of his establishment, the National Advanced School of Engineering (NASE) in Yaoundé as one of the most entrepreneurial establishments in Cameroon observed with much certainty that “*it is possible, if it is left to the NASE*” and through their successful practices and entrepreneurial frameworks proposed to the other Cameroonian universities (P5). The respondent observed that they were even getting to the point where they can subsidise a very substantial part of the entire University of Yaoundé’s budget. “*That’s the reason why we have created our own business company called Polytechnic Valor. We are moving forward. We are earning money*” (P5). This respondent cited the example of an agreement with the Autonomous Port of Douala for 2 billion FCFA¹²⁴ to prepare software for their management operations.

7.2.1 Perceptions of University Entrepreneurialism in Cameroon

Three perceptions of entrepreneurialism could be observed in the present study. First, there is the widely acknowledged perception of entrepreneurialism as generating external nongovernment income (Gjerding et al. 2006). The second perception and which is closer to the definition of third mission is entrepreneurialism as the university’s ability to contribute to and impact in economic development and growth (Etzkowitz & Zhou 2008). The conclusion one draws from the respondents is their understanding of entrepreneurialism as the university’s capacity to generate non government income, thus the first dimension of entrepreneurialism. Meanwhile, the socio-economic development aspect of entrepreneurialism was to be conveyed in the university’s third (service) function. The reasons evinced are that although some extra cash may flow from the university’s third mission activities, notably, the researcher-led third mission, such extra incomes are simply seen as being secondary to the university and researchers’ intention to carry out problem-solving activities in the society and not deliberate policy designs. Some Cameroonian universities like Buea have attempted to structure and design policies to receive compensations from the internationally-sponsored projects. However, the managers of that university maintained that those compensations are simply meant to refurbish the university’s facilities, maintain infrastructures and defray costs associated

¹²⁴ Two billion FCFA being already between one-fifth and one-third of the university budgets in Cameroon. For example, one-third for UB (see UB annual budget for 2009/2010).

with hosting and administering the grants. There is also the argument that the academic researchers who receive these international grants and do research for their international donors are employees of the university. They therefore spend part of the time for which they are paid by the university or government on these externally-funded projects (Q9). The universities' infrastructures and equipment undergo wear and tear, with electricity and water being consumed in due course (UB Research Policy Guide 2010, 14). What the university managers highlight as major fallouts of some of these projects is the prestige, material gains and societal impact. If there are any pecuniary benefits to the university they are seldom substantial or sustainable (Q10).

All the principal investigators of the projects reported that the generation of income was not their principal aim in engaging in direct socio-economic development activity, but perhaps secondary. Also, they confirm that monies that come through such third-mission activities are simply or mostly meant to supplement or defray some administrative or running costs. These confirmations suggest no particular stance on the university's interaction with their socio-economic environment, be it for income generation or for socio-economic relevance. The difficulty of distinguishing between university third mission and entrepreneurialism in Cameroon is confirmed by another set of opinions which hold that the university can only make money if it engages in direct socio-economic relevant activities. According to one respondent,

If you or your teaching or research does not have relations or relevance with socio-economic actors you will not make money and if you are able to find money, you can improve your condition and those of the teaching and research. You have to be close to the problems of society (P5).

In addition to the known notion of entrepreneurialism as generating external income and the much generalised "entrepreneurialism for economic development", the Cameroonian example present a third dimension to entrepreneurialism in HE. This would be described as *student entrepreneurship* or *student-directed entrepreneurship*, whereby entrepreneurship is perceived in the Cameroonian context as strategies to respond to the employability and creativity requirements of students. This, according to respondents, involves integrating into teaching the instruments and conceptual frameworks through which students can look for and create their own jobs and secondly how to maintain and manage the jobs once found or created (Q9). This is evident in the emphasis on a few compulsory courses on student entrepreneurship at the University of Buea or the Technipol (the employment and poverty reduction incubator) at the National Advanced School of Engineering, University of Yaoundé 1. These courses highlight the drawing of business plans and project writing for students who are about to graduate (P5 & Q9).

In light of the convergence of the second and third dimensions of entrepreneurship on socio-economic contribution and third mission, it seems more appropriate to focus the next section on the first perception of entrepreneurialism as generating extra income from

nongovernment sources. It is also important to examine the changes in the perceptions of entrepreneurialism that accompany changes in the role of higher education. Earlier, in 2005, Cameroonian higher education authorities are quoted (in Doh 2008, 1) that Cameroonians should be able to reflect on adequate strategies to sustain the higher education system financially. The universities were urged to cultivate an entrepreneurial spirit to attract more external funds (MINESUP Press Conference 2005; Doh 2008). The HE authorities advised that academic units including those with no direct market friendliness should reflect on how to attract external funding. As an example of the public outcry, departments who “use verbs”¹²⁵ were called upon to reflect upon how they can sell verbs to sustain the departments and the universities. In 2005, the call for more financial sustainability was based on the massification¹²⁶ of the higher education system; the growing student numbers amidst the financial insufficiency of the system. With the changing roles of the HE system, the rationale of the entrepreneurial concept seemed to have changed to being a means to maintain the relevance of the higher education to economic development.

7.2.2 Entrepreneurialism as Generation of Non-government Incomes

The first system design to supplement the funding of higher education in Cameroon can be traced to the 1993 reforms, which introduced a statutory token fee of 50,000FCFA¹²⁷ for all state universities. This registration fee (RF) constitutes an average of 20 per cent of the total budget of each of the universities but does not cover 30 per cent of the per student instructional cost for the basic programmes, 20 per cent of the science programmes and less than 5 per cent of the cost in the technological and medical sciences¹²⁸. Taking advantage of the institutional autonomy accorded by the 1993 reforms as well as the viability of their immediate socio-economic environment, some of the universities like the University of Douala engaged in differential fee payment (DFP) for non-traditional programmes. This DFP, according to respondent Q8, constantly adds about 15 per cent to the statutory fee payment of 50000FCFA. Thus around 35 per cent of the budget of UD comes from fees (RF and DFP combined). Besides the general average of 20 per cent from the registration fees and about 5 per cent from third mission (research) activities (thus 25 per cent) (in the case of UB), other revenues from nongovernment sources account for about 10 per cent of the budget (a total of 35 per cent). At UB, these other revenues come from diverse on-campus businesses and expected sundry incomes such as recovery of

¹²⁵ Languages, linguistic and literary departments.

¹²⁶ Higher education moves from being an elite system (for a few) to that of the masses with increased number and implications for funding (see Trow 1970; 1974).

¹²⁷ About 100USD.

¹²⁸ P2, according to a MINESUP’s calculation in 2005.

debts, sale of materials, rents of halls of residence, medical income and fund raising (UB Budget 2010, 2).

Third mission activities such as advisory services and consultancy, commissioned research and training, contracts and continuing education also represent some of the major sources of nongovernment income to the Cameroonian universities (see 7.1.1). These latter categories of third mission activities could bring significant variation to the externally generated income of the universities, but since the projects are based more on the demands of the users (the companies) than on the designs of the universities, hence opportunistic projects, they were seen in the study as still being largely unstructured. Even when there are memoranda of understanding (MOU) defining the relationship between the universities and the industry in Cameroon, there could be no income to the universities if no demand for a particular service to be provided by the university arises. Conversely, there could be MOUs with a particular university but if that university is not seen by the company as competent to provide a required skill, the company will certainly move to another university or country, thus disregarding the MOU. The relationships between the industries and the university were seen in the study as being decidedly demand-driven rather than structured and sustainable relationship.

7.3 Cultural and Structural Support for Entrepreneurial Activities

It may be repeated that the Cameroonian higher education system is of the French colonial system and philosophy, which traditionally remained one of the most publicly-funded, centralised and highly civil service-oriented. In addition, it is still within this French and ex-colonial tradition that the teaching and research corps largely remain civil servants. Because of the centralisation and which is not unconnected to the public funding orientation of the system in Cameroon, there is a good degree of government control. This control is manifested for instance through the top principal officers, like rectors, vice-chancellors, registrars and sometimes deans and directors of the universities being appointed by presidential decrees.

The public orientation of the funding, centralisation and government control of the system implies that the notion of income generation from non-government sources and governance wise, full institutional autonomy is a recent phenomenon in the French and French ex-colonial settings. Correspondingly, the implantation of entrepreneurial structures and cultures is still a recent phenomenon, some of which, in the case of fee payment usually meets opposition from resilient cultures. The interviewees observed that one of the main challenges for entrepreneurialism in Cameroon higher education is largely cultural and lies in individuals; the difficulties of diffusing the culture to all and sundry, changing programmes and writing new strategies for the system (P5). According

to another respondent (P6), *“the first changes should concern the people”* even before changing the programmes. Respondent P6 believed that the people were not yet prepared for entrepreneurship and *“if you change the programmes without changing the people, the required results may not be easily attained”*. The policymaker argues that *“entrepreneurship has to be in the mindset of the people and they have to see that they are living in a competitive world”* (P6). Respondent Q9 added that such cultural changes is with *“the people”* and implies changing the mindsets of the university (academic researchers) *“to accept changes in the pedagogy, in their ways of teaching and transmitting knowledge, especially in solving problems”*.

Amidst difficulties to separate the university’s third mission from entrepreneurial activities in the Cameroonian context, whereby third mission (the direct socio-economic function) of higher education is seen as an obvious means of generating extra non-government income, the analyses (7.3.1) suggested that it is not the same way round, whereby activities for generating income for the university may not necessarily be designed as third mission activities. Given most of the interviewees’ difficulties to separate the two practices, most respondents believed that it was not easy to separate the transformation processes which open the system to more socio-economic relevance (third mission) and income generation. As such, the structures and cultures for third mission and income generation were concluded as being the same except in cases where one (socio-economic relevance or income generation) is strongly emphasised. For instance, structures like the business unit inevitably emphasises income generation. Some research topics conspicuously express the type of societal problems they are out to solve. However, the structures and cultures for socio-economic impact and income generation in the context were seen to be the same. These range from the governance and structural changes, incentives and facilitating structures analysed (see 5.4, 5.5.5, 5.6 & 9.1.2).

One of the first major innovations in the university’s structures is the additional emphasis in 2007 on *“relations with the business world”* to the competences of the office which was previously in charge of research and cooperation. It was changed to *“Vice Rector in charge of Relations with the Business World”* (VRRCB). Among others, the new and recent orientation of the Cameroonian higher education to socio-economic development bestows on that office the responsibility of following up relations with international and national business communities, setting up placement offices in the university establishments and following up the university development plans and funds (Decree No. 2007/317 of 4 November 2007). Regarding the perceptions of the role of this office, respondent R14 observed that *“business and relationship is the role of the VRRCB”*. According to this respondent, the staff of the VRRCB are supposed to play a proactive role by *“going to the industries, finding out their demands, planning how to sell the image of the university and linking the industries to the different university researchers”* (R14). On the part of the academic researchers, R14 argues that this office is the support structure for their external socio-economic activities. The researchers are supposed to *“go to that office,*

identify and state their ideas in relation to industry and other socio-economic impacts of their work. That office will sit and design how to sell the idea to the industries” (R14). According to respondent R17, *“that office constitutes what we see in other places like Grants Administration Office”*. Under the responsibility of the office of the VRRCB, an on-going national programme termed Research and Innovation Management (RIM4) could be identified at the University of Buea (UB) which aims at building capacity for research management to help project design and bid for external grants. Attached to VRRCB is the office of the Vice-Deans in charge of Research and Cooperation to organise the research activities in the faculties and schools.

Similarly, in some of the universities (like UB), an emerging structure called *Business Unit* (BU) could be found. One of the respondent, Q10 who oversees the setting up of that structure reveals that the BU *“is supposed to encourage cooperation links between the university and industries and the establishment of on campus business”* Q10. This respondent (Q10) revealed that these business units are supposed to be extended to all the faculties and schools of the university to serve as interface structures to connect academics to businesses. In relation to the concept of student entrepreneurship, reference is made to the national incubator hosted at the National Advanced School of Engineering called *Technipol*. Drawing on two respondents (P4 and P5), this national incubator is a component of the Support Programme for Income Generating Activities in Cameroonian HE (with the French acronym, AGIR) which was created to train the Cameroonian youth to acquire skills to counter unemployment and poverty. The graduates are trained on how to create, manage and maintain their own businesses.

From another cultural perspective, one of the respondents (P4) revealed that this national incubator project envisages changing the mindsets of the Cameroonian youth (graduates) which has been too civil service-oriented; by harnessing and promoting individual creativity and innovative capacities. This implied, according to P4, that *“if a graduate and other youth have project ideas, they bring it to the Technipol which will help them with skills on how to create their own business, draw business plans, and seek funding and avenues of collaboration”* (P4). Although this national incubator project was initially meant for the polytechnic students, then extended to other students and graduates from the other universities, the respondents (P4) argued that it is not impossible that it could be stretched to other Cameroonian youth since it is based more on *“the strength of the ideas”* (P4). Although the project was initially meant for the engineering students (who might still require the skills), it was found more relevant for graduates from the other less market-friendly programmes as a means of supporting the professionalisation policy. This is, according to the respondent (P4), because the engineering training in the former is already labour market friendly. P4 also observes the necessity for these types of pro-poverty and employment incubators to be decentralised into the other universities rather than being a central project.

It was important to find out from the respondents the type of support that the entrepreneurial academic researchers receive from the university system in Cameroon and whether their activities were mostly dependent on the efforts of the academic researchers. Respondent R17 revealed that being in a university is an advantage. The university issues related documents to support applications for grants. *“The university itself is good collateral”* (R17). R17 argued that affiliation to the university is a good indicator that the institution of the applicant is one that would last much longer than any individual activities. This means that *“any investment would be accounted for and may be long lasting and serve a greater population”* (R17). According to R14 *“the letters of accreditation and recommendations that the university supports the applicants are important. It will be difficult to get grants without institutional coverage. They will never give you a grant if you don’t have an institution”* (R14).

The fact that most of the project staff are originally employees of the university, using the university’s premises and facilities and certain overheads provided by the university was seen as advantage for third mission and entrepreneurial activities through the research projects. According to Respondents R15 and R17

Our project staff are in the majority, employees of the university paid by the university. These include the secretaries, cleaning agents, guards and plumbers. The university also pays for electricity, water and there is always a supplementary fund for us from the annual budget of the university (R15).

I don’t pay for utility bills and security guards. My basic salary comes from the university. I don’t pay for the building or laboratory space. All I do is use it. And you should be in the administration to know how much they spend on utilities. So I think it’s a mutual support system. The university will not exist if the researchers are not there and the researchers wouldn’t be there if there is no university (R17).

R12 revealed that the university and the ministry might sometimes support individual and group researchers financially when they write grant applications or win grants, depending on availability. R14 believed that such support was encouraging because in applying for externally-funded projects the researcher could indicate that the university would either contribute by providing offices or labs or staff and other overheads, which provides an edge for the success of the application. The researcher sought to find out how some of the current cultures and structures may affect the respondents’ autonomy and the academic researcher’s activities. It must be said that around 90 per cent of the respondents¹²⁹ from policy to university-level to basic units revealed that they had a good degree of autonomy and freedom in the conduct of their activities.

However, some respondents argued that some of those structures were serious impediments to the conduct of their affairs due to bureaucracy and much paperwork.

¹²⁹ Of the 19 respondents only two respondents (closed to 10%) unequivocally criticized that the Cameroonian university and staff do not have autonomy. The rest were affirmative.

Sometimes, “*disbursement of project money can take up to two months*” (R18). R16 stated that there had been moments when reagents have perished while awaiting clearance at the air or seaport because of the slowness in the disbursement of project funds. By contrast, another respondent (P5) revealed with respect to the University of Yaoundé 1 that things had become a little faster and some of those instances of verification had been streamlined. “*It was before when things were quite slow and highly bureaucratised. Now when money comes into our account, we can take it within three days*” (R5). R15 agreed with R16 and R18 that the disbursements could be slow but wondered whether it could take as long as two months. Respondent P5 believed there was no way that university academic researchers could escape the excessive paperwork and bureaucracy. This respondent argued that it is very useful for the principal investigators that the different instances check the project documents for accountability because “*when donors ask, I sent you this and that money, the principal investigator will not be able to account*” (P5). The opinion of this respondent was that academics, researchers and principal investigators did not usually have the documents and time to report. They saw such reports as distractions from their work and so the administration was there to help them.

7.4 Missing Links with the Third Mission and Entrepreneurial Frameworks

In Section 7.2.1 above, it was shown that apart from situations where the income generation perspective of entrepreneurialism could be emphasised through any of the university’s programme and structures, there was generally a difficulty at all the levels of the higher education system to make distinctions between third mission (the service or socio-economic aspect of the university’s mission) and entrepreneurialism. This perception implied, according to respondents, that the structures and cultures for third mission and entrepreneurialism are the same; they serve a dual function for the socio-economic focus of the universities and generation of non-government incomes. In the light of this conceptualisation, the table below presents a five point assessment about the strengths and weakness (ticked x) of the Cameroonian practices. We use different models (Etzkowitz & Zhou 2008; Goktepe-Hulten 2008) and pathways to entrepreneurialism (Clark 1998/2004; Etzkowitz 2004; Glassman et al. 2003; Gjerding et al. 2006) (see 4.7.6 and Table 8). Where the pathways in Table 8 like Clark’s, Gjerding et al.’s and Glassman’s on culture and Clark’s enhanced developmental periphery and Gjerding et al.’s (2006) “supporting structures” refer to similar phenomena, only one is adopted.

Table 16: A Five Point Assessment Scheme for Entrepreneurialism in Cameroon Higher Education

No	Models/ Pathways	Assessment Level				
		Strong (5)	Evolving (4)	Moderate (3)	Weak (2)	Very Weak (1)
A	Model					
1	GP			X		
2	UP			X		
3	CL					X
4	SL		X			
B	Pathways					
5	SSC			X		
6.	EDP		X			
7	DFB					X
8	SAH		X			
9	IEC				X	
10	KC				X	
11	INT				X	
12	IND		X			
13	HYB			X		
14	REF		X			
15	OPP				X	
ASSESSMENT TOTAL: 75						
RESULT OF ASSESSMENT/POINTS EARNED: 42/75						

Government-Pulled (GP), University Pushed (UP), Corporate Led (CL), Scientist-led (SL), Strong Steering Core (SSC), Enhanced Developmental Periphery (EDP), Discretionary Funding Bases (DFB), Strong Academic Heartland (SAH), Integrated Entrepreneurial Culture (IEC), Knowledge Capitalisation (KC), Interdependence (INT), Independence (IND), Hybridisation (HYB), Reflexivity (REF), Opportunities (OPP).

According to the assessment in the table above, the Cameroonian transformation processes in higher education do not score the highest (5 points), which depict the item as “strong”, for any of the models and pathways to entrepreneurialism. The strongest points of the system are assessed as “evolving” or “moderate” (4 and 3 points respectively) and “weakest”, 2 and 1.

7.4.1 Comparisons with Models of Entrepreneurship

The *Government Pulled* (GP) model of entrepreneurialism (Etzkowitz & Zhou 2008) (cf. 4.8 and Table 9) was deemed to be very strong in Cameroon. This can be seen from the various

efforts to induce the universities to be auto-financed by 2015, the granting of autonomy for the university to become business smart and cooperate with other stakeholders as well as the recent University-Industry Charter. The strength of this model could also be seen through the various government efforts to divert part of the higher education to a private fee-paying sector. This model of entrepreneurialism was observed to be driven by similar exogenous factors as in many parts of the world, such as shrinking funding and government's incapacity to finance the population increase in HE, the financial and activity accountability request from government and its stakeholders. While these factors provide the pressure behind the GP models in Cameroon, the model seemed to be weakened by insufficient incentives, low priority and low level of funding for research and postgraduate education. Incentives, for instance, are very important in driving the university's third mission and entrepreneurialism especially towards the development of firms, enterprises and industries¹³⁰.

The *University Pushed* (UP) model (ibid.) was assessed as "moderate". The list of third mission activities such as commissioned research and training, contracts, industry-tailored programmes, advisory services and consultancy as well as their respective industry linkages suggest proactive efforts of the universities towards the industries. However, the experience from the study is that the Cameroonian universities mostly move towards a handful of large industries like CDC, SONARA, SNH, *Chantier Naval* and *Brasseries du Cameroun*. These major companies may be very few in number with the university's interests overlapping therein. These are the cases of the neighbouring universities like Buea and Douala whose interest or choice overlaps in same industries in Douala. There are also cited cases like the universities of Buea and Yaoundé 1 through the National Advanced School of Engineering (NASE) going after *Chantier Naval* (see 7.1.1 & 7.3).

Although it may occur that the interests of these industries maybe diverse, thus requiring a division of labour among the universities, this movement of universities towards large and very few industries in Cameroon can be seen as inconsistent with the developmental reality of Cameroon and therefore a weakness. Besides, these industries mostly take their problems abroad for readymade and well tested solutions, due to distrust of the local universities. The existence of many SMEs, which are ignored, as opposed to the few large industries implies that much still remains unattended to around the environment of the universities, especially in terms of poverty reduction as most of the economy may be in the informal sector and characterised by SMEs rather than large industries. As an indicator, no memorandum of understanding was claimed in the study to exist between the universities and the small and medium size enterprises (the SMEs) in Cameroon. If there are linkages with these SMEs, they are mostly contracts for payable supplies by the universities to the SMEs and not the university's service to the SMEs. Thus, although the UP entrepreneurialism seemed strong, it could only be assessed as

¹³⁰ The importance of the incentives structures for the university in the innovation (socio-economic) system is discussed in 4.9.2, 6.44, 6.4.5.

“moderate”. As a means of remedying this major weakness of universities going only after major industries, Chapter Six (cf. 6.3–6.3.4) had stressed the importance of a community innovation system and small scale incentives to academic researchers and units of the university to enhance direct links between the universities and SMEs and the largely informal sector that characterise Cameroon.

Finally, what has obviously been repeated is the fact that it is the researcher-led (likened to the scientist-led) model by Goktepe-Hulten (2008) as the dominant and strongest form of third mission and entrepreneurship in Cameroon higher education. Most of the entrepreneurial and third mission activities that bring major structured revenue into the Cameroonian universities are a result of individual contacts made by academic researchers with socio-economic actors and foreign partners. These contacts then become formalised by the university and thus leading to societal problem-solving activities and/or generating nongovernment incomes. As such, these types of researcher-led third mission or entrepreneurialism could not be considered as the conscious efforts of the university.

Although the above form of entrepreneurship and third mission was seen to be the strongest, it could only be assessed as “evolving” due to insufficient institutionalisation and weak incentive structures. Again, although this model remains the traditional model of entrepreneurship, it has been argued that a stronger institutionalisation and attention to promoting the model can subsequently lead to an institution-wide culture of entrepreneurship, thus rendering the university entrepreneurial from an institutional perspective. This leads to the importance of incentives that should promote researcher led entrepreneurship. It has been observed, in the Swedish case, where this model may be dominant, that the universities’ relationship with major companies like Ericson and Volvo resulted from this model of entrepreneurship (through individual contacts by leading scientists). This is also attributed to the incentive that may be provided by scientist-favoured intellectual property (IP) legislation as a motivating factor for this model of entrepreneurship (see Goktepe-Hulten 2008).

In the study some conscious efforts seemed to have been made by the University of Buea in its IP clause where an equal 30 per cent of the proceeds of its IP respectively goes to the “creator”, the university and the *creator’s* laboratory and 10 per cent to the *creators’ faculty* (RMG 2010). However, the focus seemed to be more on the outcome/output to the neglect of input. The IP clauses bear more on proceeds without any concern for the university’s investments and incentive for the work that leads to issues of IP and perhaps bases on external donor grants as the inputs. This implies that in the event that the creator’s laboratory is in the university, 70 per cent of the proceeds go to the university. Of course, there seemed to be a strong argument on the part of the university about the “Creator” being an employee of the university, thus using the university’s facilities. In any case, the thrust of the argument being put forward is that there is a link between incentives and the IP regime to the dominant model of entrepreneurship in any university system. If entrepreneurship is institution-built, then the institution may deserve much of

the compensation and vice-versa. If this stance is found acceptable, then there are reasons to question and view as problematic, the Circular No. 05/2005 of 17 October on Financial Management in Cameroon. In its articles 10 and 11, it stipulates respectively that 65 per cent and 35 of any resources goes to the university and related faculty, without recognising the individual academic researchers as initiators and generators of the resources. The text does not seem to realise the dominant form of entrepreneurship in Cameroonian HE, which is researcher (individual)-led and whose individuals require to be compensated. This weakness is suggested by the University of Douala (UD) that provides incentives for individuals' socio-economic connections. However, this example from the UD was observed to be more of an institutional initiative and without any legal or policy status at the system level.

7.4.2 Comparisons with Pathways to Entrepreneurialism

In terms of the “*Strong Steering Core*” (Clark 1998; 2004) (cf. 4.7.6 and Table 8) which is required for entrepreneurialism, the Cameroonian university is staffed by a high profiled, visionary and strong academic oligarchy consisting of experienced professors with wide international experiences. The trends over the last 15 years suggest that the senior officials of the university are appointed from among the most senior professors within the academic and administrative corps and which is an added value for the university's management. Their background can be seen as strength in that it combines managerial with academic values (according to Clark 1998, 5–6) and the administrators are expected to be versed in the university's operations. However, to the extent that members of the university's steering core in Cameroon are appointed by presidential decree and in some cases, on political tickets, it weakens their strength in entrepreneurialism. This pattern of selection also raises questions about the profile of some of the appointees. The fact that the academic-researchers in Cameroonian universities are civil servants whose salaries are directly paid by the government also weakens the university's ability to hire and fire academic staff and to reward and sanction the productive and unproductive faculty staff. It becomes difficult to divert some staff from their autonomous and traditional academic values to new values and cultures of entrepreneurship.

As much as the university system in Cameroon survives on government largesse, the ability of the steering core to be expedient and to take initiatives towards entrepreneurialism may be weakened. The management has to wait for government money and comply with stringent financial regulations. The fact that financial issues are under another structure, the Ministry of Finance, is another aspect of the serious impediment to entrepreneurialism in Cameroonian HE. An analysis of the strengths and weaknesses of the steering core of Cameroonian universities suggested that it could only be assessed as “Moderate” (3 out of 5 point). By virtue of the profile and competence, the steering core may be seen as strong

but they are also weakened by several environmental and conceptual factors, especially the national political system.

The Cameroonian higher education entrepreneurialism effort was seen to score one of the highest points in terms of the second of Clark's (1998) entrepreneurial pathway "*Enhanced Developmental Periphery*" (EDP) (4). These range from the interface structures through the new offices for "Relations with the Business World", the Orientation Committees, the Business Units from the university level to the departments to the national incubator in charge of graduate employment and poverty reduction (cf. 5.5.5). These structures are seen as what Clark termed an extension of the units to interact for socio-economic development and income generation. The multiplicity of these extended units and their perceived roles should have enabled the EDP to be assessed as "strong" (5 points). However, the fact that the respondents articulated the fact that these units are not fuelled with the required financial incentives to enable them venture into socio-economic and poverty reduction activities was a demerit that led to the resolve on the 4 points.

The general inability to provide financial incentives for proactive engagement in third mission and entrepreneurialism is similarly a demerit in the fourth of Clark's pathways known as "*Discretionary Funding Base*" (DFB). This DFB was assessed to be one of the weakest, thus scoring only one point. There are also challenges related to centralisation and dependence on government largesse and various financial regulations which may undermine the university's ability in terms of discretions in allocations. Many of the problems also relate to the general challenge of the low level of funding to higher education, research and most especially, university research and corresponding lack of status which should enable the university to be more proactive in utilitarian research. "*Strong Academic Heartland*", could only be assessed as "Moderate" (3 points). Though Table 15 in 7.2 relates to the particular case of UB, it is indicative of Cameroon as one of the Sub-Saharan African countries with competent academic staff and a strong research profile. The dominance of the researcher-led third mission and entrepreneurialism through internationally-competed grants also suggests that the Academic Heartland in Cameroon is proactive, internationally competitive and therefore should be considered to be of good quality and strength. However, the lack of several accompaniments to third mission and entrepreneurialism like incentives and the poorly institutionalised cultures was a demerit. The Academic Heartland was seen to be weakened by factors beyond the academics' control.

Finally, having argued earlier that one of the constraints on entrepreneurialism in Cameroon is about "the people", changing the mindset of the people towards institutional goals of income generation and socio-economic development, it would have been difficult to provide any positive assessment to Clark's fifth pathway "*Integrated Entrepreneurial Culture*" (IEC). The respondents revealed that entrepreneurialism is not yet in the people (P4). Also, though researcher-led entrepreneurialism has been considered to be the dominant form, the percentage of the academic staff involved may not be very

significant and impressive. There is also the student-graduate-oriented perspective on entrepreneurialism, which the Cameroonian case introduces to the present study. Respondent P4 reported difficulties in changing the mindsets of the students and graduates towards creativity and innovation regarding own job creation and orientation to the private sector. Another respondent (P5) reported that students and graduates are fixed on civil service jobs with little confidence in the sustainability of private ventures.

Of the five of Etzkowitz (2004) pathways two, “*independence*” and “*reflexivity*” were considered to be the strongest pathways in Cameroon. It would not have been possible for “*knowledge capitalisation*” thus “*knowledge transmission for use*” to be accorded any positive assessment because of the related reasons of low status for university research, low funding level, generally low national research output and low spending on R & D. Therefore, this pathway was rated as “weak” (2 points). Similarly, it was difficult to consider “*interdependence*” “interacting closely with industry and government” in any positive manner, given the especially low level of trust by industries for universities and consequently, weak interaction. Whereas the universities would seem to be proactive as regard going after industries, the movement remains decidedly unidirectional. Universities approach industries more than industries approach the universities.

The fact that much of the production capacity of Cameroon in the form of industry through SMEs and the informal sector continues to be ignored, was observed as serious weakness to Etzkowitz (2004) notion of “*Interdependence*”. Universities’ perspectives towards SMEs and the informal sector was considered to potentially improve the universities’ level of interaction but that perspective seemed to be lacking. Thus, “*interdependence*” could only be assessed as “weak” with two points. Of course the university’s dependence on and interactions with the government in Cameroon and *vice versa* may be strong, but the relationships and interaction may simply be seen as being driven by resource dependency on the basis of filial and agency relationship. “*Independence*” was assessed as “evolving” (thus earning 4 points) because about 90 per cent of all the respondents, from the policy through the university levels remarked that they have autonomy. This aspect could have obtained full points (5) but because of related reasons of heavy dependence on government funds that has a tendency to weaken the university’s autonomy and other issues such as the appointment of rectors by presidential decree and sometimes on political considerations, the difficulties of hiring and firing of academics mean that the universities are not fully independent.

“*Hybridisation*” being the sum total of the different procedures and structures towards third mission and entrepreneurialism (Etzkowitz 2004) was assessed as moderate (3 points) because of the recent governance and cultural changes undertaken recently by the HE system in Cameroon. However, the absence of bridging structures, low degree of interdisciplinarity and related structures, low funding and lack of venture funds to reflect such changes in procedures and cultures were a demerit for *hybridisation* as one of the pathways. Reflexivity (ibid.) could be assessed as “Evolving” (4 points) because of

the recent interface structures, orientation committees and the university charter the engagement towards innovation in the university internal structures and cultures for societal responses. It could have earned 5 points but for the lack of internal incentive systems and low research funding. “*Opportunities*” by Glassman et al. (2003) was assessed as “weak”. First, the University of Douala proves that because it is situated in the economic and maritime capital of Cameroon, it can be the most entrepreneurial of the Cameroonian universities with many partnerships with enterprises. However, because of the general picture that Cameroonian universities compete for links with the large industries which are very few, they were seen not to be very realistic with their national economic structure, which is not predominantly characterised by those large industries. The thrust of the argument is that opportunities dominate from the SMEs and small scale businesses in need of technologies and whose technologies can also provide grounds for cooperation with Cameroonian universities. Also, there is the lack of opportunities for stable funding for third mission and venture incentives which could drive the university entrepreneurialism. This thesis suggests that the opportunities may be lacking not because they do not exist but because the crucial elements to drive those opportunities do not exist.

7.5 Conclusion

One perspective upheld from the participants of the study was that although third mission and entrepreneurialism are different concepts, the structural and cultural transformations required for university entrepreneurialism and third mission are the same. This perspective suggested that the distinctions in the Cameroonian context are blurred, except in situations where one structure with related cultures (like business unit) explicitly states that it is for income generation (hence entrepreneurialism) or to solve a particular problem, without cash generation, hence third mission. In any case, some activities which are explicitly geared to cash generation implicitly render service to society and *vice versa*. In order to make conclusive suggestions for further improvements in the Cameroonian HE, it will be necessary to re-read the analysis that rated the previous and on-going transformation processes through the entrepreneurial pathways in Table 15, from the graph below.

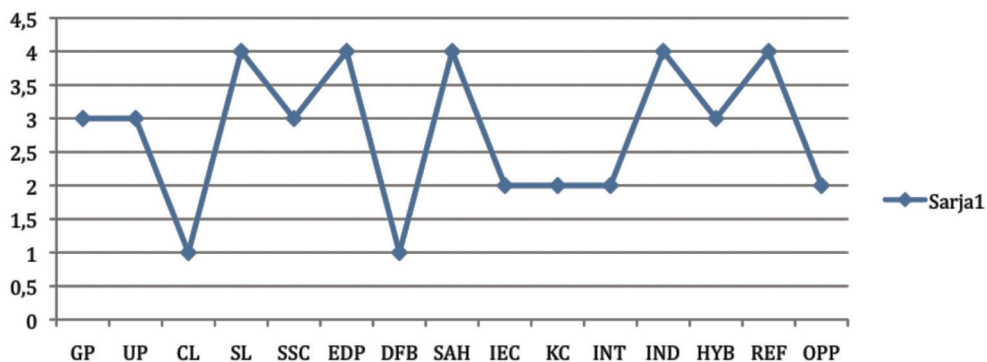


Figure 8: Assessment of the Structural and Cultural Transformation in Cameroonian Higher Education

*Same abbreviations and assessment on 5 points as in Table 16.

Six thematic areas were rated unsatisfactory and below expectation, according to the theoretical framework (see also Table 16) and therefore suggest their required improvements in the Cameroonian higher education systems. These were the cases reflected by the above graph on the lack of corporate-led (CL) entrepreneurialism, lack of discretionary funding bases (DBF), insufficient integrated entrepreneurial culture (IEC), poor knowledge capitalisation (KC), lack of interdependence, poor ability to exploit the opportunities of the environment¹³¹. The most strategic¹³² area that may be identified from all of the pathways is the necessity to generate an integrated entrepreneurial culture (IEC) that runs from the central steering core to the academic corps.

Although the managers and policymakers of higher education in Cameroon understand the need for supplementary funding, entrepreneurialism and the new mission for higher education as a strategic driver of growth and poverty reduction, most of the actors underneath did not seem to be very well informed. Most academic researchers do not see why they should be instruments for generating income for the university when they are paid for teaching and related research, which is what the academic profession, as opposed to other professions, is meant to be. Most of the principal investigators argued that income generation was not the aim of their project and did not see why the university should benefit from the proceeds of some of their projects. Even in situations where a respondent claimed his/her project aimed at applying knowledge in solving particular societal problem, it was observed that the motives were dominantly for promotion-related publications, recognition, personal career development and for other conservative reasons.

¹³¹ To be capitalized on and sustained. The transformation processes earned satisfactory assessment in five thematic areas from the scientist-led (SL) entrepreneurialism, Enhanced developmental periphery (EDP) due to the interface structures, strong academic heartland (SAH), independence (IND) (autonomy) and reflexivity (commitments to innovations).

¹³² Strategically affects the rest: Gjerding et al. (2006) and Azele et al. (2008), Glassman et al. 2003 have all confirmed this notion of culture as an important prerequisite.

The IEC perspective implies changing the mindset of the people where everybody understands the revolutionary transition from teaching and research to a third mission of socio-economic development and related accountability. In the Cameroonian context, this socio-economic relevance goes further to include participation in poverty reduction for the 40 per cent of the population living below the poverty line. This IEC requires extra incentives to promote the entrepreneurial culture and institutional thinking by all concerned and to divert the lecturers from purely science-driven to applicable activities to the societal. It also involves an enabling macro environment with linkages, interactions and the development of a common language between the university and its external socio-economic environment. The revolution in higher education suggests that the participants attend to the socio-economic impact of their duties and activities, without such activities necessarily being driven by shrinking funding or urged by governments. This implies such socio-economic roles being understood as an integral part of the academic researchers' duties and indispensably related to their scientific duties (teaching and research activities). Being integrated as part of their duties raises an issue about the remuneration system. Some cases of conservative entrepreneurial activities could be identified in the study to imply that university entrepreneurialism and the related culture work well or can be easily generated in macro environments with better remuneration (salary) for academic researchers. Because of low salaries, Cameroonian academic researchers easily resort to other private income-generating activities and consultancies than using their entrepreneurial skills for the university. In a system where the academic lecturers are well paid statutorily, they may easily contribute to institutional entrepreneurialism and third mission as part of their jobs.

Arguably, some of the missions of higher education like research and third mission are selective. The fact that academic researchers in Cameroon are remunerated as civil servants, equally as members of other professional corps, can be a serious handicap to entrepreneurialism and the socio-economic impact of their work. The university is a professional and expert organisation. Only the academic experts can assess each other. Even if the academics were to remain civil servants because of greater job security guaranteed by the state, greater latitude and autonomy are necessary to be given to the university institutions to remunerate based on the technical assessments on which only they are capable. This latitude enables the university, its establishments and departments, which are of course closer to the academics than the government, to assess and incentivise their academics and thereby institutionalising entrepreneurial cultures and improving their contributions to socio-economic development. One of the main drivers of the cultural changes is the necessity for incentives that can come through a discretionary funding base (DFB) in the form of third mission, venture or seed capital for economic development activities. This DFB proved to be one of the most problematic areas for policymakers in the study. The problematic nature of this DBF in Cameroon is linked to the generally low level of higher education and even research funding but it is also a matter of national and

institutional priority. National governments believing in the importance of research will certainly give priority to venture activities and related discretionary funding. Similarly, universities that place third mission high on their agendas will certainly grant status to their related funding. Specified funding for socio-economic development activities of universities require a permanent and more sustainable status¹³³. In relation, a national research and innovation system (NRIS) that places the university central and provides appropriate recognition with a more dynamic relationship between the university and the research infrastructures (institutes) will certainly have a system strategic planning (SSP) with a financial plan (central funding, CF). This NRIS, SSP and CF will improve the mutualisation and utilitarian dimension of university research in Cameroon and so, also the knowledge capitalisation (KC). Central funding structures and SSP should contribute to render the researcher-led third mission and entrepreneurialism in Cameroon more efficient and productive.

Researcher (scientist)-led entrepreneurialism which was identified to be the dominant model of entrepreneurialism in Cameroonian HE is of course one of the oldest forms of entrepreneurialism and still constitutes the backbone of institutional entrepreneurialism in higher education. It will hardly disappear in the university system because of the autonomy and authority which knowledge grants to individual professors (Clark 1983). Above all, entrepreneurialism can be carried only by key individuals and not the university, establishment and units. It is argued that this type of entrepreneurship can be productive if it is well structured and well capitalised in such a way that it consequently generates an institution-wide culture of entrepreneurialism. This researcher-led pattern would seem to be the basis on which university entrepreneurialism in countries like Sweden has been built (Goktepe-Hulten 2008) and which seems to be successful because it is well structured. Intellectual property regimes are important motivating factors for university entrepreneurship, including third mission. If researcher or scientist-led entrepreneurialism is well recognised as the major form of entrepreneurialism, then it requires that the incentive structures and intellectual property regimes should focus on compensating such entrepreneurship, the key individuals.

Conversely, if such entrepreneurialism is built from the institutional perspective, then it calls for intellectual property (IP) regulations that compensate more of the institution and units than the other parties (the individual researchers and co-partners). Exceptionally, the IP clause at the University of Buea awards 30 per cent of IP proceeds to the “creator” (individual researcher) but this is not generally the case from a system perspective. The 2005 decree that regulates the financial management in Cameroonian universities focuses more on dividing any non government income between the institution (central administration) and the faculty and department. This implies that the decree does not reflect its dominant model which is researcher-based. It is also possible that an institution-wide culture of entrepreneurialism may be easily attained through researcher or scientist-

¹³³ See reasons in 6.4.5.

led entrepreneurialism if it is backed by a motivating IP regulation that rewards the scientists and researchers (see Etzkowitz & Zhou 2008; Goktepe-Hulten 2008).

There is also a lack of interdependent (INT) capacities between the potential knowledge users and the producers as well as an inability to contextualise higher education according to the reality of the opportunities offered by its environment. Whereas the relationship and inclination of universities has been vertically strong with their supervising structures (Ministries) and the government as sponsor, the call for a greater socio-economic impact of higher education in such broad challenges as poverty reduction equally calls for a strengthened relationship with horizontal actors (industry, SMEs, poverty reduction agents and the civil society); which has so far been very weak in Cameroon. There is similarly the necessity for interdependence between different disciplines and the respective units, for the sake of application which was also portrayed in this study to be weak. The new orientation implies developing new interdisciplinary cultures, relationships and communication. In the study, these types of interdisciplinary communications were mostly seen to be championed in Cameroon by the biological, chemical, physical and engineering sciences and which suggested, from another perspective, that its participants should have generated some entrepreneurial cultures (IC) on which the policymakers can capitalise on, for system and institution wide entrepreneurial cultures.

With regard to the use of opportunities (OPP), there was the rare case of the University of Douala which takes advantage of its geographical location where most of the major Cameroonian industries are located to conceive most of its programmes through partnerships with enterprises. However, this study revealed the general phenomenon that Cameroonian universities often go only after major industries which are quite few and sometimes with much overlapping (similar) interests between the universities. In an economy dominantly characterised by an informal sector with medium and small sized enterprises, the above phenomenon suggested that much still remains unattended to in terms of the opportunities the university can seize to play a more prominent role in socio-economic development and poverty reduction in Cameroon. This includes using some of those opportunities offered by the SMEs and informal sectors to increase its funding as well. The example of the absence of memoranda of understanding between Cameroonian universities and SMEs, let alone for rural community development arguably confirms the assertion which suggests that Cameroonian universities still need to capture the realities of their socio-economic environment.

Chapter Eight

What Role for Higher Education in the Socio-economic Development and Poverty Reduction in Cameroon?

It seems important to state that any theory and project to establish an exhaustive list of the roles, means and ways by which higher education (HE) impacts socio-economic development may seem unrealistic because of the characteristics of knowledge (cf. 4.1) and its different channels in society. However, for the sake of research, policy-making and formulation, this section presents in broad categories, a synthesis of some of the related channels that were identified in the study in relation to the perceptions¹³⁴ of the Cameroonian HE policymakers and actors on the use of HE in the socio-economic development and poverty reduction strategies in Cameroon.

8.1 Human Resources, Workforce and Graduate Skill Development

The first role identified in the perspective of the higher education policymakers is that of a relevant human resource supply. The most prioritized strategy on this human resource component through higher education was observed to be a focus on the labour market to ensure graduate employability, reduce unemployment and underemployment. This dimension was seen to be consistent with the current development document for Cameroon, the Growth and Employment Strategy Paper, whose focus for the first term, 2010–2020, is on growth within a broader long term programme package up to the year 2035 (GESP 2009, 17). This relevance, according to the policymakers, entails taking the necessary measures to ensure that the skills and competence required by the labour markets are reflected in the curriculum and commensurately imparted to the students. The focus on the labour market relevance was seen to be driven by the robust professionalisation policy recently embarked upon in Cameroonian HE. This professionalisation policy builds on a visionary slogan of “*one student, one job*”. Drawing on the sectoral policy

¹³⁴ From interviews and documents.

statement (SPD 2010), the general objective of the professionalisation policy is that “all the academic programmes of the national system are professionalised”; from the most classical programmes to the creation of new ones. The target is that even the most “*dry*”¹³⁵ programmes can and should be able to receive some professional components from within or externally from other programmes to facilitate student insertion into the socio-professional milieus and the world of work.” (P2). Four dimensions could be identified about the human resource focus and some of the four dimensions indicated that perspectives about this traditional (human resource) function of higher education were changing.

First, there is the already-cited dimension focusing on the labour market which entails scanning the environment to ensure that the training offered by the university matches the requirements of the labour market. The second dimension which is that of skills development highlights the importance of higher education offering skills for student creativity, technology mindedness and entrepreneurship. This was seen to be in consonance with related a perspective which suggests that such professionalisation should not only entail tackling immediate labour markets but the provision of more sustainable entrepreneurial skills. The perspective articulates the importance of providing training that should enable students to develop new tools and skills to face the ever-changing labour and societal landscapes. Again, this second (skills development) dimension falls into two parts: First, there is the aspect that the students should be able to think in terms of creating their own jobs and thus new wealth for Cameroon and serve as important engines in the expansion of the private sector. The second part entails that they should also be able to “*create their own positions in firms and convince potential employers that they are creative to be real engines for the development of the firms*” (Q13). For example,

programmes like literature which are not always expected to be market friendly can be professionalised in such a way that the students can join theatre or film industries and be able to convince the employers that they can use the combination of their literary and creative skills to write novels, dramas, short plays and conceive movies (Q13).

The third dimension of the policymakers’ and actors’ perspectives which is attributed to the advent of the knowledge society and especially the learning economy, is about the students being trained in such a way that they learn how to learn so that when they enter socio-professional life, they can adapt, survive and develop the economies with their learning capabilities. The respondents disclosed that it was the reason why the students were supposed and beginning to take part in much of the teaching-learning process. Student-centred learning was therefore perceived as a way of building competence for learning in future socio-professional life. Respondent Q13 argued that the teaching and learning process of today is no longer about regurgitating knowledge; the teachers themselves have to be creative so that the students learn and acquire problem-solving skills for their socio-professional placements (R13). Within the framework of the “*learning economy*”

¹³⁵ Term used by respondents.

propounded by scholars (Lundvall 1988; Lundvall and Soete 2002), the traditional way of learning appears as *learning by studying* but the knowledge society demands *learning by solving*. The former suggests that learning was simply meant to enhance capabilities but the transformation to knowledge society has necessitated learning to “*open opportunities to apply capabilities creatively for problem-solving*” (Lundvall & Soete 2002). This implies that in the knowledge society, people must learn specific ways of learning. While on the labour market, the students (graduates) will experience specific situations which will test their capabilities on what and how they have learnt and what and how they have learnt will be useful (ibid.).

The University of Buea lends a fourth dimension called “*survival*” component through an emphasis on the “*socio*”¹³⁶ aspect in the term “*socio-professional insertion*”. This suggests that the generic and socio-cultural skills transmitted by liberal sciences and arts education provide more flexibility for the survival of the students. Drawing on another respondent, this socio-cultural component which seems to be silenced in the professionalisation policy “*can be an important prerequisite for the survival of the student than a narrow focus on employability and professions*” (Q10). In a nutshell, graduate employability was generally perceived as one of the main efficiency measures in the engagement of the higher education system in the ongoing-long term growth, employment and poverty reduction strategies in Cameroon. This was to be a starting point and as to the respondents, the research output from university as well as their weak linkages and input in the production system was another matter to be scrutinised from another perspective, under the research mission. Above all, the history of the 21st Century, especially of the Arab Spring, starting from the Tunisia through Egypt, Libya and its global implications would constantly remind of the importance of graduate employability. In the study, six paths were identified to accompany the human resource adaptation and professionalisation policy which includes:

1. Increasing the technological and professional components of the HE system from 5 per cent to 30 within a specified period of time.
2. Consolidating and expanding the capacities of traditional development tailored programmes such as Agriculture, Water, Fisheries, Medicine, Teacher training.
3. Creating region-specific or demand-driven programmes.
4. Expanding the capacities of other market friendly programmes such as ICT, Management, Business Administration and Accountancy.
5. The development of a new sector of applied professional universities.
6. Professionalising all programmes: the introduction of professional components to classical programmes.

¹³⁶ Meaning the socio-cultural aspect (Q9).

8.1.1 Theoretical Arguments for the Human Resource Component

The human resource and workforce development component of the role of higher education in economic development, including poverty reduction, relates to two perspectives of the human capital theory. Before analysing the two theoretical perspectives, it may be useful to state *a priori* that, of all the other elements that contribute to the performance of innovation and production systems, it is the educational system with advanced and higher education. Of all the roles, the production, number and quality of graduates with relevant embodied knowledge and skills remain foremost (Lundvall 2002b, Laredo 2007; Etzkowitz & Leydesdorff 2000). Dalman and Nelson's (1995, 117) study on 14 countries concluded in relation to other factors like S & T manpower, R & D expenditures, that the most critical element of any successful development strategy is the development of human resources. Freeman's (1987) study concluded that the quality of the educational system was the major determinant of the Japanese innovation system. Nowadays, it is not only the production of graduates that matters but graduates with relevant learning skills to enable them stand the test and speed of the global knowledge economies. The students and graduates represent future cream of the workforce, leaders, potential inventors and researchers within firms, between knowledge institutions and a dynamic flow of human capital between the subsystems.

In terms of the first perspective of the human capital theory, higher education generally improves the productivity and the socio-professional placement of the students. It is first and foremost because of this productivity-adding value, profitability and ensuing benefits that people want to go to higher education¹. The theoretical stance taken in the new Sectoral Policy Document (SPD) of the Ministry of Higher Education in Cameroon is that "all academic programmes have as an end mission to lead to some form of employment or application" (SPD 2010, 11). The perspective is that a student's socio-professional ambition and practicability are important motivating forces to the student's success in academic life. Consistent with the human capital theory this translate that it is the expectation of each student who goes into some form of higher education to end up in some gainful employment, anticipate better wages and good living conditions upon graduation. The policymakers of HE in Cameroon observe it is one of their responsibilities to facilitate the students' insertion into employment and socio-professional world by ensuring the blend of theory with practice. Hence professionalisation has been seen in the Cameroonian contexts as a major starting point of the higher education system's contribution in socio-economic development and poverty reduction. In reflection that Cameroon (at least in global comparative terms) mostly has teaching universities, the transformation of the curriculum (teaching and learning), according to P1–P2 was seen as an urgent priority for engaging the Cameroonian university in redressing societal problems.

According to the policy document (SPD 2010, 13), professionalisation is a means of reducing some of the main forms of inefficiency in HE such as failures, drop out and repetitions. The argument put forward by the policymakers is that students can be more

efficient and concentrated on their studies when they perceive it as a facilitator and source of livelihood. In addition, the policymakers perceive it as a strategy for combating graduate poverty which normally comes through unemployment and underemployment, thus affecting the individual, the family and society at large. Given the importance of the adage “*charity begins at home*”, some respondents observe that it will be unreasonable, if the higher education system started by addressing societal problems rather than looking at what happens with the participants (graduates). According to P5, the focus on students does not of course preclude that they are addressing societal problems because of the societal applied motive of any professionalisation policy. The respondents held that since the universities do not train the students to keep them within the higher education system, the best means of evaluating the contributions and efficiency of the higher education in its national system is for 1. the graduates to have jobs 2. Be able to contribute in the creation of new wealth. The other facets, according to P1 and P2, like the sector being capable of producing knowledge that can be re-injected into the production system to maintain and sustain the development process follow curriculum reforms. The policymakers argue that within the current state of affairs, it is a social waste to train students and they end up being unemployed because the training is relevant.

The second dimension of the human capital theory which can be described as the *national* or *societal* dimension implies that, if higher education increases individual productivity, then an accumulation of the human capital increases productivity of the nation, in which sense, it is a strategic and beneficial process to national productivity. Higher education constitutes one of the main pillars of any society. It is an intangible and non excludable good, for the whole nation. People, according to Canton and Vanniker (2001) do not reap its benefits alone. If more graduates will gain employment, then higher education should have determined the individual or society’s capacity to pay taxes. The supply of labour that comes from higher education helps to eliminate tax distortion and the taxes are obviously used for national development, including poverty alleviation. The creativity and entrepreneurship aspect of the professionalisation policy in Cameroon holds that if the students carry from the university, the necessary embodied skills that enable them individually imaginative, innovative, creative and entrepreneurial, they contribute to expand, develop and improve the productivity of the private sector. Those skills do not only enable them to create jobs for themselves, which alleviates their poverty, but provides them with capacities to pay taxes which impact on all layers of the society. They will be important engines in creating wealth and jobs for the rest of society and thus solve one of the main development problem of Cameroon “*which is that of a public sector-dominated economy that has proven to be incapacitated for any significant employment and poverty reduction in Cameroon*” (Q8).

8.2 Higher Education from a National Human Development Perspective

Besides the traditional function of providing skilled workforce which is based on the more specific and direct relationship between higher education and human capital, the Cameroonian study reveals that the scope of higher education transcends several broader functions and sectors of the national economy, especially in terms of human development. The reason is simply that higher education has always been linked in many natural ways to different parts and channels of the national system (also see Cowan 2005). Cameroonian policymakers argue HE is capable of intervening and impacting in terms of training, research and capacity-building in all the different national sectors. With the knowledge economy imposing new challenges for quality and advanced education, Cameroonian policymakers observe it is time for higher education to be placed in its strategic position to cater for the old and new challenges of development. These old challenges refer to the traditional challenge of human development which characterises Cameroon as a developing country and the new ones being those related to issues like the knowledge and “new” economy, including those brought by globalisation (P1). Respondent P1 maintains that higher education would be very crucial for both old and new perspectives of human development in the 21st Century (P1). Some of the arguments about the divergences of opinions either between the Cameroonian HE authorities and the financial partners on the one hand or with national policymakers of the economic sector of Cameroon, support the necessity to tackle the old and new perspectives about human development.

The respondents reported having made it consistently clear with the international and national development partners that the world is operating more as a “knowledge society” (P1–P2). They observe that at first sight, the perception of the policymakers in the design of the economic growth document (GESP) seemed to have been narrow, whereby they saw the role of higher education mainly as providing training for the development of industries. *“We told them that if you need human resources or develop qualified manpower, it is higher education. If you need to design national strategies, it is higher education”* (P2). The respondents argued that besides the current orientation towards knowledge economic development, even the tradition primary sectors of the national economy that bases on resources have not, as of recent, been performant in Cameroon due to the use of archaic and primitive technologies which should have been modernised with new knowledge. There was also the cited example of the very moderate levels of the education of the population involved in that agricultural sector. In the words of the above respondent

If you needed to modernise the agricultural sector, higher education is instrumental. If you needed the use of modern technologies and tools in the growing tertiary sector like ICT, it is also higher education. Since we agree that ICT can improve the lots of the poor, it will equally be higher education to train, innovate and enhance its popularisation nationwide. If the skills of the workforce were to be upgraded it is higher education.

You can see our perspective for upgrading skills through the continuing, distance and life-long learning programmes that will follow (P2)

Above all, it has already been pointed out that whereas, higher education was not emphasised earlier in international development engagements like the Millennium Development Goals, the higher education subsector is one of the ministries that has by implication, been pressurised to accommodate the impact of expanded primary and secondary enrolments. *“If teachers and other skills and competences were needed for the secondary education sector, it was still higher education to provide the training”* (P1). According to most of the policymakers in the higher education system in Cameroon, *“‘Man’, human cathedral,¹³⁷ and consequently human capital were supposed to be both at the heart of the long term integrated economic vision and in the design of GESP, either as the point of reference or starting point”* (P1–P3). As per one of the respondents (P2) *“the end point of development nowadays is ‘man’, the means to development is man and ‘man’ is one of the foremost factors of production in the 21st Century”*. P2 concludes it was necessary to work sufficiently on “man”, the quality of the workforce towards the next decade and for the long term vision, *“especially if policymakers want ‘man’ to impact on sustainable development”*.

8.3 Infrastructural Development

Visibly, the quality of national infrastructures represents one of the main indicators, vectors and parameters by which the development status and competitiveness of any country can be assessed. One of the main strategic channels for the use of higher education for the socio-economic transformation and poverty reduction in Cameroon, as most Sub-Saharan African countries is in infrastructural and technological development (also see Bloom et al. 2006, 7). As a pendulum in motion, economic crises usually produce situations where the causes may be seldom discernible from the effects. The post independence history of infrastructure in Cameroon is suggestive. Cameroon steadily evolved in infrastructure from the 1960s until the mid 1980s. Much attention was paid in its related investments through a long term infrastructural plan which was being progressively and impressively implemented during those early years. For example with a population that was hardly five million, there was considerable development in road, rail and air infrastructures. There was an average of one airstrip in each of the ten provinces of Cameroon and three international airports and it can be imagined what it could mean for Cameroon if those airstrips evolved to international airports?

One of the consequences of the late 1980 crises was that most of long term development plans for Cameroon were abandoned in implementation of the IMF/World Bank *Structural Adjustment Programmes*. There were both withdrawals in the long term infrastructural

¹³⁷ Implying training and education to form the human person (P2).

plans and in the maintenance of the existing infrastructures, most of which consequently deteriorated and dilapidated. Apart of the three international airports in Cameroon most, if not, all the airstrips were closed down and until today none seems to be operational. Simultaneously, some of the technical and vocational institutions, the *Grandes Ecoles* which had been created in the 1960s and 70s to provide the workforce (engineers and technicians) for those infrastructures became incapacitated and inelastic. Similarly, their expansion and extension plans were withheld due to drastic reduction in the funding of higher education. After the crises, several efforts were made to rehabilitate and extend the infrastructure. There has been very significant progress over the past half decade upon the country's completion of the HIPC initiative in the middle of 2000. However, much still remains to be done in terms of basic communication, consumption and production infrastructures. These are the cases of infrastructures for energy and water, inter-urban transport systems, urban-rural, rural-rural connections and farm-to-market roads.

The infrastructural demands in Cameroon is compounded by new demands for modern management infrastructures and tools such as ICT and those created by the heavy package projects launched in mining and energy at the end of the last decade. That is why as a means of improving the country's competitiveness, the Growth and Employment Strategy Paper for Cameroon (GESP) places infrastructural development as first of its priority. It is perceived, according to the GESP (2009, 57) that the infrastructural development should help reduce cost of production. In Cameroon like most of Sub-Saharan Africa, road construction, for instance, cost as much as in the OECD countries and three times higher than other middle income countries (Bloom et al. 2006). One of the reasons for the high cost is the lack of domestic human resource base (engineers and technicians) whose services could be far less expensive for the national economy than expatriates and foreign companies. There is also a lack of the relevant technologies and equipment which gives advantage to the latter. This situation would also explain why the Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE/PRO-ACTP) in Cameroon places the training of engineers and technician high on its agenda.

8.4 Research, Technology, Innovations and Industrial Development

It is almost inescapable to discuss the important role of higher education with regard to the use of research for poverty reduction without reference to the "knowledge economy" or "knowledge society" as the construct for any economic development discourse in recent years. This would be due to the international environment, globalisation, under which national economies operate and the recent importance of knowledge in economic development. The combination of these global and knowledge dynamics may, from another perspective, represent both threats and opportunities for a developing country like

Cameroon. The university's role in economic development nowadays is premised on its characteristics as a "knowledge" institution and reinforced more by the advent, relevance and the importance of the "knowledge economy". This implies that while the knowledge economy favours higher education, granting it new impetus and responsibilities, higher education and related institutions favours a country's evolution towards knowledge economic development and knowledge based societies. It would be argued that although poverty is multifaceted, manifesting through various channels and difficult to tune higher education to all the related channels and levels of poverty, those different faces of poverty are minimised or mitigated in knowledge-based societies. In other words, there is a spill over from knowledge based (innovation) activities, knowledge transfer and from their institutions and interactions to the different channels of poverty. Again, whereas, there may be competing or alternative knowledge institutions in developed countries, the university in developing countries (the case of SSA) remains the main or at least initial "joker" towards their national evolution to knowledge based societies, with implications on poverty alleviation.

One of the assets of the university in the knowledge society is in the research function. Research is a territory of higher education and as has been postulated earlier, competing knowledge institutions would seldom claim their total disconnection and lack of history with the university. The university owns much of its respect in the knowledge society because of the new knowledge and idea-producing capacity of research which drives innovation and the knowledge society. Universities have had the tendencies of training both the qualified students and researchers as well as employing a high percentage of top researchers and graduates that are necessary for the knowledge intensive sectors of the economy. The modern and flexible university contribute to direct creation of new jobs and the development of industries through life-long learning. Beside the important role of research for development, technology and innovation, HE through the lens of the knowledge economy will generally help economies keep up or catch up with more technologically advanced societies "because the graduates are likely to be more aware of and better able to use new technologies" (Bloom et al. 2006). Consequently, the more innovative universities would hold the key to the knowledge societies of the 21st Century, given that they are at the cross roads of research and education (Etzkowitz 2003).

In the perspective of one of the respondents of the study (P1), the Cameroonian university would play a leading role in poverty reduction if it localises and contextualises its research themes in response to the problems of the different segments of the population. "This implies producing economically useful knowledge for the development of local economies" (Q8). According to P1,

There would be time to do research on mars but it is high time that Cameroonian universities start dealing directly with the problems of society. If that were to be the case, it is the call for the university to embrace these basic problems of the ordinary man into the research programmes of the universities (P1).

As stated in the Sectoral Policy Document (SPD), the university's role in the socio-economic development and poverty reduction "*is a call for committed reforms and innovation by 'carrying out ontological changes for the acquisition of transformable authentic knowledge into know-how ... that is commensurate with the evolution of our time'*" (SPD 2010, 2). One of the roles of higher education is to understand poverty, know its elements, engage in research on poverty issues and design projects to address poverty and also collaborate with government, industries and civil society to alleviate poverty. In the absence of a system and macro strategic planning for university research, it is seen as a good practice and response towards poverty alleviation, that some of the universities in Cameroon increasingly take proactive moves to design their research themes according to the priority areas suggested by the poverty reduction document (the GESP) and even the Millennium Development Goals. This is a case of the University of Buea with 11 priority themes (see UB Research Policy Guide 2010). Similarly, there is also the organisation of research and doctoral schools at the University of Douala according to the priority themes. Poverty reduction, therefore suggests an important thematic determinant for categorisation of research-driven third mission in the Cameroonian and similar contexts.

With higher education taking a leading role in socio-economic development and poverty reduction in Cameroon, it is highlighted that research themes should no longer be organised randomly. This, according to respondents, does not close the doors for pleasure and donor-funded and driven research, but a matter of priority. On the other hand, the alignment of the research themes according to the poverty reduction priority areas provides a framework and guide for cooperation between national and international stakeholders in research and related funding, including the academic researchers (Q9). The policymakers also suggest that the university would create wealth that can alleviate poverty if it is fully engaged in contributing knowledge to innovations to propel development. With regard to the direct organisational stakeholders, the industries and other socio-economic actors, the policymakers of higher education perceive a changed role for higher education which implies that the university becomes a "*facilitator of innovations (product innovation, process innovation, social innovation, organisational innovation and training and certification innovations'*" (SPD 2010, 2). The ability of the university to carry out this recent mission would heavily depend on the quality of higher education and scientific research (P1, P4 & P5). Similarly with the curricular aspect, the Cameroonian policymakers observe that a more profound contribution of higher education to poverty reduction requires a strengthened relationship with industries, involve socio-professionals in the conception of the curriculum and other enterprises on the use of knowledge from the university. This perspective suggested the necessity for the recently established University-Industry Charter¹³⁸.

¹³⁸ By default or design, the conceptualisation of the university-industry partnership in Cameroon (5.7.3) seems to be a reflection of the Triple helix (see 4.5.1)

Although the volume of research for developing countries, especially Sub-Saharan African countries like Cameroon, may generally be known to be lowest in the world and thus insufficient both for the progress of science and their economic development, this study provides grounds to diagnose and understand the stages at which most of the research, especially university research is done in Cameroon. The study also provides the grounds to understand the degree to which university research can contribute in poverty reduction in Cameroon. R16 observed that most of the research is about “science” or simply the generation of knowledge. According to another respondent (Q8) a new orientation towards poverty reduction points to the additional stages on the use of knowledge. “*There is first of all knowledge for the progress of science and knowledge for application (economic development)*” (Q8) which is also by design or default, a reflection of the Mode I and Mode II literatures (see 4.1 & 4.9.2). This respondent (Q8) reveals that what has obtained in Cameroon is a dominance of the former. Similarly, a third respondent disclosed that the recent orientation points to the necessity to “*move on to application for socio-economic development and poverty reduction*” (P2).

Besides the duo classification provided by Mode I and II, it is possible to make a distinction in the Cameroonian context, between knowledge “generation”, “dissemination” and “application” to facilitate comprehension of their causes, effects and perspectives. If the examples of principal investigators R12 and R16 (cf. 6.1) doing pharmacological validation and the creation of prototypes for electricity generation respectively, were to be taken for illustration, it can be asserted that the research being done in Cameroon universities like most in Table 14 is dominantly about knowledge generation. This includes basic research and those with applied motives for poverty reduction like the R12 and R16. These are in addition the case of principal investigators R15 and R17 working on malaria and Tuberculosis which are all within some of the strategic health and energy priorities of the country. Where university research in Cameroon, according to most of the examples, is highly handicapped is the inability to put the ideas and results into application, to product development and user and market ends, as the logical ends for socio-economic development and poverty reduction. This handicap has been attributed to unfavourable macro policy environment, weak linkages, poor status for university research and most crucially, poor macro incentive system to stimulate interest and connections from demand side organisations.

Most of the ideas end up in the university or journals until they are picked up and developed by viable foreign colleagues. There is also the fact that the terms of some of the projects do not go beyond knowledge generation. Some respondents (R15 & R16) expressed the belief that most funding agencies still perceive the university’s role in research for socio-economic development to be limited to knowledge generation, which is an underestimation of the roles of the university in socio-economic development, including poverty reduction. It might be that when it comes to developing (African) countries’ universities in research, their roles is limited only to knowledge generation. Whereas, it is

not or supposed to be the case (R16). R16 believes that the generated knowledge or results from African universities is certainly used or taken to another stage in universities or other institutions elsewhere (see 6.1.2 also).

Besides knowledge generation, one of the research activities that has recently gained increasing importance in the higher education system in Cameroon is research dissemination. This dissemination takes the form of Exposition, Science Weeks, Science Days, Business and Employment Forums to communicate results of university research and invite potential collaborators. It can be contended that one of the role of the Cameroonian university in the recent socio-economic orientation is in the dissemination of research results to potential users and collaborators upon which subsequent phases of innovation can be built. However, as opposed to the aspect of generation, this interest in the dissemination of university research results in Cameroon is increasingly growing amidst a weak macro linkage. There still seems to be scepticisms and resilience on the part of the higher education actors who contend that it is the Ministry of Scientific Research and Innovation to link and collaborate with the universities to support and take over results to disseminate to the potential users. This according to respondents should enable the society appropriate the many services and opportunities that university research can offer. *“Meanwhile the university can focus on its teaching and research missions”* (R14).

Some of the above weaknesses identified to hinder the transition from generated knowledge and those of dissemination are already indicative of the third; application. Research application is where there has been serious failure in Cameroon (Q8). Respondents admit that there has been failure to use the university in the development of industries, enterprises and national innovations. Cameroonian university research, according to P2, *“is not yet there”* and if higher education has to play a leading role for Cameroon to attain sustainable growth it has to participate in firms and industrial innovations, research and development, by applying newly-created knowledge in the productive sectors (P2). The policy orientation implies that the Cameroonian university should be capable of developing its research to resolve the problems of industries and small and medium size enterprises. This suggests why applied research, same as professionalisation, have been rated highest in the HE reforms agenda in Cameroon. The respondents view that because Cameroon has not attained any significant growth for the past decades the system has to do more. *“These entail that the higher education system can also embrace issues of knowledge transfer, conception and even the production of technologies”* (Q8).

Evidently, knowledge generation which seems to be the dominant practice in Cameroonian university research remains fundamental in any innovation system as the initial point from which the ideas are generated before being put into application and products in the market. This suggests that one of the practices of the Cameroonian university in poverty reduction indispensably remains generation of knowledge with focus on application. This suggests again the perspective that research through the generation of new knowledge remains very fundamental in the poverty reduction orientation and for

which the Cameroonian academic researchers prove to be capable. There are the cases of the importance of eliminating diseases through research both in terms of their adverse impact to the human development capacity of the country, the socio-economics of these diseases and the cost effectiveness of their related research to the national economy. The socio-economic impact and cost effectiveness of disease-related research is supported by the example that “*whereas it may take up to 12 billion dollars which African countries lose every year on malaria, it takes less than 3 billion dollars to put it under control*” (R17), to which research is indispensable. Higher Education in Cameroon is therefore indispensable for poverty reduction in terms of knowledge generation, dissemination and could be more logically indispensable in terms of application.

8.5 Capacity Building and the Provision of Intangible Capital

The theoretical framework of this study suggested that learning will increasingly become one of the most crucial processes in knowledge based development because of the likelihood of new knowledge displacing and rendering products and services obsolete (Lundvall et al. 2002; Snellman 2004; Lundvall 2002b). Innovation and knowledge based economies not only necessitate a national learning system but also fast learning. Hence, one of the basic roles which higher education institutions can play is to contribute in strengthening national learning economies. The perspective in the Cameroonian study means that one of the effective ways of building such learning economies is for the universities to enable the students to *learn how to learn* (student-centred learning). The university provides capacities and also upgrades skills in the productive sectors. This aspect was seen in the study through the increasing intervention of universities in providing continuing education for staff of enterprises, with life-long learning in perspective. Respondents observed that the continuing education component has called for flexibility in the university’s degree structures, credit systems and schedules to accommodate a non-traditional cohort of students. In addition, the Universities of Buea and Douala provided evidence of organising special training sessions which are tailored to specific needs of industrial and public sector staff with a view to providing certain management and administrative skills.

In societies where the links between governance and economic and poverty situations become visibly correlated, it implies that if it came to reinforcing governance and the democratic institutions necessary to drive growth and poverty reduction, it was also to be one of the roles of higher education. An important example is from the University of Douala which engages in reinforcing the capacity of regional and council staff who may have been appointed or elected without prior training in the management of public affairs. Such examples suggest that higher education is one of the key sectors that can promote some of the main long term development goals of Cameroon which is to enhance unity, strengthen the democratic institutions, promote the rule of law, ensure greater

participation of all the population, strengthen decentralisation and local development (GESP 2009). Higher education is capable of providing other intangible capital that drive growth such as cultural, social capital and social cohesion. The very fact that the university is uniquely placed to provide a sense of national culture (thereby conditioning citizens) and leading to social cohesion, doing teaching, creating graduates who are steeped into the same culture leads to several social, administrative and economic benefits. This is because, for growth to be effectively driven, some sort of cultural tradition must be created, which the university is well placed to provide (Cowan 2005).

If an example is taken from the degree harmonisation that seeks to improve transparency, transferability and has finally addressed the problems of mobility between the Francophone and Anglophone student communities in Cameroon, it can be concluded that one of the roles that such harmonisation plays is to enable Francophone students study with Anglophone students, and therefore lead to greater social cohesion. Higher education has a role to play in bridging the Francophone and Anglophone divide and by implication reducing mutual suspicion between Cameroonians from the two cultural entities that may be detrimental to its development. Similarly, it was argued from a political perspective that the student mobility resulting from the Bologna Process could facilitate European integration, social cohesion and provide a European sense of a shared community (van Der Wender 2000; Papatsiba 2000). Perceiving that when students meet in their school life, they live to know each other in their lifetime, Froment argued that close attention to affairs in education, especially higher education, is indispensable to the institutional construction of Europe and in improving social cohesion among European societies (Froment 2003, 28). The importance of social capital and the role of higher education in supporting social capital have been concluded from the perspective of the national innovation system theory and especially the context of the learning economy, to be even more fundamental than the human capital which higher education normally supplies (Johnson & Lundvall 2003).

8.6 Advocacy/Advisory Services and Influences on Policies

Besides the use of research, teaching and training, it would be germane in this section to reemphasize one of the catching phrases in the study. This phrase goes that one way by which higher education can join other national sectors to seek solutions to poverty, poverty being a multisectoral affair, is in its direct involvement in trying to understand poverty, know and master its elements, design projects that directly address poverty issues. These entail that the Cameroonian, like many African universities should not scorn to meet the poor segments in society. They should collaborate with the poor to address their problems. All over the world, universities are in relatively poor financial conditions to many organisations, thus “*relative poverty*”. Universities do not therefore have money (financial capital) for the poor except knowledge (human capital). This study

highlights that one of the areas of intervention through knowledge is in the provision of advocacy and advisory services to poor communities and in leading them to address and eliminate some of the factors and elements of poverty. This involves putting pressure on policymakers and impacting on some of the poverty-related policies in the country. The opinion of President Mkapa of Tanzania that the most part of the fight against poverty is to fight ignorance (Bertelson & Muller 2003, 123), supports the important assignment the African university has in the fight against ignorance as a major channel and factor of poverty in Africa. The ability of the university to impact on poverty through advocacy in Cameroon and most of Africa lies on one of its traditional attributes as the conscience of society. This is because the university has traditionally stood the first position as one of the main national institutions to be informed by new and analytically-informed knowledge about societal issues, through the variety of its disciplines.

History reveals that as each society evolves, certain segments of societies are marginalised by customs, practices, policies and laws. This discriminatory phenomenon finds premise in the relational concepts of “*social exclusion*” and “*social inclusion*” (Lenoir 1974/1989, Sen 2000¹³⁹). This marginalisation is stronger in societies with very low or moderate levels of education because of the ignorance of the population due to lack of educational capacities to interpret rights, laws and policies. The rural woman in Cameroon becomes the most vulnerable when the illiteracy and ignorance are combined with the cultures that subordinate the woman. This present study suggests that one of the roles of the Cameroonian and African university in the poverty reduction strategies is to enlighten, provide advice and advocacy for the marginalised segments of the society like the Cameroonian woman. Two projects support this role of higher education.

The thrust of the project by R18 was to work on the customary laws and ordinances of the Cameroon laws that do not grant land rights to women. This project has been strategically important because the women in Cameroon constitute about 51 per cent and 55 per cent both of the agriculture-dominated rural population, respectively. A majority of the women are bread winners and food suppliers to their families. Despite the subordinate status of the women, studies indicate that there is more poverty in households headed by men than those headed by women in Cameroon (41.6 per cent and 33.4 per cent, respectively) (GESP 2009, 38). The above studies therefore suggest that the empowerment of the Cameroonian woman will impact significantly on poverty reduction in Cameroon. One of the areas of empowerment which this present study highlights is for the Cameroonian woman to have rights to land ownership. It seemed unrealistic that there can be any real engagement in poverty reduction if these women are not given access and rights to land which is a natural resource and factor of production.

The land, according to R18 is one of the collaterals that can expose the Cameroonian woman to loans, to be able to do business and improve the lot of the family, including sending children to school and having food security. The project by R18 examines the

¹³⁹ See this theoretical perspective in the conception of an inclusive pro-poor Community in 6.3.2.

statutes and land ordinances in Cameroon, interviews the population, comes out with the findings and then builds the capacities of those who deal with the law and the affected population. The project required holding training sessions with Divisional Officers and being accompanied by parliamentarians to take such issues for discussion and initiation of more inclusive laws (R18). Similarly, the project by R14 provided advocacy following a multibillion Chad Cameroon oil project, by raising the awareness and attention of the project actors¹⁴⁰, including the Cameroonian government, about the rights of the displaced rural population in the neighbourhood of the pipeline.

8.7 Higher Education as a Vector of Regional Development

The Cameroonian study presents two dimensions of the policymakers' and actor's perspectives by which higher education is expected to speed socio-economic development and thus alleviate poverty, from a regional perspective. The respondents also suggest the necessity of situating the role of higher education in socio-economic development and poverty reduction within a geographical space, hence a geo-strategic perspective. The first of the regional roles was described as the "*interactional*" dimension and the second as the "*geographical spill over effect*"¹⁴¹. The interactional dimension is a deliberate design whereby higher education is tailored in such a way that it is expected to be responsive to the socio-economic development of the region within which it is located. This regional role and interactional dimension were conveyed by the ambition to step up the number of the University Institutes of Technology from the three which currently exist in three regions in Cameroon to its ten regions (SPD 2010). As explained by the respondents, the objectives are that each of the regions is served with at least one applied and one comprehensive university (also see GESP 2009). The applied university, according to P2, will localise its focus in view of responding directly to the development demands of the regions and the comprehensive university with liberal and traditional programmes will respond to broader national and general demands. The most likely¹⁴² approach to be accomplished in the shortest term was seen to be the comprehensive university in each of the ten regions, within a multi campus perspective. This multi campus perspective implies that the university's establishments (schools, faculties and institutes) will be spread within neighbouring localities of the main university (P1). The tailoring of the higher education to regional demands could already be evident within the framework of the comprehensive university in that the programmes of the recently-created institutes in 2009 complied with the natural potential or economic activities of the regions within which the institutes were located. The idea, according to policymakers (see 5.2.2) is that these new institutes

¹⁴⁰ International donor institutions involved in the financing of the project.

¹⁴¹ Terms used by respondents.

¹⁴² With eight universities already in seven regions, there is the likelihood of more political pressures from the three remaining regions (P1–P2; MINESUP).

would be able to create more wealth, value and boom in the major activities of the regions and thereby develop the regions and improve the activities.

Also, the multi campus phenomenon could already be evident in the recently created institutes in Nkongsamba, Fouban and Yabassi, then the University Institute of Technology at Banjoun, all of which are attached to the universities of Douala and Dschang but whose sites are in different locations from the main university towns. One of the respondents (P3) stated that

University establishments are no longer expected to be hosted on the same campus or town of the main university because of the necessity to give the areas their chances of development. Each institute or university naturally opens up the immediate socio-economic environment in which it is localised (P3).

The interactional dimension of the regional development role of higher education in Cameroon embodies the national innovation system concept, through the triple helix, which is zoomed, scaled down and adapted to the economic development of a particular geographical space-hence the Regional Innovation System. This regional perspective or the “regional innovation system” framework can help to address the theoretical difficulties of defining the constitutive elements and boundaries of the national innovation system (Edquist 2005, 199; Miettinen 2002, 14). Within this regional framework, similar interactions between the universities, the regional government and local industries (and communities) would be expected to occur. There are also similar coordination mechanisms and operational dynamics and with each actor playing similar roles as in the national innovation system’s triple helix (cf. 4.5.1). These RIS is expected to have similar elements like the NIS and it is a pillar and subsystem of the NIS. What is different is the smaller scale of resources of the latter and not all the institutions, resources and organisations may be similarly represented in the RIS (see Cook et al. 2000, 1–3; Miettinen 2002, 14). What was also not clear in the Cameroonian case was whether the governance institution becomes a decentralised administration or remains the national government given at least from the perspective of its higher education that it still remains highly centralised to the national government.

The “*geographical spill over effect*” suggested that although the government may create the university in a particular geographical entity, the socio-economic development of that region is speeded up or occurs naturally as a result of the implantation of the university in that area without the government or the university being in control or the designer. The socio-economic development of the area is expected to occur but it is not tailored by anybody or institution and it is not deliberate. This particular case of university institutions as vectors of regional development can be visibly seen with the creation of universities in 1993 in rural and sub-urban areas in Cameroon, perhaps less visible for the new universities which were created in urban centres like Yaoundé and Douala. For those who visited Buea before the creation of UB in 1993, it could be seen that within just ten

years of its existence, the whole Buea area was seriously transformed, development wise. This transformation is caused by the creation and implantation of subsidiary businesses which depend on the existence of the university. These are the cases of more student and teacher housing, a vibrant food and tourism sector (hotels and restaurants), internet business installations for an additional population of more than 16000 students and several hundreds of teaching and support staff. As such, business, wealth and employment are created as a result of the implantation of the university in that area.

The transformation of the university's environment with spill over effects being felt in neighbouring towns like Limbe and most of the Southwest region took very short time to occur, at the time when before and because of various criteria for which the Cameroon government qualifies a town as urban, Buea was a rural council. What may be of interest is the pressure the increased population in that area puts on the government to develop the area. These are the cases of the tremendous increase in road infrastructure around Buea. Because of the considerable increase in population brought by the university and the fact that the university is traditionally an international institution (Scott 1998) attracting a good number of international visiting and exchange academics, the government is forced to register Buea for any development package, irrespective of the urban or rural development criteria. Because of the developmental importance of the sites of universities in Cameroon, the creation of new universities has attracted enormous political weight and usually calls for interventions from the various segments of society, the government like the population, through the political elite.

Last but not the least, the significance of the university as an employer, creator of employment and payer for various business opportunities to its immediate community as some of the channels of alleviating poverty, may not be glossed over. Although statistics are not available for the entire system, the public university sector employs to the tune of 15000 workers within which about 5000 academic and 3496 support staff (MINESUP Speech 2011). In addition to this internal employment are various on-campus businesses and affiliating companies such as cleaning, catering, gardening, security as well as various short term and permanent contractors which the university pays for their various services and supplies. In a socio-cultural context where social security for issues like medical care and unemployment benefits for subsistence may be generally absent and with a strong tendency for dependence on relatives and siblings with high unemployment rate, the multiplying effects of each employed person towards poverty reduction becomes higher than in strong social systems. One of the important observations of the study is a win-win situation where the university in its new orientation to socio-economic development of Cameroon will develop its socio-economic environment; the socio-economic environment also develops the university.

8.8 Lessons on the Use of Higher Education in the Socio-economic Development and Poverty Reduction in Cameroon

Beside the perceived roles of higher education synthesised above, it is by the use of the term lessons, intended here to present specific lessons that pertain to Cameroon and can be attributed to its country's specificity, related context or the context of the study and, which will be of interest to the body of knowledge in higher education studies and research. The first lesson from the study is the general agreement that higher education (HE) is indispensably the most central sector when it comes to the preparation and preparedness of man in any development agenda including poverty reduction. Because human capacity-building and development remain the key drivers for development, higher education may remain the key sector impacting on all the other sectors of the economy and thus quite strategic for national economic strategies. Three dimensions can be discerned from the ways the Cameroonian higher education policymakers and actors view their role from the perspective of identity, missions and functions of higher education.

The first is that higher education would be more effective only if it focuses on its traditional missions with a perspective on the society. This translates that higher education does not need to go beyond what it has traditionally done or what its mission and identity entails but to provide a societal dimension of what it does. This involves embracing the societal preoccupations into more operational curricular, teaching, training and research programmes. This orientation implies promoting knowledge and acquisition of knowledge, tailoring knowledge through higher education to build capacities in society, engaging in research which could be empirical for pure purposes or action-oriented. This entails that the university should be in the business of understanding what poverty and its elements are, train, research the problems of poverty and build capacities for poverty reduction. Thus, this perspective draws attention to the need of safeguarding the institutional identity of the university; for the benefit of the society as well. Another related perspective cautions about the risk of the university losing its identity if it becomes a "*jack of all trade*" and "*not a master of its own*". That is if it spreads its focus to cover the broad spectrum of poverty and "*wants to take part in everything*". A third dimension brings in the notion differences in institutional mission whereby it is emphasised that the role, especially the direct role of higher education in economic development and poverty reduction be talked in terms of the typology of institutions, especially with a view on applied and specialised institutions "so that universities are not asked to do or promise what they cannot do". Hence, the need and importance of system's institutional differentiation. The perspective about the university's focus both on its mission and for specific aspects of economic development and poverty explains why the higher education policymakers and actors in Cameroon seem to see that the most feasible approach at engaging in poverty reduction is a focus on knowledge driven economic growth.

The next lesson from the study in relation to the growth perspective builds on the “*charity begins at home*” wisdom which entails that the involvement of HE in socio-economic development and poverty reduction should begin from a focus on its internal participants, notably, the students and graduates by asking the right questions about their training and research and what happens with them when they leave the university. This implies improving the relevance of the training and research to conform to the requirements for knowledge-based economic development. This approach, according to respondents, requires greater professionalisation in addition to skills development for graduates’ creativity, entrepreneurship and innovativeness and a strong applied research agenda. This involves tackling the labour market with a perspective on the graduates’ employability through the relevant curriculum and applicable research.

Worthy of observation is the importance of well articulated, participatory and integrated long term development programmes and documents in the socio-economic development focus of higher education in the case of Cameroon. These are the cases of the two Poverty Reduction Strategy Papers of 2003 and 2006 to the transition to a more focussed development document, the Growth and Employment Strategy Paper (GESP 2009). These documents have been instrumental to the HEIs to design their programmes and strategic plans according to the poverty reduction and development priority areas in Cameroon. The Cameroonian example of integration of higher education as a major driver of their development policy suggests that countries, especially aids and donor-dependent countries cannot remain prisoners to donor prescriptions in terms of their development path. It could be retained from the interviews that the current orientation of Cameroonian economic policy in relation to the prioritisation of higher education was both a product of revolution and fruit of negotiations where the policymakers disagreed with donor agencies¹⁴³. The donor agencies were later to agree and negotiate with the policymakers. The HE system in Cameroon could be seen evolving in the direction of reform processes that have taken place in other parts of the world (developed or developing countries), as implication of calls and involvement of higher education as a leading sector in socio-economic development. Worth observing is a stronger evolution towards a trilateral relationship between the government, the university and industry in line with the triple helix. Because of this evolution, discussions about intellectual property rights and ownership were, more than ever before beginning to take a central and prominent place in national HE policy debates in Cameroon.

The case study on Cameroon legitimises the concept of *student-directed entrepreneurialism* in higher education. These imply strategies to meet the employability and creativity requirements for student effective insertion in socio-professional life; a perspective which seems to be silenced in most literature on entrepreneurship in higher education and the entrepreneurial university. Another issue that the Cameroonian study may announce is that universities in every context can become entrepreneurial

¹⁴³ See 5.1.

and effectively involved in direct socio-economic development activities (third mission) without being entrepreneurial. Although strong research capacity can be an important asset, it may not be the main issue. The study also suggests that universities and their respective units should be diverse and broad in their perspectives about socio-economic involvement. Surprises can come from any unit and department. Disciplinary areas where it is not expected that they can have direct socio-economic impact or immediate saleable knowledge can at any moment create surprises, if they are creative. The most actively involved department with a computer company could be the language department when it is normally expected that it will be the Computer Science Department. This can be exemplified in the case in Cameroon where the Department of English was involved with the shipbuilding company (Chantier Naval). Rather than expecting that because it is a shipbuilding company, it could have been engineering and or physical sciences, it was the language department that was interacting with the company to provide service. This again, implies that one of the keys to entrepreneurialism and involvement in socio-economic development is creativity. Some observations could also be made regarding the robust professionalisation policy in Cameroon which seemed to be the main strategy for the socio-economic involvement of its HE. Seen as a supply side to the national production and innovation system, the professionalisation policy will potentially improve the socio-economic relevance of the HE but can also be counterproductive in the sense that it can increase the risk of brain drain and global supply when demand side of the skills from the national system is absent or not strong enough.

Some of the strengths in the recent orientation towards a more socio-economic involvement of HE in Cameroon could be observed in the system's evolution towards greater institutional autonomy and down to the universities' establishments for them to become more market-smart and involved with socio-economic actors. Another strength lies in the evolution towards the institutionalisation of interface structures which are necessary to open up the HE system to greater interaction with its socio-economic environment. On the other hand, the study highlights the problem of a weak system thinking in Cameroon accompanied by a serious colonially-inherited structural weakness of disconnection between HE (training) and research (represented by another ministry). There are also the absences of certain key and strategic elements which are necessary for a more socio-economic role of the HE. These are the cases of the lack of a system strategic planning and central funding for university research which interpret as lack of system status for research done in universities. This translates into the emergence of a researcher-led pattern of research with externally funded grants and skewed negative implications in university research evaluation and national relevance. The study also notes the absence of result and performance oriented mechanisms in the funding of HE in general, especially research and lack of third mission incentives like venture and seed capital which are necessary to drive the socio-economic mission. Where funding with unstable status in

the case of the Research Modernisation Grant and diverse small grants in universities exist, they are marred by weak operational dynamics.

The study raises an important issue from the lack of trust and faith by horizontal actors (industries, civil society and development actors) in the potential of universities. However, the study advances the importance of communications as one of the means of reducing the information asymmetry that contributes to such distrust and lack of faith. As the emphasis for universities' socio-economic interactions as well demands to show proof of value for money grows, the university in any national context has no choice but to find itself in the market place. There is therefore the implication for the university to market itself, be competitive and communicate to be heard and in order to survive. External explanatory communication is insufficient. Universities have to be able to explain that such external socio-economic collaboration improves the lot of its internal actors (the academics), their evolution and growth based on revenues that come from these types of activities. The study also raises the importance of incentives to motivate academics and to drive third mission.

It would be acknowledged that the theoretical and conceptual frameworks such as the national innovation system, entrepreneurialism and third mission were adopted from foreign users especially, developed knowledge driven countries wherein they have been sufficiently tested. As such, these frameworks may sometimes be misleading within the context of developing countries. However, it should be considered that in the absence of literature for the integration of higher education in development policies for developing countries, such frameworks can help to expose the peculiarities of the countries to which they are employed and can be valid analytical tools for policymaking. Even in developed countries that may be more similar in many ways, such frameworks have never been seen as a *one-size fits all* due to national differences, contexts, historical backgrounds and trajectories of universities. The use, for instance, of the third mission framework by Montesino et al. (2008) on the Cameroonian case study suggests the dominance of the *social third mission* whereby the university's involvement comes naturally without it being pushed by external agencies and with little aim of generating economic benefit. The universities in Cameroon were also seen to be evolving towards the enterprising dimension of third mission (generation of non government income) but with little cost for the final service user. What seems to be completely absent in the practice in Cameroon is the innovative dimension (transmission of services, products and processes to the society including and beyond technology transfer); a challenge that may be seen to correlate to the poor inputs and outputs in university research in Cameroon.

8.8.1 Effects of Imported Models of Higher Education

This study identified from a philosophical and historical perspective, two structural phenomena which can explain some of the problems of the relevance of higher education

and of research in Cameroon and serve as a lesson to other countries in similar contexts, especially ex-colonial models of higher education. The Cameroonian higher education system was conceived according to the model and philosophy of its colonial country, France. The French philosophy, especially during Napoleon was that whereas, the university would receive the popular cohort of students, higher education aimed at direct socio-economic application was to be elitist, lodged and protected outside the main university in professional establishments in the form of “*Grandes Ecoles*” called schools, centres or institutes. It turned out that such selective institutes could not stand the consequences of massification in the 1960s, especially following the baby boom after the Second World War because of the incapacity of the establishments. Characteristically and historically, this type of elitist system produces a mass of unemployed graduates and irrelevant education in times of massification (see Ben-David 1977 on the French case). Following the surged numbers in higher education, the French government was bound to take very serious measures in the 1960s, especially through the Faure Act of 1968, to replace the elitist establishments with thirteen multidisciplinary universities (see also Eurydice 2000, 4). In addition admissions into French universities were relaxed. A similar situation of massification was noticed later in Cameroon in the 1990s when the disparate professional institutes, centres and schools which had been created according to the French philosophy and model proved to be incapable of accommodating the mass population seeking entry to Cameroonian higher education, with similar effects on relevance and mass unemployment. For instance, there were 40,000 students in the only University of Yaoundé¹⁴⁴, meanwhile, there were five centres and schools with very limited facilities for around 2000 persons per establishments¹⁴⁵. Five extra universities had to be mounted from the facilities and premises of those elitist establishments following the 1993 reforms.

Similarly, research had been considered to be too important in the French system that it needed to be housed in separate structures outside the university called *institutes* and *centres*. The separation or concentration of research outside the university led to a class of *professional researchers* in the institutes and Centres. It seems to be the same philosophy under which research in Cameroon was conceived and which has had the tendency of marginalizing university research. The consequence today is that university research in Cameroon seems to have no developmental and funding status within the national system and runs parallel to the research institutes which are hosted by another ministry (MINRESI). The earlier French philosophy and conception about research seemed not to have foreseen that full scale, very important or cutting edge research can be done in universities. The consequences of the structural weaknesses stemming from its colonial conception are that university research in Cameroon is not supported by any system framework.

¹⁴⁴ Whereas, it had been designed for 5,000 students (cf. 2.2.1).

¹⁴⁵ One of the elite professional schools, the Advanced School of Translation and Interpretation, Buea could enroll only about 60 students annually (Njeuma et al. 1999).

Most of the results from university research do not realize their potentials because of weak system connection and this lack of system framework (cf. 6.1). Recent developments in the 20th and 21st Centuries through major institutions like the MIT, the contribution of universities like Stanford to the Silicon Valley have challenged the traditional French philosophy which undermined the potentials of the university in research. As asserted earlier, most innovations that are done out of the university, in specialised research institutes and even firms can seldom claim disconnection with the university. Neither can it be claimed that the prior training of the professional researchers in the Cameroonian institutes is significantly different from those of the academic researchers in the universities. Besides, the fact that the number of researchers in the Cameroonian universities appears to outweigh those in the professional institutes implies that a huge amount of the country's knowledge potential, which would be indispensable for its transition to knowledge economy and society, is being neglected. What has obtained in France recently as a correction to the traditional philosophy surrounding the Napoleonic model is that former research-only institutes are being moved into universities or closer relationship being developed between them (Enders 2001, 17).

The researcher notes that while Cameroon was advancing in its professionalisation policy through the use of teaching and curriculum, this structural separation between the university and the research ministry and institutes in Cameroon remains a major obstacle for an efficient role of higher education in knowledge-driven economic development, with the consequences. Amongst are that the university or university research is not recognized, having a status or sufficiently inserted into the national innovation system with implication such as: lack of system strategic planning and central system budget for university research, fragmented and unsustainable funding along university trajectories. This situation produces the emergence of the researcher-led research (by implication entrepreneurialism and third mission) of struggling university researchers depending mostly on application and use of external grants to do research. The lack of status and dominant dependence on external grants reflects on weak research evaluation, relevance and input to the economy. The relationship between the university and the research institutes at MINRESI is not dynamic. There are examples that the separation makes graduate training and supervision of doctoral work more difficult to access (Gaillard and Zink, 2003, 14). The separation accounts for the difficulty of the dissemination and use of results from university research as well.

Chapter Nine

Synthesis of the Findings and Conclusions

The main aim of this study was to examine the perceptions and strategies of the policy makers and actors in Cameroon regarding the use of higher education in socio-economic development and poverty reduction, as stated in the ambitious plan for Cameroon to become an emergent nation by 2035 (cf. 2.5)¹⁴⁶. The study also sought to identify the links and missing links between the perceptions and strategies with theoretical frameworks from higher education studies (see research objectives and questions). The study leads to a general observation that although broad statements of government programmes, visions, and missions may usually be taken for granted, they are nonetheless important symbols for their pursuit. The case of Cameroon, from its emphasis on the use of higher education in its Poverty Reduction Strategy Papers (IMF 2003; 2006) to its current Growth and Employment Strategy Paper (GESP 2009) suggests that such statements may constitute important frames of actions and freedom of operation. This is because of the observation that very significant transformation processes have taken place in Cameroonian higher education within the past five to six years (since 2005) following stronger calls for it to lead as a strategic sector for the country's socio-economic development processes, with a mandate for poverty reduction. This chapter will provide a synthesis of the transformation processes and major conclusions. For reasons of convenience and coherence, the chapter begins with some of the major links between the Cameroonian perceptions and transformation processes with the theoretical framework as below.

9.1 Summary of Major Links

It is important to note that in terms of the recent dynamics of economic production and development (cf. 1.1 & 4.5), all the respondents expressed awareness that the paradigms of economic development have changed from being resource to knowledge-based. We learn from the respondents that "*boom can no longer come*" from dependence on Cameroon natural resources such as coffee and cocoa. These changes in the dynamics of production place higher education more central in economic development and

¹⁴⁶ Summary in Table 3.

call for greater involvement and changes in its processes, contributions and roles. The implication is that the university today “*has to deliver much more with purpose*”. There is a necessity for “*entrepreneurship and creativity for the survival of industries*”. It is the idea of “*creativity and practicability*” that they try to reflect in the curriculum and of “*innovation and applicability*”, with regard to research. The data (interviews and documents) from Cameroon showed consistently that the national approach to the involvement of higher education in driving the poverty reduction strategies was through “*knowledge-driven economic growth*”. There is also the idea that charity-begins at home which suggests that the involvement of higher education must begin from the internal participants. The perspective holds that it is the graduates who are important actors and instruments for the evolution of Cameroon to knowledge economic development and as a knowledge society. Two major orientations that stand conspicuously as the internal strategies adopted within the HE system towards the growth and poverty reduction in Cameroon are: employability which is tackled through teaching and the curriculum by professionalisation and research through an emphasis on application, R & D and university- industry and business linkages.

Besides, the general economic perspective, some of the links can be discerned between the Cameroonian practices and some of the assumptions that preceded the study. The first assumption was that if higher education (HE) were to play a leading role in poverty reduction, its role was to be based around the material with which it works and it is organised; which is knowledge. The assertion was affirmed in the study whereby the policymakers and actors of the system see the leading role of HE in terms of using knowledge through training and research in supporting knowledge economic development. The second assumption was about the functional identity of higher education institutions, whereby they are known to be educational institutions with teaching and learning through the curriculum and research as their main technologies. According to the respondents, a new perspective of the use of higher education would imply a new orientation and thus reorganisation on the use of these main activities and missions of higher education, teaching, learning and research. The respondents reiterate that they were to use the same mission but it all entailed “*acquiring the capability of delivering much more with applied motives than purely educational and scientific purposes*”.

The third assumption was that if higher education were to embrace a new mission like poverty reduction, then, the universities were to go beyond their scientific purpose, out to the external socio-economic system, thus emphasising a third (service) mission. This new orientation would entail various organisational, motivational, structural and cultural transformations as higher education institutions have been known to be cultural (scientific) organisations and ivory towers. The study confirms that a socio-economic orientation of higher education in Cameroon requires extensive cultural and structural transformations to open up the university to its external socio-economic environment¹⁴⁷.

¹⁴⁷ This might as well confirm the ivory tower assertions about the traditional university because of its “closed” cultures and structures that keeps it aloof to its surrounding environment.

The Cameroonian policymakers suggest that their new orientation in socio-economic development does not only imply opening up and improving the interactions of the HE system with non actors but that higher education reflects its national context (of poverty) whereby the “...*daily preoccupations of the people are embraced and translated into more operational curricular, training and research programmes*” (SUP INFOS 2010c).

The use of a theoretical and conceptual framework with the document reviews and interviews confirmed that Cameroon was advancing towards entrepreneurialism and third mission in higher education. Due to financial constraints, the Cameroonian government was seen to be committed to engage the universities to more entrepreneurship as the main approach to outsourcing nongovernment funds and for the universities to be involved with socio-economic stakeholders. The theoretical framework¹⁴⁸ suggests that this government position is appropriate to steer the relationship between the university and its external environment and improve the contribution of universities in socio-economic development. Governance-wise, much decision-making power and autonomy have been devolved from the ministry to universities, the universities affirming autonomy. The Cameroonian university has the latitude to take decisions that require fast actions without necessarily waiting for top-down instructions from the ministry, as was previously the case. Similarly, the basic units can take most of the decisions without waiting for instructions from the central administration. The university’s central administration can take certain fast and important decisions without having to go through the traditional collegial mode of decision-making such as the council, senate, committee of deans and directors and university congregation¹⁴⁹.

The above socio-economic orientation of higher education leads to a situation where the locus of power in Cameroon higher education has been reconfigured¹⁵⁰ from top-down to bottom up. The ministry becomes more of a “*regulariser*”¹⁵¹ of decisions taken within universities. The central administration of the university becomes more of “*regulariser*” of decisions taken within the university establishments and units. Traditional organs of the universities as above become more of vetting organs to regularise and approve decisions that might have been taken in the establishments and units, than being institution-wide decision-making organs. There has actually been an observed regulatory autonomy accompanied by financial autonomy. The university can manoeuvre with its funds and can take risks through its proper investments to generate income. In like manner, there has been decentralisation in financial management to the heads of university establishments

¹⁴⁸ Following Etzkowitz and Zhou (2008)’s government-pulled model, for example.

¹⁴⁹ The autonomy according to Clark (1998), de Boer and Goedegebuure 2003, for example, enables those instances and units to be smart and to take decisions and risk and thus become more entrepreneurial.

¹⁵⁰ The relatedness of the importance of autonomy to this power reconfiguration and to entrepreneurialism account for similar reasons that accounted for similar reforms that took place earlier in Europe (see Peters 2001; Osborne and Gaebler 1992; de Boer & Goedegebuure 2003; Maassen & van Vught 1994; Neave 1998). That is, from centralised to autonomous institutions

¹⁵¹ Term used by respondents.

and units. This differs from previous eras in Cameroon when the rector was the only vote holder of the university. The role of the central administration in such situations is only to ensure that the decision and management at the operational units conform with various accountability norms. It should be said of the theoretical framework that the devolution and streamlining of decision-making power as well as the autonomy and independence are necessary to enable the universities to become more market-smart and more involved with external socio-economic stakeholders. Autonomy facilitates the university's ability to take risks and quick decisions without top-down constraints (Clark 1998; Etzkowitz 2004; Williams & Kitaev 2005, 126).

Of relevance again to the theoretical framework was the multiplicity in Cameroon of support and extension units termed *interface structures* and *platforms, consultancies, orientation committees, business units* which are established to mediate between the university and its socio-economic environment (cf. 5.5.5 and 9.1.2). Some of these structures and units were observed to be constituted of academics and socio-economic actors. The University Council also becomes more of a mixed organ with socio-economic operators as members. There is also the new mission of "*Relations with the Business World*" being added to top university management, the Vice-Rector's office. All these structural changes conform to the theoretical framework as the approach to open up the higher education system to its external environment; the operational-level interface structures seen to relate to what Clark (1998) termed as the *enhanced development periphery* (cf. 4.7.6).

Finally, one of the strongest points of Cameroonian higher education is its possession of highly qualified academic corps. Several system and institutional level reforms have been undertaken since the inception of the system in the 1960s and the 1993 university reforms which have resulted to the academic researchers and scientists in Cameroon being some of the most highly trained and with very competitive success rates for international research activities (Gaillard & Zink 2003, 18 & 21). There is the example that since the early 2000, no staff is expected to be recruited into the higher education teaching corps in Cameroon without terminal (doctorate) degrees (see for instance, Arrêté No. 03/0050/MINESUP/DDES of 30 July 2003)¹⁵². There are also examples of institutional schemes like the Staff Development Grant at the University of Buea which conveyed the managers'

¹⁵² Certain departmental exceptions emerge during the recruitment practice. The examples cited by a respondent (Q9) are programmes like management, banking and computer sciences where its graduates are usually known to be less interested in university teaching jobs or easily pick up more rewarding and managerial jobs in companies. In such situations, UB tends to accept holders of Master's degrees and pays their salaries from its autonomous budget. However such recruits are simply titled as *Instructors* pending their enrolment to Ph.D programmes before they can be finally absorbed and recognized into the national teaching corps (also see * under Table in 7.2). The universities (including UB) may also tend to recruit the professionals and part timers with doctorates from industry to teach in such programmes; thus providing more reason for the codification and recent status to professionals from the industry through the "*Habilitation à dispenser l'Enseignement Professionnel ou Technologique*" (HEPT) (Arrêté no.10/0393 of 16 November 2010, cf. 5.6).

determination to build the research profiles of its lecturers (see Samfoga Doh 2009). Gaillard and Zink (2003) indicate the example of the Faculty of Science of the University of Yaoundé 1 where about 96 per cent of the academic researchers were holders of doctorates. The degrees earned in Cameroon have proven to be of international standards (ibid). The strong academic corps (see Clark 1998) is an important and perhaps one of the foremost assets and prerequisites for the university's engagement in entrepreneurialism for knowledge based economic development.

9.1.1 Summary of the Major Transformation Processes in Cameroon

To the effect that professionalisation and applied research were seen to be adopted as the main and major approaches towards a more socio-economic relevance of higher education in Cameroon, the study suggests that higher education requires a more open approach to enable it become more responsive to its socio-economic environment. This open approach was seen in the Cameroonian study to consist of several mutually-reinforcing changes on the governance, organisation, cultures and structures of the higher education system as summarised below.

i) Governance

This includes the devolution of power from the Ministry of Higher Education to universities, with more autonomy for the university. The devolution and autonomy were seen to be affirmed in the university through a reconfiguration of the power of decision-making from the central administration to the university's establishment and to basic operational units. The top levels of the university administration and management mostly assume a supervisory role on the operational levels.

ii) **Structural Changes:** Three dimensions of the changes could be identified in Cameroon: The first observed change relates to the expansion of the system's capacity and a structural differentiation of the system and in the universities (cf.5.5.1). In terms of the expansion, two state universities were observed to have been created in a faster pace (within 5 years), in addition to which, the development of a private sector. The system structural differentiation also relates to perspectives to develop new types of research versus teaching and applied versus the traditional comprehensive institutions (SPD 2010). In response to the more robust professionalisation policy and the recent socio-economic vision of Cameroon, the two newly-created universities could be observed to have a more professional and applied orientation. The structural differentiation in the universities is conveyed by the concepts of "*Graduate School*", "*Research Groups*" and "*Technology Poles*" which were being created to serve as specialised units that would work on the development and poverty reduction priority themes in Cameroon.

The second structural change concerns the universities' programmes and degree architectures. This relates to curriculum changes, the degree harmonisation and recent reform of the credit system in Cameroon (cf. 5.5.2). The simpler and harmonised BMD/LMD degree structure in Cameroon embraces professionalisation in its entirety through full professional masters and doctorates with comparable architecture to the former. The third sets of change were observed to be in terms of the management and administrative structures. A case in point is the involvement of external partners in the council of the universities and the separation of the post of chairperson of the council from that of the head of the university (rector) and chairperson appointed from non university circles. Also, the recent creation of an Office of a Deputy Vice-Chancellor in Charge of Cooperation and Relations with the Business World, interface structures and mixed orientation committees: their respective chairpersons being appointed from the external environment of the university.

iii) Incentives and Support Structures

Several incentives and support structures (cf. 5.6) for a strong involvement of higher education in the socio-economic development of Cameroon include amongst others,

- The prescriptions and practice to align research themes with poverty reduction priority areas
- Emphasis to align university strategic plans and research policies to priorities of the Poverty Reduction Strategy Papers
- Inclusion of the socio-economic impact in evaluation and promotion criteria of academic staff
- Reduction of teaching hours for teachers whose loads include interaction with industry and socio-economic operators
- Compensation for third mission activities
- The permanent government, university and industry Charter of 20 December 2010
- Strategic orientation committees in faculties to advise on issues of curriculum and research in response to the needs of the socio-economic operators
- Status for professionals from industries to teach in universities
- Interface platforms for universities to be informed of the needs of industries
- Consultancy offices in departments and units
- Central business offices and grants administration offices.

9.2 Summary of the Missing Links and Challenges

Considering that the weaknesses and challenges of the socio-economic orientation of the higher education system in Cameroon have been elaborated and articulated on in previous chapters, this section will provide a conclusive summary, with observations where necessary, as follows:

- Weak macro linkages and lack of an enabling environment for use of knowledge in socio-economic development. Each institution seems to work in its own corner. The Growth and Employment Strategy Paper as an integrated national development strategy may improve the linkages between higher education and the other sectors. However, without prioritising the use of knowledge in the fabrics of the society and economy, the transition to knowledge economy remains slow for Cameroon.
- Scepticisms about sustainable funding status for the professionalisation policy. Professional, vocational and technological education is cost intensive and difficult to sustain in mass higher education. The move towards the LMD/BMD degree architecture in Cameroon increases the credit loads. For instance, it requires reasonable teaching hours and student-teacher ratio with implication for infrastructural capacity, staffing and funding.
- Brain drain: A robust professionalisation and skills development policy would obviously increase the quantity and quality of the national workforce. However, its significance in reducing brain drain is not clear. It can easily be counterproductive since the skills also render the graduates more attractive for foreign placements.
- Generally low funding for HE, especially university research and postgraduate education. The lack of funding restricts the ability of the university researchers to do research for the public good.
- Lack of a national strategic plan for university research (UR).
- Lack of status for UR. Researchers no longer receive much recognition and social prestige in the Cameroonian society.
- This lack of status translates into the lack of central funding for UR.
- Very little system's culture for research which manifests through poor government funding, poor understanding by the population and politicians and lack of third party trust and funding for university research.
- The structural separation between the university and its research and those in the institutes renders their relationship rigid and affects the latter.
- Lack of third mission funding and incentives.
- Weak evaluation mechanisms for UR.
- Lack of performance and result-oriented funding of UR.
- Low R & D potential of local firms.
- Unclear quality assurance mechanisms.
- Bureaucracies and mechanism of financial control in Cameroon HE discourage entrepreneurialism and risk taking.
- The absence of key facilitators to link universities' potentials and results to potential users.
- Lack of scientific associations for more sustained *out-of-the box* reflections on the changing roles of disciplinary knowledge beyond academic activities.
- Unsustainable status of externally-funded projects and conservative characters of socio-economic operators. Projects that come to the Cameroonian universities are seldom of long term. There is hardly a long term commitment on the part of socio-economic actors; they come to universities for what they want and go after.
- Lack of follow-up mechanisms and inconsistency in policy implementation. The last national council for higher education and research in Cameroon took place in 1982,

30 years ago. Similar reflections for a permanent partnership between the university and industry emerged earlier as conveyed by the *Journée Universitaire des Sciences et Technologies* (JUST) (University Science and Technology day) for universities to showcase their potentials. JUST disappeared around 2002 and only reappeared in another form around 2010 to produce the University-Industry Charter.

- The absence of opportunities. External users of knowledge may be hard to come by. There is also failure on the part of the universities to capture and capitalise on the dominant socio-economic activities that reflect the structure of the Cameroonian economy.
- Lack of cooperation between research groups in and between the universities. Low degree of networking.

9.3 Recommendations for Policymaking

9.3.1 Using the Theoretical Framework

The earliest recommendations to be made from this study emanate from the theoretical framework which was comprised of the national innovation system, entrepreneurialism and third mission. We draw from the theoretical framework that for higher education to perform a more efficient role in the socio-economic development including poverty reduction in Cameroon there is a need for a systemic framework. The national innovation system (NIS) which also works and depends on knowledge presents one of those appropriate national frameworks for higher education as a knowledge sector. There is a system operating in Cameroon as elsewhere but which however lacks system thinking and systemness in terms of the use of knowledge, interactions and linkages (cf. 6.1, 6.1.1 & 6.2). It is possible to conclude that this NIS will likely sharpen the role and equally provide visibility about the role of universities in the economic development processes in the Cameroonian context. It is again important to state that the conceptual glasses of the NIS make it possible for it to be applied in any context, especially in terms of socio-economic development. There are different forms and modes of innovations with different proportions, according to country characteristics. The NIS works with knowledge. There are different types and forms of knowledge that give rise to different types and modes of innovation. Different types of innovations also take place according to different sectors. This makes it possible for different countries to capitalise on their dominant development sectors and the required types of knowledge and innovations. The use of the NIS in the current study suggested that a strengthened NIS with appropriate inter-institutional interactions, including between producers and users of knowledge provides a win-win situation for the university and for its more reinforced contribution to the national economic system. While the study began with the NIS as the open environment of the university, it stresses on the necessity for a broader innovation system (besides national,

regional and sectoral innovation systems which include a community innovation systems (CIS). This CIS will likely bring knowledge institutions like universities closer to the poor and can enable these institutions to tackle the related factors of poverty more easily. The CIS will enable universities in countries with dominant proportions of poor rural communities to tackle poverty issues more easily and thereby reducing some of the hurdles and slowness of having to go through growth that is expected through the university's role in the NIS.

Based on the literature in HE, it is hereby maintained that the related concepts of third mission and entrepreneurialism (cf. 4.1) are the major and natural ways by which the university responds to the demand for interaction and pressures from its external socio-economic environment and system. The second major recommendation from the study is therefore the necessity and possibilities to improve the entrepreneurial and third mission practices in Cameroon HE. It could be observed that the new revolution towards a leading role of higher education in the socio-economic development, poverty reduction and entrepreneurialism is not well diffused, accepted and understood in the different strata of the system. Although the managers at the conceptual levels of the system may understand and embrace this new socio-economic mission amidst pains of the shrinking funding, the situation is not well understood. These make it possible to conclude that one of the strategic areas to facilitate the transformation process is "cultural", which may include changing the mindset of the people and the incentive system. Admittedly, some progress toward incentives like including outreach in promotion criteria were observed but were largely regulatory. There is so far, no status for the funding of exploratory socio-economic and poverty reduction activities in Cameroon and no performance-based mechanisms to induce their related results. Evidence from countries like Sweden (Goktepe-Hulten 2008) suggests that it is also possible that the entrepreneurial university and institution wide cultures be built from the researcher-led model of entrepreneurialism which characterise Cameroonian higher education. However, that will depend on how the model is institutionalised and incentivised.

9.3.2 Structural Organisation and Designs

The perspective adopted in the study was that third mission be defined in terms of "direct" contribution universities make to the development of the society and which is also espoused by other scholars (Lundvall 2002b, 9; Benneworth et al. 2008). The reason is that every university contributes in its own ways to national development. The impacts are felt through various channels of society and at different times. Some impacts of the university cannot be captured in theoretical and pecuniary terms but may be indispensably related. If this view that third mission be defined and considered as a direct contribution of the university to the society is acceptable, then it makes sense to believe that systems' designs and organisation determine the type, efficiency, rate and speed of any university in

third mission, hence socio-economic development. This suggests that the directness and efficiency of the university in socio-economic development is a function of its system and institutional design and typology. This again suggests that each university responds to its own categories of third mission, in its own ways, according to design. In other words, the type of third mission which each university performs is a function of the system or its design. It thus makes less sense to question the socio-economic impact of universities in broad terms but based on their typologies and profiles.

Two remarks can be made from the design towards the university's involvement in socio-economic development in Cameroon which fall short of the theoretical framework. The first was the manner in which, through the Support Programme to the Technological and Professional Components of Higher Education (SPTPCHE), the programmes continue to be dispersed in the classical and comprehensive universities. The spread of these programmes suggests the policymakers' orientation to diversify the programmes of the existing classical and comprehensive (that is, less specialised) universities. This can be described as *Internal Programmatic Diversity* (IPD). This IPD reveals the intension of diversifying and expanding the universities' programmes with professional and technological types. The researcher questions, given organisational concepts such as differentiation, diversity and integration (mergers) in the theoretical framework, whether it was logical (efficiency-wise) to continue dispersing the programmes in the old universities or to concentrate them. In which case, these professional and technological programmes produce their own institutional typology, identity and specialisations in terms of socio-economic impact (Institutional Diversity, ID). Which of them, the IPD or ID would be more efficient and achieve more impact?

The second remark is about the multiplicity and mushrooming of research projects, most of which may be related and overlap in missions, activities and not unusually, research topics. An overview of research projects in the Cameroonian universities reveals that there may be several related projects in an uncoordinated and fragmented manner because of their diverse (international) sources of funding. The experience in the study is that several related projects may be running in health (malaria, tuberculosis, yellow fever among others) either in the same university or different universities. In the same university, there may be as many as seven research groups in the same or different units doing research on malaria and 15 groups doing research on related health issues (including their related drug discoveries) (see example on list of projects, Table 14). Similarly, the question is whether it makes more sense and impact for these research projects, especially related ones to continue spreading and mushrooming in the universities or they should be structured and concentrated under related institutional covers, establishments and units?

Admittedly, structural and organisational designs of higher education are based on the participants' perceptions and beliefs and are expressions of the social foundation, specific social agreements and the historical context of higher education. There are different national perspectives about higher education and employment, professions and research

(Clark 1983; Ben-David 1997). Changes in perspectives on knowledge may also determine the structuring and relationship between teaching and research as well as different programmes of the university. There may have been other reasons behind the spread of the new technological courses and programmes in the classical and comprehensive universities such as regional balance, proximity and insufficiency of funds for new institutional infrastructures to host identical and overlapping programmes. Similarly, the financial insufficiency may strongly account for the fragmentation and mushrooming of research projects¹⁵³.

Some of the Cameroonian policymakers argue, from an institutional perspective, that the spread of the professional and technological programmes in several universities accompanies the objective of professionalising all university programmes; components of more professional programmes could be tapped to professionalise classical liberal ones. Another argument is that the multiplicity of the related research units and projects within the universities ensures the connection between the research and teaching as academic researchers could be employed to serve the dual purposes. It is observed that it would be preferable to leave those research projects to emerge and be hosted in their teaching departments because their concentration and differentiation in separate institutions may lead to specialisations that may deprive the universities of their teaching staff. Whereas, given the current context and state of affairs, the Cameroonian University was in need of teaching staff (P2). One respondent (R16) raised issues of academic freedom that can be encroached on when research units are integrated. R16 believed that the whole idea of integration of research projects can be misleading. The respondent stated that it is an unavoidable practice, all over the world, even developed countries, where several small or large research groups can be working on the same topic and *“if fifty or more groups are working on malaria, it only legitimises the fact that malaria is a serious societal, hence, researchable problem”* (R16). R16 argues further that the multiplicity of the research units and groups creates room for competition which is healthy for the progress of science and socio-economic development. In either case and although there would be no *one-size-fits all* solution for structuring higher education, the weight of the argument in the Cameroonian context draws on the natural logic of reducing isolation and fragmentation.

As triggered by the knowledge economy and management perspectives, international trends suggest a general drift towards institutional diversity, differentiation and integration (mergers) in higher education as a means of maximising their institutional and functional performance. While institutional diversity may generally enable the system to respond to diverse needs, the differentiation of institutions according to missions commensurately produces concentration of efforts. Not all universities can be responsive to regional needs

¹⁵³ The fact that there is very limited or no government funding and the funds for most of the research projects in Cameroonian universities are from international and diverse sources (also see Gaillard & Zink 2003). Projects are fragmented because funding sources are unsure and fragmented. Cameroonian policymakers do not therefore have enough control over the research projects as they may usually be tied to conditions from their funding sources.

as may be professional applied and technological institutions that may come through diversification. Not all would respond as the knowledge economy and national innovations require. Not all institutions will be involved in knowledge production, transfer and application for hubs of innovations and international competitiveness of nations as would be research universities. With the cited example of Chinese merger reforms (see 4.9.2), it was perceived that protection through differentiation and mergers as well as concentration of funding for some universities would enable them to perform research activities that are of greater importance to national development and security as well as collaboration in international research efforts (Altbach et al. 2009).

Another trend can be observed with the French Napoleonic systems that traditionally differentiated, if not, separated the university (training) from research institutes which points to recent reforms where the institutes and universities are instead brought closer. The idea is that placing them in a closer relationship rearranges the flows of research money between the university and the research institutes as well as encourages staff mobility between them (Enders 2001). In any case, there seems to be a general convergence in rationale for the organisational concepts such as differentiation, mergers or integration to achieve functional efficiency and value for money. Integration that brings certain programmes together differentiates them from the rest. This suggests that the system becomes structurally diversified according to missions and specialisations. The purpose of such concentration or integration is to achieve economies of scale¹⁵⁴. Research is costly. Some specialties are very expensive to the extent that their work must be concentrated in fewer laboratories, units or universities. In the context of Cameroon, the concentration of most of those related and overlapping research projects and topics in fewer labs could maximise their efficiency in the use of resources and even output. Several research groups can use the same infrastructures including laboratories, equipment, funds and other resources.

At the same time some institutes may be too large to be housed within university departments (Clark 1993, 362). This leads to the necessity for those institutes moving out of the university to produce their own institutional identities and typologies based on their activities, hence differentiation. Functional efficiency may also be expected as a result of symbiosis between programmes. For instance, in Finland, one of the rationales for merging the University of Turku with the Turku School of Economics as the “New University of Turku”, following its recent university reforms, was to bring research closer to business knowledge (Ministry of Education, Finland 2009). Similarly the “*University of Eastern Finland*” which integrated the University of Joensuu and Kuopio brings together institutions with complementary profiles to boost regional development (ibid.). Clark identified in the case of differentiation that it leads to a more focused energy on research tasks and the concentration of research on its own or out of the university enhances the assessment of research productivity which may be clouded by teaching. One underlying

¹⁵⁴ This also draws from the general phenomenon of shrinking funding in higher education.

assumption with differentiation or mergers and even in relation to diversity is that the cost of research, teaching and service functions can be easily planned and managed more efficiently. Ideas about mergers as a strategic way of improving the efficiency and visibility of research in Cameroon emerged earlier but were never carried to their logical conclusions. It will be recalled that earlier in the 1990s, the Institute of Agricultural Research (IRA) in Cameroon was fused with the Institute of Zootechnical and Veterinary Research. The fusion had been deemed necessary to simplify administrative procedures, reduce the number of administrators and operational structures, decentralise research programmes in view of opening up to take the needs of the users into account (see Gaillard & Zink 2003, 19).

9.3.3 Financing Higher Education for the Knowledge Economy

It is also recommendable based on the theoretical framework and the transformation processes in the current study that the knowledge economy requires a new perspective in the financing of higher education within the context of Cameroon. While various market mechanisms and recovery methods for government subsidies and the sustainability of the funding of the higher education system have been proposed (cf. 6.4), the point being stressed here is that a perspective for an evolution towards a knowledge society provides new rationale for significant improvement and increase in public funding for higher education and university research. This is how the knowledge society may be perceived¹⁵⁵. He/she who says knowledge society, says “knowledge”, “innovation”, “knowledge production”, “research” (be it national research or in universities) and “higher education”. The knowledge society cannot be developed without prioritisation of knowledge and its infrastructures. The systemic perspective under which the knowledge society operates calls for a concrete stimulation of both the supply side through related sectors like higher education and research with complementary incentives for the demand side through graduate employment and research and development opportunities.

The transition to knowledge society and the relatedness to economies and societal evolution justify the public nature of knowledge and therefore necessitate government intervention in their related processes, institutions and infrastructures. Government interventions through funding, incentives and regulations would be indispensable in all the related knowledge processes such as innovation, research and higher education. This intervention would principally be attributed to the risk of market failures. It is perceived that the market cannot assure the provision for knowledge that is required for national economic and social developments. Governments also intervene in higher education to correct tax distortion that can result from the undersupply of labour and skills. If higher education increases the productivity of individuals it is obvious that a mass increase in access to higher education, hence graduates would increase the productivity of the nation.

¹⁵⁵ By the author.

Higher education increases the ability and multiplicity of graduates to pay taxes¹⁵⁶. Nowadays, governments intervene in the funding of higher education to guarantee not only the provision of graduates but as required by the global knowledge society, the equipment of the graduates with the appropriate skills.

There are other vagaries that breed fear and scepticism with regard to the market, when higher education relies chiefly on *cash and carry* phenomena such as full cost tuition payment in public and private institutions. There are quality concerns from the supply side such as qualification of teachers, physical capacity, attendance and curricular (Baar 1998). Governments would intervene to correct the information asymmetry between students and institutions and programmes that typically stem from the characteristic of knowledge as an intangible material. Access can be affected as students become unsure about the effects of the higher education on their human capital, their ability to succeed and worries about prospective incomes. This scepticism buttresses not only the necessity for subsidies but incentives and loans schemes. Governments intervene even through scholarships when they are in need of gaining insights from specific programmes for specific development purposes. In the market arena, students can be extorted through high tuition fees for low quality education. Finally, governments generally intervene in higher education for equity reasons. This is again because the market is not a perfect arena for rational choices, equal power and income redistribution. Doh (2008) argued that the private institutions in Africa cannot replace the public institutions because of their inability to cover broader national objectives (access, research, equity, social inclusion, building the citizenry, gender and regional balance). One of the reasons is that the private higher education institutions in Africa mostly offer less costly market-friendly programmes, from which they can easily make profits (Varghese 2004, AAU 2000; Effah 2004). These institutions would hardly go for cost-intensive programmes that may be contextually relevant for the country's development such as engineering, medicine and teacher training. Above all, they will seldom go for research because it is cost-intensive.

The knowledge economy specifically points to an increase in public funding of research¹⁵⁷ because of knowledge being a non-excludable public good. Again, it is observed that scientific knowledge would not be sufficiently provided by the private sector since its public nature presents a disincentive for private firms investing in something that competitors would get free access to (Lundvall 2002b). Lundvall (2002b) observes, based on international statistics, that the private sector increasingly pursues and funds research that will give immediate payoff, rather than basic strategic research with a long horizon. There are some ethical implications from third party sponsors both on university and public values and which suggest the very strong argument for public funding of research. Third parties may cause potential damage to higher education as an intellectual enterprise. Third party funders may not resist violating ethical issues that pertain to research. They

¹⁵⁶ With spillover effects to national development.

¹⁵⁷ A mission of higher education.

may violate certain philosophies, for instance, “science for the truth” and even dictate university policies. Cowan observed that nowadays, industry sponsors appear to be attempting to “buy the results they want or at least suppress the results they do not want” (Cowan 2005).

Nowadays, the connection between research and innovations and by implication sustainable economic development makes research to be almost comparable to national defence. This suggests that research cannot be dominantly left at the mercy of the market. Due to the stupendously cost-effective nature, sustainable funding for research would continuously rely on the government. Nevertheless, universities’ choices remain limited as long as they are dependent on funding and more restricted and tight with total dependence on the public. Industries and private sectors remain a necessary evil to universities as long as higher education is dependent on funding. As such, it will be important to pay attention to the important role the private sector and firms would increasingly play in the financing of higher education in Cameroon as a means of supplementing the public funding. This could as well depend on the macro regulatory frameworks and incentives to strengthen their linkages. Such cooperation may be mutually beneficial as they help the universities to strengthen their financial basis and develop the industrial sectors as well, hence the economy.

We also draw both from the literature (cf. 4.9.2) and in view of some of the lapses in the case study that allocation mechanisms matter very much and seem to be becoming very significant in driving the university’s responses to socio-economic development. While the preceding assertions have predominantly favoured the importance of substantial increase in government funding, it seems indispensable to emphasize that the allocation mechanisms and operational dynamics are crucial in determining the efficiency of higher education in its multiple missions. The diversity of issues which higher education has to respond to make it necessary for policymakers and managers of HE to be as strategic as possible with the use of funds in view of being able to *do more with little*. Gone are the good old days of the early 1960s when higher education in most African countries was simply sponsored as a social sector, with varieties of incentives and huge subsidies. There is the necessity for results and performance conceptual frameworks that support the responsiveness of higher education. This weakness is evident especially in university research in Cameroon where most funding continues to be allocated on classical platforms and *proforma* bases. There are the cases of the Research Modernisation Grant (RMG) and Research Allowance in Cameroon which are easily allocated as a salary bonuses to all academic staff with little or no selection and performance-based dynamics to ensure results and productivity.

Admittedly, the recent Sectoral Policy Document for higher education in Cameroon (2010) highlights the perspective that hierarchies should eventually be instituted with the institutions having to obtain part of their budget on the basis of competition and relevance. It can be observed that performance-based funding (PBF) towards which most

developed and industrialised countries have drifted in recent years has been skewed towards institutions and programmes with urgent relevance and national insight, with differential concentration of funding. Its instruments and operational dynamics are indicators, contracts and usually accompanied by market dynamics such as competition. The main objectives of such PBF mechanisms and dynamics are to ensure obligation for results, efficiency, accountability and cost effectiveness. PBF has often accompanied structural differentiation and institutional diversity. That is; differentiation within institutions whereby the research cycles may be separated from the teaching cycles with funding concentrated or differentiated according to missions.

There is also PBF that follows horizontal or systematic differentiation. For instance, reforms separating research and teaching institutions or diversity between universities leading to new sectors like polytechnics, hence “systemic” PBF or differentiation of funding according to institutional profile. In such cases, funding is differentiated between institutions as rewards for their performances and relevance to urgent needs. The recent explosion of “research universities” and by implication “teaching only” universities with the research universities topping the hierarchies in terms of concentration of funding suggests (Altbach et al. 2009; Enders 2001). PBF may be more significant in research than in teaching (education), where its impact may be more visible and its indicators, easily identifiable and assessable. It is also important to situate any funding policy within a realistic context of globalisation. Any university is a subject or an object of globalisation (Scott 1998). Globalisation, which of course is not unconnected to countries’ prospects for integration into the global (knowledge) economy (Castells 2000) necessitates stronger research intensity, high quality education and national innovative capacities. These exigencies equally require adequate concentration of funding and innovativeness in their allocation.

In the light of the importance of research and excellence, it was interesting to question during the interviews about which of the Cameroonian universities or centres could be considered as a research university, centres of excellence and which were the most socially-relevant, responsive and applied? This question raised the importance of concentration and allocation which shall be illustrated with identified weaknesses about the Research Modernisation Grant in Cameroon. The budget of the RMG being awarded as salary allowance to academic-researchers is 5.4 Billion FCFA, which is close to the average of the budget of all the Cameroonian state universities and sometimes more than the budget of some of the universities. The argument which the higher education research literature supports¹⁵⁸ is that such research budgets would have been more productive and efficient if concentrated institutionally in one university and/or few centres and institutes with focus on research excellence based on competitive selection criteria than spread on equal bases in every academic researcher’s salary. This perspective creates another

¹⁵⁸ Especially the merger, integration and differentiation literature (Clark 1993, for instance) and those on institutional performance-based funding as above.

scenario of efficiency whereby such an institution can filter top scientists from the other (predominantly teaching) institutions through commensurate incentives for the specific purpose of top research, while maintaining their teaching and basic research activities within their respective universities.

Besides research, performance-based incentives could be examined in the light of some traditional challenges facing Sub-Saharan Africa. As the region with the lowest HE participation rate in the world, there are expectations for Sub-Saharan Africa to increase access with implications for funding. While the pressures initially point to a quantitative increase, performance-based funding is one of the mechanisms by which access, intake and output can be accompanied by quality. There is the example of the input indicator model where funding is allocated based on targeted number of students. Admittedly, since funding allocations for most Sub-Saharan African universities are based on “per student” numbers (Jongbloed 2003), there is less variation with this model.

There is also the “outcome” “out-put” or “result” model whereby funding is determined by the number of graduates, credits earned or job placements. For instance, in the UK and Denmark, funding is based on number of degrees and in Sweden and Norway credits earned are used as indicators of performance (Gornitzka 2004; Jongbloed 2003). As tricky as these models may be, they offer advantages to institutions to recruit and retain high performing students and to ensure standard performance. The expectations are that PBF leads to increasing returns and results. This is based on the correlation between the use of incentives and the actual efforts expended by universities. Policymakers and managers of higher education believe that concentration of funding through PBF enhances and optimizes their quality, competitiveness and efficiency. PBF can be significant in the light of “third mission funding” especially in stimulating results for exploratory poverty reduction activities. PBF can increase social capital and networking in the university and between the university and its external environments. Motivation by financial incentives through PBF creates a basis for academics to be pulled together towards the accomplishment of earmarked projects and in the application of their *savoir-faire* in solving societal problems. The outcome of such activities is an increase in team spirit and social capital between the senior and junior academics as well as between the university and its external environment. PBF may provide an added advantage for institutions to recruit and retain high performing students and to maintain standard performance.

9.3.4 Globalisation and Brain Drain

While the transformation processes towards a more efficient role of the university in socio-economic development goes on in Cameroon, one of the greatest concerns for Cameroonian policymakers, as in any Sub-Saharan African country, is the increasing rate of brain drain that continues to take place especially during the past three decades and the impact of globalisation. It is estimated that about 15 per cent of Cameroonian

graduates emigrate to western countries for work or studies and seldom return (UNESCO 2009). These graduates therefore take away the embodied knowledge which should have been necessary for Cameroon's socio-economic development especially its ambition to become a knowledge society with a more comfortable status in the international economic arena. Earlier on (cf. 6.1.1 & 9.2), some concerns have been raised about the impact of the professionalisation, technological education and skills development policies which impose more fiscal burdens on the state but can paradoxically favour brain drain. It is not clear whether the programmes instead prepare the students for brain drain. What seems obvious is that maintenance of the embodied knowledge rests so much on the demand side; the capacity of the national government to stimulate and provide the demand side for the use of the higher education skills within the national borders. On this demand side in Cameroon may be admittedly included recent government efforts in launching several heavy structural projects in energy, mining and the expansion of the ports sector, which raise some hopes about the employability of graduates.

Despite those rays of hope from the projects, retaining graduates within the national borders remains dependent on commensurate remuneration and incentives for knowledge workers. Such concerns become sustained by the observation that about 70 per cent of Cameroonians are underemployed, among which graduates. A drive towards knowledge based economic development highlights the importance of revalorising the status of the engineers, graduates, scientists and researchers. It will be recalled, with the example of a special text of 1980 that before the 1986 economic crisis, Cameroonian researchers enjoyed a special status in the civil service and earned salaries compared to those in developed countries (Gaillard & Zink 2003, 14). The fact that the economy is in greater need of knowledge inputs suggests a return to the premiums which workers of the knowledge infrastructures had in Cameroon.

Although brain drain is not a recent phenomenon, suggestions made in this study will be discussed within the framework of the recent global environment within which nations operate nowadays. This global image is also reinforced by the study where it is seen that the rate of brain drain in Cameroon should have been exacerbated with the advent of globalisation and also enhanced by tools like the ICT. In addition, the transition to knowledge economies has consequently led to very aggressive strategies by industrialised nations with untold negative impacts on the human capital of developing countries. The global knowledge economy has an osmotic character where the stronger solution (already established knowledge economies) pulls the weaker solution (weak economies), with impact on national knowledge systems like higher education. The stance taken here is that it is necessary for all nations to be positively forward-looking, accept that globalisation is a reality, seize the opportunities it provides and work to eliminate the negative impacts it brings.

Many strategies do surface from various policy arenas such as sandwich and bilateral programmes (that enable students and workers to travel and return to complete their

programmes in their home countries), better salaries, incentives for return of graduates from the diaspora and various regulatory and cooperation frameworks. Consistent with the perspective to accept and seek realistic solutions to the negative impacts of globalisation, one of the main contributions of this study is in the introduction of loan schemes, graduate and higher education taxes and various recovery methods whereby the countries which are more and mostly affected by brain drain recover part of the huge subsidy from graduates when they start working, wherever the graduates may be found. With increasing global convergence in information management system, it will be possible in future to retain these taxes even from abroad. Although this strategy may not reduce brain drain, it is a realistic strategy in the sense that it reduces the fiscal impacts of higher education on national government than the waste that results from free tuition when the embodied knowledge is used elsewhere. The strategies help to recycle as well as sustain the funding of the system.

The next strategy is for developing national governments like Cameroon to accept that the use of knowledge is no longer national and therefore devise strategies to be part and parcel of and to be able to retain and use their own share of the globally-mobile and circulating knowledge. This involves devising strategies and providing incentives to attract externally-produced human resources such as the use of foreigners (expatriates) as well attracting foreign students who may later be retained through the devise of their own internationalisation¹⁵⁹ strategies in higher education. Although governments of developing countries may be reluctant to the use of expatriates and may prefer to train and pay nationals in their own currencies because of the fiscal impacts of expatriates vis à vis a generally high level of their skilled unemployment, the use of expatriates can increasingly become inevitable if developing countries aim at a transition to knowledge economic development. It is similarly possible in higher education, in some areas for which expertise are lacking and for which insights need to be made to speed development. It is not unusual that even some developed countries may provide grants and defray extra costs that results from organisations, knowledge systems and even industries who hire foreign scientists and engineers for training and R & D. Another realistic reflection of globalisation is for national governments to accept to use their nationals in the diaspora, where both parties accept that the citizen may support the knowledge economic development from where he/she lives abroad, temporarily and physically. The responsibility rests with national governments to provide the necessary incentives, frameworks and conducive environments for the knowledge workers in the diaspora to contribute in home development.

¹⁵⁹ Referred to as strategies to cope with the trends, challenges and effects of globalisation on higher education (Kalvemark & van Der Wender 1997), for example.

9.4 Suggestions for Future Research

This study was motivated by the interest that three African countries highlighted the use of their higher education as an instrument to alleviate poverty through their Poverty Reduction Strategy Papers (PRSP) of 2003 and 2006 (cf. 1.1). For management purposes and because of limited human and other resources, only one of the three countries, Cameroon, was focussed on as a case study. It may be of more scientific interest to carry out other single case studies in the other two countries to obtain the perceptions of the policymakers and actors on how and why they intended to use higher education in poverty reduction. It is also possible to undertake a broader project on the three countries in the form of multiple national case studies, from a comparative perspective. This may possibly include other African countries and countries of other continents which did not articulate the interest during the same occasions and forums but which might have been fully or more engaged on similar paths. This would involve analysing how poverty is tackled through higher education within their national economic programmes. Such studies would provide a broader picture and thus enhance generalisations and stimulate international policy reflections and theory-building on the subject.

As stated earlier (see 1.3 & 4.1.3) the study concentrated solely on the perceptions of the policymakers and actors in the higher education sector and the transformation process therein with respect to a focus on poverty reduction. On the other hand, the PRSPs have been broad and integrated documents involving the government and different stakeholders. It would therefore be imperative to carry out studies on the other sectors on their perceptions about the use and role of higher education in the strategy. A study on the major and relevant sectors like those dealing with the economy, science, innovation and technology planning can uncover other perceptual differences on the role of higher education in the country's context. Such a study would help to discern the links and missing links between those of higher education and expectations of the other sectors and improve recommendations for onward action. In this study, some perceptual differences were revealed as having emerged between the higher education policymakers and those involved in the preparation of the recent PRSP, the Growth and Employment Strategy Paper (GESP) (cf. 5.1). These differences suggest that a study on the other sector in charge of planning the economic development policy could add more scientifically useful inputs about perceptions on the use of higher education.

The main framework employed for the systemic environment within which higher education operates in knowledge based economic development; including poverty reduction was the national innovation system (NIS). Other studies on this innovation and systemic view of the economy will bring more clarity on the peculiarity of the country's context. Such studies may relate to the different types of knowledge, innovations and technologies that dominantly characterise the country's national innovation. There are also the needs for studies on the actors, elements and institutions involved in the diffusion

of knowledge and other aspects of competence building in the Cameroonian context with questions related to their linkages, networking and interactions. In addition, there are necessities for studies on major parts which affect the economy and technical change within the context. In relation to the main focus of this research, there is the necessity for studies on the contribution of technical institutions such as the university in terms of issues of technology transfer amongst others to ascertain their practices and challenges.

Although the respondents in the study foresee the focus of higher education on growth from a national system perspective, it is postulated that the adoption of a Community Innovation System can complement the national innovation system and lead to direct contact and focus of the universities on poverty reduction. Future researchers could refine the CIS concept as well as provide empirical evidence on its importance in addressing poverty reduction issues. Also in this research, the role of interface structures has been seen to be very important for system connection of technical institutions like the university to its external socio-economic environment. It has also been recognised through the country's higher education efforts at being interactive with the external environment that Cameroon was advancing in the domain of interface structure. Future studies on the efficiency of those recently-created interface structures in Cameroon higher education would validate their importance in opening up higher education for the socio-economic environment and the university's role.

Some of the issues raised in the study suggested that the problems with the use of knowledge and its infrastructures in the Cameroonian context reside elsewhere and would be appropriately analysed and captured through the use of other theories. These are the cases of lack of social capital (trust) and very low culture regarding knowledge related processes such as research, university research, innovations and R & D, science and technology which would impede the construction of an innovation based society. There seemed to be no status for university research and consequently minimal funding and an underfunded postgraduate education. There are important questions about the minimal linkages between higher education (training) and research represented by a different ministry and those related to their structural separations. Industries and SMEs in Cameroon rarely approach universities to solve their problems. Some prefer to carry most of those problems abroad, whereas some of the universities and participants believe that they are up to the tasks. The local environment may not understand the importance of research, does not support university researchers and collaborate in research activities. Similarly, the political class like parliamentarians who could play an important role in budget proposals to support the positive outcome that may stem from the risk in the use of knowledge and research does not seem to be supportive. In point of fact, these cultural issues about knowledge are not new in the innovation literature. Developing countries generally undervalue scientific knowledge and innovations (Arocena & Sutz 1999). Studies that focus on the trust of stakeholders in higher education in Cameroon will help uncover other realities and challenges which could contribute in strengthening

the country's evolution towards a knowledge-based society. Such studies can find out from the government circles why they do not seem to prioritise research, obtain data from industry as well as from the local population about their perceptions on the role of the Cameroonian university in their development, with related strengths and challenges.

In the study some challenges of sustainability of funding for quality higher education and specifically, the cost-intensive nature of professional and technological education and applied research that are required for the knowledge society in Cameroon were mentioned. By implication, a combination of cost-sharing measures, recovery methods like loan schemes and higher education taxes required to recycle government funding and sustain subsidies have been advanced. Experiments and studies that assess the cost-efficiency of some of those cost-sharing and recovery methods, would support their implementation and effectiveness. Such may include the degree of efficiency gains in terms of access, the sustainability of the higher education-related policies and of human capital supply. Similarly, one of the lessons from the study was the absence of discretionary funding and poor operational dynamics of the higher education, the case of research and third mission. In this respect, it has been observed that third mission funding of discretionary character, venture and seed capital are indispensable to enhance the university's role in socio-economic development. It is argued with the example of performance-based funding that more robust result-oriented dynamics increase the efficiency in the use of such funds. Experiments with result-oriented funding mechanisms by policymakers and consultants of higher education in the Cameroonian context will certainly yield interesting results.

9.5 Pitfalls and Downsides

In the preceding sections, the national innovation system (NIS) was presented as a framework for the adaptation of higher education for a leading role in socio-economic development. Similarly third mission and entrepreneurialism were presented as some of the main internal coping mechanisms through higher education. It is important to note that all these frameworks contain downsides that may have adverse effects on the traditional patterns in which business has been done in higher education. The insertion of the university into socio-economic development and innovation system inevitably raises fundamental questions about the nature and purpose of the university (William & Kitaev 2003, 17). Unlike in the previous era whereby the government has been the main patron and funder of higher education, a leading role of the university in socio-economic development through the NIS, by being entrepreneurial and focussing on the service function (third mission) multiplies the number of stakeholders, funders and avenues to which the university responds. This increasing range of external actors, interest groups and publics will equally make claims on higher education, other than the traditional government-institution nexus. These external stakeholders would have different effects on the university's missions, visions, cultures and processes. The insertion, connection and

participation of the universities in the NIS and production system suggests that societal or public demands and expectations from universities have become more direct than ever before, thus reinforcing the role of the market as a decisive factor. Such direct connections today imply that the demands have become more specified. Cowan (*ibid.*) observed that it is no longer the case when the university used to determine the details of how and what was delivered. When demands become too direct and specified, the market has a decisive and louder voice (Cowan 2005). There is also the tendency that with increasing applied research agendas in universities today, basic research is being displaced.

Most of the requests from third parties like industry are seldom permanent. Such applied (and usually) contract research may usually divert attention away from traditional activities because the latter brings in money and prestige in the global market (de Boer & Godegebuure 2003, 214). Universities have to constantly look for new structures and temporary measures to run the projects and perhaps dismantle them when the projects are over. Research which is applied or focused in a particular context has the tendency to reduce curiosity-driven and serendipitous research and discoveries. According to Lundvall (2002b, 2) the numerous demands for permanent and intense interaction with many external partners does not leave room for critical thinking. Lundvall (*ibid.*) argues that the society has to have a “refuge”, as has been the case with the university, where one can keep a long-term perspective and reflect critically both on theory and reality. Cowan (2005, 15) cautions that immediate market demands through applied research is seriously affecting the university’s ability to pause and reflect. Gibbons et al. (1997) also observe that most basic research has usually had its primary purpose for the generation of socially relevant knowledge. There are also concerns that the pursuit of applied research does not guarantee equal opportunities to all universities and disciplines especially with regard to their market friendliness and funding. Other scepticisms point to the fact that the market forces which accompany applied research are tantamount to the neglect of a wider range of societal responsibilities that the universities executed, thus, the long term public interest is jeopardized. One of such is that the university will lose its freedom to act in its traditional role as the critic of the society (Williams 2003, 17).

There are further concerns that the marketisation of knowledge outputs and increasing prominence of intellectual property rights constrain teaching and research, “*even thinking*” with implications on knowledge as a public good (Lundvall 2002b; Gumpert 2000). Barnett (1997, 167) remarked that because of such marketisation, external forces and state ideologies, knowledge was approaching into a crisis. Similarly, with the drive towards applied research and socio-economic development through coping mechanisms in the university like interdisciplinarity imply changes in the knowledge base of academic programmes. The organisational structures of disciplines and institutional resource allocation patterns also change. All of these changes have the tendency to affect academic identity. There are important questions about the university’s autonomy. Not only do third party sponsors represent some of the new rules and rulers in the university, the university

no longer has a monopoly in some of its processes and procedures. Gumport (2000, 67) cited prominent sets of response cases to external influences or market forces where courses, degree programmes and departments are constantly added or removed to be arranged along utilitarian trajectories. Gumport observed that administrators and faculty no longer have the options of widespread additive solutions that their predecessors had. Such structural and programmatic changes may survive in the university only for a time being because the market dynamics are usually unstable, but may cause severe potential damage to higher education as an intellectual enterprise and erode knowledge as an end itself (Gumport 2000, 67). Nowadays, it is not unusual to observe the appointment of some university heads of units being dependent upon the obligation of required results for third parties. In addition to dictating university policies, buying and suppressing research results, research questions and topics, Cowan (2005) cited two cases where the hiring or firing of university heads of units may be dependent upon the whims and caprices of the major sponsoring industry. In situations where they breach the confidentiality of the company or conform to the philosophy of “*science for the truth*”, they may likely be fired or threatened with legal actions. There are also challenges which draw on tailoring the university’s strength on national strategies whereby issues of autonomy and self-reliance of universities would come into limelight against regional needs and local political pressures.

It is similarly acknowledged in the study that the speed and obligation for results which some of the third parties impose on the university correspondingly lead to the adoption of mechanisms which stimulate results and efficiency in higher education. One such has been the necessity for result-oriented funding mechanisms presented in this study through performance-based funding (PBF). The downsides (also according to Samfoga Doh 2009) are that PBF may usually engineer a Darwinian theory of *survival of the fittest* (Daye 2005, 3), academic capitalism or programmes’ and institutional elitism (Slaughter and Leslie 1997). Strong and more market-friendly institutions and programmes may be incentivised to grow stronger, thus widening the gap with indirect market-oriented ones but which may equally be relevant to national development. Since previous performance may constitute important indicators for PBF, professors and units with strong track records of funding and projects may constantly amass most of the funding to the detriment and deprivation of others. It was also cited through the input and output model (in 9.3.3), that PBF enables access to be simultaneously accompanied by quality. The downsides are that when funding is based on student intake, degrees or credits, universities may be tempted to lower admission or graduation standards. However, what may seem to be agreed upon is that PBF normally improves functional concentration and output.

It is also important to outline some of the internal tensions that a strong service function of socio-economic involvement brings to higher education systems, institutions and their respective policymakers. The first tension is that of the international and local missions of universities as captured in statements such as “globally competitive but locally

engaged” university. With science having no frontier, the university has traditionally been an international organisation or with international missions. These international missions are reinforced by the most unprecedented processes of internationalization in higher education during the last two decades. At the same time, the university is called upon to localise its missions, engage both in national and regional development. The local missions of the university stretch to involve participation in reducing poverty in the case of developing countries. Both global and local missions present challenges to the visions of universities. For instance, despite the emphasis on the regional roles of universities, increasing drive towards study areas and specialties in areas of global research than the needs of the local community suggest the dream and ambitions of most universities to be the most internationally-competitive than having national and regional identities.

The next tension to be highlighted in this study is the structural organisation (cf. 4.9.2, 5.5, 9.1.1 & 9.3.4) that often results from stronger calls for involvement in socio-economic development, notably diversity and differentiation. There are tensions about how to structure the response to socio-economic development within higher education systems and universities. For instance, should the strategic responses be hosted in the universities through the introduction of new programmes (termed *programmatic diversity*) or should new institutions be created (*systemic diversity*) and what will be the implications? By the same token, the particularities and urgency of some of the socio-economic and development needs suggest the indispensability of certain institutional and functional “differentiation” such that some of the functions can be protected and prioritized to achieve the desired quality, excellence or relevance. Should there be internal *vertical* or *functional* differentiation within universities as the case has been in most countries after the Second World War to distinguish the elitist functions like research from the mass functions? Shall it be *institutional* differentiation by hosting research in institutions separate from teaching as it was the case with the French system (Fox & Weiz 1980) where research was considered so important that it needed to be hosted in separate institutions? What would be the implication?; as is the case nowadays with institutional capitalism which characterises some research institutions in terms of funding. Maintaining and increasing diversity and differentiation seems difficult but they seem to be necessary evils and panacea.

There are also tensions between the funding of research and teaching (undergraduate education). There are, for example, tensions about finding the appropriate balance of public and private investment between teaching and research, the allocation of funds and how to integrate the research function more broadly across the university. Similarly, there are tensions about the funding of applied research and basic research. There are also crises about the university’s values and business values. Some opinions raise fears that universities are becoming like industries or the market and that most universities are no longer public institutions but a hybrid where different norms and values are combined (de Boer & Godegebuure 2003). Admittedly, this may be the case but there are certain

cultural attributes of the university which provide resistance to many external trends. The resistance of the university resides in some of the fundamental ideals of the academic and scientific culture and as a professional community. The university is staffed not only by men and women of ideas “*handling materials which are intrinsically ideational but they are known for certain piety in self determination*” (see Clark 1983, 74). These have been men and women who take comfort and pleasure in believing that they have committed their lives “*to serving knowledge, youth and the general welfare, avoiding the crass materialism of the marketplace*” (ibid.). Some of these values as the social foundation of universities make it difficult for them to undergo any complete cultural transformation, let alone transformation necessitated by pecuniary purposes. It is not unusual to hear declarations like “*I am a researcher and not a consultant*” (see also Gunasekara 2006, 74). Pecuniary benefits may not be the main rationale for the pursuit of knowledge. The human capital theory suggests from another perspective, that there are consumption benefits in the pursuit of knowledge which may be as important as any other benefit (Canton & Venniker 2001). Academics do find satisfaction in the realisation of their scientific endeavours, irrespective of the applicability or accruing pecuniary benefits. The implication according to Clark (1983, 84) is that this type of self love for knowledge helps to rigidify responses to external demands.

Previously Cowan (2005) is cited about certain third party or external stakeholders who gloss over the ethical values of the university as a cultural institution but whom on the other hand, are also resisted by certain university professors for the sake of “science”. There is tension between the concept of the university/science for the pursuit of truth or the university/science for business. There would seem to be no other institution with truth as its social foundation as the university. Cowan argues that in the university the truth triumphs over everything, “pursuit of and statements about beliefs of truth are meant to be dominant currency in the university”. Drawing on the author, there are other institutions like the monastery which are built on orthodox principles but that of the university is based on consistency. Amidst scepticisms due to market forces and the logics of managerial production, the university, according to other scholars (Gumport 2000; Cowan 2005; Trow 1974) has been a place for dissent and sometimes unpopular ideas, for creativity and the life of minds, a centre of inquiry and rational discussion of issues, source of new ideas and critical examination of existing policy and practice. The university has incarnated these ideals without reference to outside constraints. Those ideals may explain why, despite the emphasis on the direct interaction with regional or national socio-economic actors, it is still observed that most universities do not fully embrace those requirements as part of their missions (also see Stormier 2007, 3) and as shown below.

Despite the emphases for third mission, third mission funding does not have a protected status in most universities (Hatakenaka 2005). Some studies indicate that senior managers seldom support fulsome incentive schemes to engage in third mission (Gunasekara 2006,

158). This may also be because such funding schemes are difficult to design and administer due to the diversity of needs, lack of clarity on the scope and because university units respond to their own external needs in their own ways (Gunasekara 2006; Hatakenaka 2005). There is scepticism that the inclusion of such economic and social impacts tends to be an extension of teaching and research to the detriment of academic values. Also, academic or scientific work usually requires long-term and concentrated reflection. This brings us to the challenge of the lack of time resources. Some universities would prefer to view their success from the number of publications and cooperation links with peers abroad than having regional identity or connections with surrounding business actors. Clark (1983, 72–106) observes that organisations often construct their own beliefs and meanings of what their activities are which reflect their respective cultures and structures. It is those beliefs, cultures and constructed meanings that bring academics together from the simple (around the discipline) to the complex organisational form (the University). This organisational culture is built on how the participants generally see their practices. It generates loyalty to the institution and determines the way the university as a collective of academics interprets outside trends (*ibid.*). The university is an expert organisation) and the more professionally intense the organisation, the more difficult it is to penetrate (Birnbaum 1988; Clark 1983).

A transformation of institutional culture may also be hindered by individual and disciplinary cultures. In traditional academic organisations, individual and deeply rooted disciplinary cultures and beliefs are more powerful than those of the organisation and, unlike other organisations, universities do not have strong independent parts. Because of the intrinsically esoteric and independent nature of knowledge forms and more importantly, the cultures with which they may be associated, it becomes difficult to pull those independent and fragmented knowledge structures and their associated cultures into one organisational culture. While the institution adopts to play a more efficient role in national innovation and production, they may not receive the appropriate response from individual academics because individual academics are often loyal to their disciplines than organisations (Hearn & Holdsworth 2002; Clark 1983). It is important to examine if, besides the institutional loyalties, the other loyalties (discipline, individual, professional) conform to the institutional goals and needs of the wider society. It is germane to examine how organisational transformation may be hindered by how academics create meanings about changes in their expected roles. Most academics still understand their identity as characterised by independence of thought and action to be unaltered by artificial constraints. They view the regional engagement policies as “a curious development that creates dissonance in their constructed identities” (Gunasekara (2006). One can also look at the transformation difficulties from the level of autonomy knowledge accords to individuals. Clark (1983) claims that knowledge ensures an increased level of autonomy in academic institutions.

The situations above present on both sides of the coin. While some institutions might adopt a changed culture in favour of stronger interaction with socio-economic actors, they may be impeded by the autonomous nature of individual cultures. On the other hand, while activities with socio-economic actors may be adopted at the individual or micro level, they are observed, at times, not to be encouraged by central university management (Stromeier 2007, 6). At the basic level, interactions with socio-economic and regional actors may challenge both the epistemological and disciplinary bases of knowledge as well as their organisational forms in the university. There are also tensions between the languages of academics and business operators. As much as it is difficult to connect knowledge forms into interdisciplinarity, so it is to have a common language between academics and universities on the one hand and business, economic and regional development actors on the other; the ability to come to a common understanding. If it is difficult to have a common language of understanding between disciplines and knowledge domains within the university, then the situation with external socio-economic actors or non academic world can imaginarily, be more complicated. The cultural and value differences between the university and the rest of society would obviously reflect on the language as well as perceptions since languages are known to convey cultures and values.

9.6 Contributions of the Study

It is possible to identify several perspectives by which this study is a contribution from its author. The first is the “scientific” contribution to the body of knowledge in higher education research and studies. The study addressed issues of economic development through HE and as a novelty, extended into the case study’s specificity of poverty. The second is the “policy dimension”; the possibility of this study informing international policies in general about how HE systems in such a developing context as Cameroon are coping with their recent social roles as actors in socio-economic development and poverty reduction and how the systems and institutions can be strengthened. The visibility of the scientific contribution can be easily increased if viewed from the perspectives of the research gaps which the study attempts to fill. First, the literature is scarce on how HE in developing countries can be transformed and strengthened to play a leading role in socio-economic development. The literature has seldom focussed on the on-going transformation in response to the calls for their new missions of socio-economic development. Where the literature exists, it is mostly written by policymakers and managers from hands-on experience with little or no theoretical framework. This study was based on a theoretical framework built around the national innovation system (NIS), entrepreneurialism and third mission in higher education.

Even the use of the NIS in the study would be seen to fill certain research gaps in its related literature in terms of the adaptation of the university in the NIS and NIS in developing countries. Apart of the triple helix (Etzkowitz & Leydesdorff 1997) (which

the study also found to be narrow from a developing countries perspective), universities have seldom been presented as major players in the innovation system and their role is still decidedly under researched. Where universities have been conspicuous, they are either presented from very narrow perspectives in terms of research, science and high technology innovations or higher education and universities being shadowed within a broad perspective as the educational system. A second dimension of such a research gap is the generally-known absence of studies about the innovation system in developing countries (Arocena & Sutz 1999; Gu 1999; Lundvall et al. 2002; Interakummerd et al. 2002). Innovation system study is generally young and for most developing countries, it is in a primitive stage (Interakummerd et al. 2002, 1146).

The literature on the university in the NIS has mostly been written from innovation scholarship perspective. In this study, the main focus was on transformation processes in HE. Also, the NIS has been largely considered for growth with a trickle down perspective. Although it is widely agreed upon that innovation is context specific, most studies, even on economic development, let alone innovations have seldom paid attention to the specific needs of countries, one of which is the poverty specific-context of some developing countries or the distributional effects of the innovation-driven growth and socio-economic development in different contexts (Altenburg 2009, 33). The national innovation system concept was used to analyse the adaptation of universities in the socio-economic development orientation in a developing country of Sub-Saharan Africa, Cameroon, with a focus on poverty reduction.

In terms of the internal coping mechanisms in HE, concepts like entrepreneurialism and third mission used in the study have evolved and have been used mostly in successful cases in developed industrialised nations with more enabling macro environments. Apart from Burton Clark who included the University of Makerere, Uganda and the Catholic University of Chile in his subsequent case studies of the entrepreneurial university (Clark 2004), most studies have seldom related to case studies in less successful and economically depressed areas. Most of the studies have failed to relate on how the roles of universities are conceived of in development agendas of developing countries, how they cope in those less enabling environments and their response mechanisms. Even Clark's famous entrepreneurial university concept was highly focussed on "research" and more applied universities (cf. 4.7.3). The importance of the use of such concepts (third mission and entrepreneurialism) in the case of Cameroon was that they helped to discern the missing links between the ground practice and the frameworks as well as the peculiarities of the context under study. As implied by scholars (Etzkowitz 2003; Etzkowitz & Zhou 2008), if these entrepreneurial and third mission frameworks are those that are used by developed countries' higher education systems and institutions in the promotion of economic growth, then developing countries need them more. The present study suggests that the framework will be useful for strategising higher education (which has traditionally remained aloof) in countries' specific context such as poverty reduction to enable the HEIs connect with

the poor segments of their communities and approach poverty issues more easily. One of the reasons is the service and interactional spirits behind the frameworks.

As an applied study which focuses directly on the organisational behaviours of higher education systems and institutions, the study could have far reaching effects in impacting and informing the higher education policies in Cameroon and related contexts. The study provides a theoretical perspective of the ground practices and can draw attention of the policymakers in Cameroon and similar contexts on how their practices are interpreted and analysed theoretically. The theoretical aspect is important for the practice. The missing links, perspectives, recommendations, cautions and lessons highlighted in the study may serve to direct the attention of the policymakers in Cameroon and elsewhere, thereby serving to strengthen the system's socio-economic roles. Newly-created knowledge from this work was also made possible thanks to the methodologies employed. The descriptive and explanatory dimensions of the study enabled the researcher to achieve one of the objectives which was to document the ground practices in Cameroon higher education; how the system is being transformed with respect to its socio-economic mission. To these may be attributed the evaluative (formative) dimension which was helpful in accomplishing another objective which was to examine scenarios through which the Cameroonian HE system could be strengthened. The constructivist-interpretative approach employed in the study generally remains very useful for studies on perceptions, cultural and context differences (Crotty 1998). Specifically, they are, according to Gioia (1991), useful in studying cognitive phases in higher education organisations and in understanding strategic change processes therein. As for Gjerding et al. (2006), their related sense-making process is an easy way of creating knowledge from the ways people interpret phenomena according to contexts. The use of the multilevel framework was helpful in suggesting that interpretations of the new socio-economic development focus of higher education in Cameroon is not widely understood or embraced in similar manners at all the levels of the system. Policymakers may pay attention to how the policies are being diffused within the Cameroonian HE system and the different sense which are made about the policies at different layers of the system.

9.7 Observations

With its inherent concepts like third mission and entrepreneurialism having resulted mostly from successful case studies in industrialised countries, the theoretical framework used to analyse the response strategies of Cameroonian higher education to its new socio-economic development role posed questions about contextual application. There is also the national innovation system (NIS) with scarcity of literature and questions about its feasibility in the developing countries' contexts because of its relationship to macro-economic environment and structural characteristics (cf. 4.4.1). Despite the contextual

concerns expressed at the beginning of the study the conceptual similarities of some of the practices in the case study substantiated the affirmations herein.

The first observation is about the changing global but identical character of higher education. Perspectives on higher education are changing or have changed globally. Although the transformation processes in the study may be expressed differently due to country characteristics, contexts, historical backgrounds and trajectories, the orientations are similar and moving in identical directions. Similar factors and causes (shrinking funding, the knowledge economy, globalisation and the quest for financial and socio-economic accountability), worldwide, are producing the same response mechanisms of third mission and entrepreneurialism. A second global revolution in higher education (Etzkowitz 2000) is underway. In the first revolution, it was the addition of research into the mission of the university. This second revolution is that of the third mission of socio-economic development. In addition to the generalist perspective about socio-economic development, universities are called upon to adapt in reflection to their immediate country environment. In the case of Cameroon, they must, in addition to economic development, growth and competitiveness, seek solutions to one of their country's development characteristics, poverty. In such circumstances, it is questionable whether the traditional ritualistic university inherited from Bologna will effectively accommodate this third mission, let alone in those contexts still in process to the first revolution, from teaching to research.

Consistent with the globalising perspectives on higher education, the new leading role of higher education in Cameroon, particularly knowledge socio-economic development and poverty reduction, has required transformation first in terms of perspectives, structures and cultures. These changes in perspectives affect governance. Power relationships in decision-making are being transformed and reconfigured in the direction of an autonomous and stronger university. At least normatively, the university in the Cameroonian case appears as a strategic organisation to provide societal responses, to take its decision, act swiftly, uphold its destinies, define its future and design its proper development strategies. The Cameroonian university is supposed to be able to establish the link between economic progress, scientific and technical innovation and research and to produce economically useful knowledge for the development of local economies (Sectoral Policy Document 2010, 2). Operationally, the new mission has required that the university opens up its structures and cultures to embrace both socio-economic actors and societal preoccupations. This has required that actors from the external environments of the university be involved in the university's planning processes and instances. These are the cases of the highest organ (the council) down to the Interface Structures (IS) and Strategic Orientation Committees (SOC) with a mixture of academics and members from socio-economic and professional worlds (SPW); all these organs being headed by the external members of the university.

To the above may be added new structures in the top management of the universities in charge of relations with the business world, the creation of business and grants application units and status for industrial professionals to teach in the universities. Such a transformation processes in the Cameroonian example may suggest that the third millennium university is being increasingly transformed to a hybrid organisation. It is questionable whether this hybridisation of the university's structures and values is welcome and with what implications on its identity. It is not yet clear if and how the academics in Cameroon receive this changing form, missions and values of their organisation. However, academics need not to be trapped in academic nostalgia because times are changing and indeed, they are changing. The academics have no reason to feel subordinated to other values because they are and will remain indispensable as the "heartland". On the contrary they may receive a better impetus and status in the society because of the inevitability of the role of knowledge in economies based on the contribution they make through their science in economic and social development.

There is also the possibility that the university which has been traditionally known to be an ivory tower is losing its private life. Peter Scott questioned whether the university can live both "private" and "public" life; be focused both on "local" and "global" missions, at the same time being "international" and "local"? (Scott 1998). Scott suggests that both internationalisation and localisation would be possible if the university takes an "*inward*" approach in meeting the economic needs of the local communities and an "*outward orientation*" in enhancing their international competitiveness (Scott 1998, 140). The university today is increasingly expected to be "globally competitive and locally engaged". With science having no frontier and most of the university's activities increasingly transcending national boundaries, the universities would be expected to "zoom in and back" their activities for the development of their immediate socio-economic environment. Emblematic cases like those of the University of Pennsylvania, which turned to embrace community service as part of its strategic missions, suggest. This was seen as an "unusual move" by a globally-competitive research university in an economically depressed urban neighbourhood which tended to engage in a wide range of community initiatives (Altbach et al. 2009, 160). Similarly, universities designed for local and regionally-applied missions would equally have to zoom out through their regions and the national systems to the international arena. Cases abound whereby performing applied universities have turned out to embrace internationalisation thus becoming flagships for international competitiveness of some nations. In any case, policymakers (see Gumpert 2000, 85), may have to accept that gains in one dimension may at times, mean losing in another.

It is also necessary to understand that not all universities can be involved in third mission, with similar types of third mission and at the same magnitude. Also, change cannot affect universities in similar manners and change affects different parts of the university (faculties, departments, disciplines) differently. Policymakers should be sensitive so as to be able to capitalise on which parts of the university are more prone to entrepreneurialism

and third mission and at what time? However, of all the themes identified as the building blocks of university entrepreneurship (4.7.5), creativity, innovativeness and aggressive search for business opportunities perhaps coupled with demand and opportunities were seen as the most important factors in driving units' entrepreneurialism in Cameroon. The creative use of knowledge can make it possible for any unit to lead the entrepreneurial ventures of the university. With creativity and imaginary spirits surprises of interaction with socio-economic operators and with cash flows to the university may come from any department and discipline. Also, every university, be it in a developed or developing country, can be involved in its own type of third mission. We found from this study that development context can be a determinant factor for the types and categories of third mission. A university must not be a research institution to be actively engaged in third mission. Though the knowledge economy gives more premiums to research, teaching plays a big role in the learning economy, which is one of the *sine qua non* conditions and processes for the evolution and sustainability of a knowledge economy. Teaching only institutions or levels remain inevitable to cater to the diverse needs of the student bodies and prepare them for specialized functions. Besides, it is upheld herein that the university's comparative advantage to other knowledge institutions is its capacity to host teaching and research and in combining continuity and change through the constant flow of graduates to the production and innovation system. Also, the fact that there are few alternative and competing knowledge organisations in developing contexts like Cameroon may be seen as an added value and additional impetus to the university as the main institution for the country's emergence as a knowledge society.

In the 1970s, Martin Trow observed that the university was beginning to be involved in more controversial issues. He asked if the university could be involved in such issues as urban affairs without being turned into a political weapon and the consequences (Trow 1970, 6). Trow concluded that it could be possible "*if the university would not compromise its unique qualities*", culture and practices and only if it were solely perceived as providing training for such affairs (1970, 21). de Boer and Godegebuure (2003) argue that different values cannot be united but they can be successfully mixed. While patrons and stakeholders seek to render the university more interactive, they may remember the peculiar social foundation of universities which makes them what they have been until today. It is important to remember why university institutions have survived over several centuries while many institutions emerged and died (see Clark Kerr 1987; Burton Clark 1983). It must constantly be remembered to restore the ivory tower organisational nature of the universities, because it equally had societal benefits that have survived societies until today. As universities go out to society, they may always remember that the society is equally a stake in their legitimacies and their survival before the society would depend on the ways their integrity and legitimacy would be preserved. As universities seek to restore their legitimacies and as self-guiding institutions, they may remember that they

are dependent on certain main patrons. The more they go out, the more their friends and foes. The more the demands, the more the accountability demands.

As Cameroonian universities become involved in direct socio-economic development, they should remember that they are getting into the market, which has different operational dynamics and values. One such dynamics is competition among themselves (universities) for new sources of resources, reputation and with global competitors. The universities will need to devise strategies to market themselves. Communication becomes a necessary tool both to the public and within the university. Universities have to be able to communicate better with the public to be able to appropriate the service they can offer. They need more and better showcases. They also have to be able to communicate internally for their academic researchers and students to understand the revolution to socio-economic development and provide commensurate incentives. Universities need to tell their stories in better ways to the legislatures, negotiate more favourable state-university relationships, raise more money from other sources and improve upon their entrepreneurial practices (Weerts 2007, 81–83). Most importantly, the transition to knowledge economies and societies (and as suggested by Cloete et al. 2011) may require a new and more sustainable social contract between higher education and its national governments in Africa. It calls for a return to the type of pact and trust which African governments had for their higher education at the dawn of independence in the 1960s. The knowledge economy has come to add more emphasis on knowledge, research and hence higher education as a public developmental and social good. In an increasingly knowledge-based society, it could only be easier for universities in the Cameroonian context to complete the trinity of their missions to the third, if they move to the second. That is, if the research functions is sufficiently reinforced (in addition to the first, teaching). This study suggests that the absence or gross insufficiency of research inputs and outputs (especially applied research) correlates to the total absence of the innovative dimension of third mission which is indispensable for Cameroon's evolution and ambition to be an emerging knowledge society and economy.

References

- AAU. (2000). *A Study on Private Universities in Africa*. Association of African Universities, Ghana.
- Abnor, I., & Bjerke, B. (1997). *Methodology for Creating Business Knowledge*. London: Sage.
- ADB/ADF. (2010). *Country Strategy Paper for Cameroon 2010–2014*. Regional Department Centre, October 2009.
- Altbach, P.G., Reisberg, L., & Rumbley, L. (2009). *Trends in Higher Education: Tracking an Academic Revolution*. A Report Prepared for the UNESCO 2009 World Conference on Higher Education, UNESCO.
- Altenburg, T. (2009). Building inclusive innovation systems in developing countries: Challenges of IS research. In B. A. Lundvall, K.J. Joseph, C. Chimnade & J. Vang (eds.), *Handbook of Innovation Systems and Developing Countries: Building Domestic Capabilities in a Global Setting*. Cheltenham: Edward Elgar Publishing Ltd., pp. 33–56.
- Amaral, A., Jones, G., & Karseth, B. (eds.). (2002). *Governing Higher Education: National Perspectives and Institutional Governance*. Dordrecht: Kluwer Academic Publishers.
- Amaral, A., & Magalhães, A. (2002). The emergent Role of External Stakeholders in European Higher Education Governance. In Alberto Amaral, Glen Jones & Berit Karseth (eds.), *Governing Higher Education: National Perspectives and Institutional Governance*. Dordrecht: Kluwer Academic Publishers, pp. 1–21.
- Arbo, P., & Benneworth, P. (2008). Understanding the Regional Contribution of Higher Education Institutions: A Literature Review. (Education Working Paper No. 9) OECD.
- Arocena, R., & Sutz, J. (1999). Looking at Innovation Systems from the South. *Paper presented at DRUID's Summer Conference 1999*. Rebuild, Denmark.
- Arocena, R., & J. Sutz. (2000). Looking at National Innovation Systems from the South. *Industry and Innovation*, 7(1), pp. 55–75:58.
- Arocena, R., & Sutz, J. (2005). Innovation Systems and Developing Countries. Danish Research Unit for Industrial Dynamics (DRUID) Working Paper No. 02-05. Aalborg, Denmark.
- Arocena, R., & Sutz, J. (2010, November 1–3). Research and Innovation Policies for Social Inclusion: Is there an emerging pattern? Paper Submitted at the 2010 Globelics Conference. University of Malaya, Kuala Lumpur, Malaysia.
- Arrow, K. (1973) Higher Education as a filter. *Journal of Public Economics* (2). Elsevier Science Publishers B.V, pp. 193–216.
- Asworth, J. (1997). A waste of time? (Private rates of returns to higher education in the 1990s). *Higher Education Quarterly*, 51(2), pp. 164–188.
- Azele, M., Meyer, M., & Pottelsbeghe, B. (2008). Turning science into business: a case study of a major European research University. *Science and Public Policy*, 35(9), pp. 669–679.

- Barker R. (1995) *'The Social Work Dictionary'*. Washington. D.C.: NASW Press.
- Barnett, R. (1997b). *Higher Education in the Critical Business*. Buckingham: SRHE & Open University Press.
- Barr, N. (1998). *The Economics of Welfare State*. Oxford University Press, pp. 320–361.
- Barr, N. (2002). Funding Higher Education: Policies for Access and Quality. In *House of Commons Education and Skills Committee. Sixth Report of session 2001–2002*, pp. 1–31.
- Barrow, C. W. (2003). Globalization, trade liberalization, and the higher education industry. In S. Aronowitz & H. Gautney (eds.), *Implicating empire: Globalization & resistance in the 21st century world*. New York: Basic Books, pp. 229–254.
- Baye, F. M. (2004). Growth and Redistribution Effects of Poverty Changes in Cameroon: A Shapley Decomposition Analysis. Forum Paper: African Development and Poverty Reduction: The Macro-Micro Linkage. Lord Charles Hotel, Somerset West, South Africa.
- Becker, G. (1994). *Human Capital: A theoretical and Empirical Analysis, with special reference to Education* (3rd Edition.). New York: Columbia University Press.
- Beekens, E. (2004). Globalization and Higher Education, Global Opportunities and Institutional Embeddedness. *Higher Education Consortia in Europe and South East Asia*. CHEPS, pp. 7–28, 261–274.
- Ben-David, J. (1977). *Centers of Learning: Britain, France, Germany, United States. An Essay prepared for the Carnegie Foundation on Higher Education*. New York: McGraw-Hill.
- Benneworth, P., Coenen, L., Moodysson, J., & Asheim, B. (2007). Exploring the Multiple Roles of the Lund University in strengthening the Scania Regional Innovation System: Towards institutional learning? Preprint, submitted to *European Planning Studies*.
- Bercovitz, J., & Feldman, M. (2008). Academic Entrepreneurs: Organisational change at the individual level. *Organisational Science*, 19(1), pp. 69–89.
- Berger, P.L., & Luckmann, T. (1966). *The Social Construction of Reality: a TREATISE in the Sociology of Knowledge*. London: Penguin Books.
- Bertelsen, P., & Muller, J. (2003). Changing the Outlook: Explicating the Indigenous Systems of Innovation in Tanzania. In M. Muchie, P. Gammeltoft & B. A. Lundvall (eds.), *Putting Africa First: The Making of African Innovation System*. Aalborg, Denmark: Aalborg University Press, pp. 123–138.
- Birnbaum, R. (1988). *How Colleges Work: The Cybernetics of Academic Organisation*. San Francisco: Jossey Bass.
- Blaug, M. (1965). Rate of Return on Investment in Education in Great Britain. *Manchester School*, 33(3), 205–51. Reprinted in M. Blaug (1987), *The Economics of Education and the Education of an Economist*. Aldershot: Edward Elgar Publishing, pp. 3–49.
- Bloom, D.E. & Rosovsky (2006). Beyond Private Gain. The Public Benefits of Higher Education. In J. F. James & Philip G. Albach (eds.), *International Handbook of Higher Education*. Boston.
- Bloom, D., Canning, D., & Chan, K. (2006). *Higher Education and Economic Development in Africa*. Harvard University.

- Bogdan, R. C., & Biklen, S. K. (1992). *Qualitative Research for Education: An Introduction to Theory and Methods* (2nd ed.). Allyn and Bacon.
- Boulton, G. (2009). GLOBAL: What are Universities for? University World News. Issue: 0069, 29 March 2009 <http://www.universityworldnews.com/article.php?story=04.10.2009>.
- Bourdieu, P. (1983). Forms of capital. In J. C. Richards (ed.), *Handbook of theory and research for the sociology of education*. New York: Greenwood Press.
- Breschi, S., & Malerba, F. (1997). Sectoral Systems of innovation: technological regimes, Schumperian dynamics and spatial boundaries. In C. Edquist (ed.), *Systems of innovation*. London: F Printer.
- Brew, A. (1999). Research and Teaching: "Changing Relationships in Changing Context". *Studies in Higher Education*, 24(3), pp. 291–301.
- Brossard, M., & Foko, B. (2008). *Costs and financing of higher education in Francophone Africa*. The International Bank for Reconstruction and Development / The World Bank, Washington D.C.
- Bryman, A. (2004). *Social Research Method* (2nd ed.). Oxford University Press.
- Canton, E., & Venniker, R. (2001). Economics of Higher Education. *Higher Education Reform: Getting the Incentives Right*. Enschede: CHEPS, pp. 35–51.
- Castells, M. (1993). The University System: Engine of Development in the New World Economy. In A. Ransom et al (eds.), *Improving Higher Education in Developing Countries*. Washington D.C: World Bank.
- Castells, M. (2000). *The Rise of Network Society*. (2nd ed). Oxford. Blackwell Publishing Limited.
- Castells, M. (2001). Universities as dynamic systems of contradictory functions. In Johan Muller, Nico Cloete & Shiren Badat (eds.), *Challenges of Globalisation. South African Debates with Manuel Castells*. Cape Town: Maskew Miller Longman, pp. 206–224.
- Chaminade, C., Lundvall, B. A., Vang-Lauridsen, J., & Joseph, K. J. (2010). Innovation policies for development: towards a systemic experimentation based approach, CIRCLE Electronic Working Papers 2010/1, Lund University, CIRCLE – Center for Innovation, Research and Competences in the Learning Economy.
- CIA/World Fact Book (2010). Country Information about Cameroon. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/cm.html>. Re-accessed on 08.11.2011.
- Cimoli, M., Dosi, G., & Stiglitz, J.E. (eds.). (2009). *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*. The Initiative for Policy Dialogue Series. New York: Oxford University Press.
- Clark, B. R. (1983). *The Higher Education System: Academic Organisation in Cross-National Perspective*. Berkeley: University of California Press.
- Clark, B. R. (1993). "Conclusion". In Burton R. Clark (ed.), *The Research Foundation of Graduate Education. Germany, Britain France, United States, Japan*, pp. 355–379.
- Clark, B. R. (1998). *Creating entrepreneurial universities: organisational pathways of transformation* (1st ed.). Oxford, New York: Published for the IAU Press by Pergamon Press.

- Clark, B. R. (2000). Developing a Career in the study of Higher Education. In J. Smart (ed.), *Higher Education. Handbook of Theory and Research* (15, 36–38).
- Clark, B. R. (2004). *Sustaining change in universities. Continuities in case studies and concepts*. McGraw-Hill: Open University Press.
- Cloete, N., Bailey, T., & Maassen, P. (2011). *Universities and Economic Development in Africa, Pact, academic and Coordination, Synthesis Report*. Center for Higher Education Transformation (CHET), Wynberg Mews, Wynberg 7800.
- Coleman, J. C. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, 95–120.
- Coleman, J. S. (1994). Social capital, human capital and investment in youth. In A.C. Petersen & J.T. Mortimer (eds.), *Youth unemployment and society*. New York: Cambridge University Press, pp. 34–50.
- Commission of the European Communities (COM) (2003). *Entrepreneurship in Europe*, Brussels: COM 2003/27
- Cook, T. Dwek, T. R. Blumberg, B., & Hackaday, T. (2008). Commercializing University Research: Threats and Opportunities: The Oxford Model. *Capitalism and the Society*, 3(1).
- Cortright, J. (2001). New Growth Theory, Technology and Learning: A Practitioner's Guide. *Reviews of Economic Development Literature and Practice*, No. 4, Impresa, Inc.
- Cowan, R. (2005). *Universities and the Knowledge Economy. Paper Prepared for the Advancing Knowledge and the Knowledge Economy at the National Academies*. Washington DC, January 2005.
- Creswell, J. W. (2003). *Research design qualitative, quantitative and mixed methods approached* (2nd ed.). London: Sage.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. London: Sage Publication Ltd.
- Dahlman, C. J. (2007). China and India: Emerging Technological Powers. *Science and Technology*, Vol. 23, Iss. 3. Washington.
- Davies, J. L. (2001). The Emergence of Entrepreneurial Cultures in European Universities. *Higher Education Management and Policy*, Vol. 13, No. 2, OECD, pp.25–450.
- de Boer, H. F., & Goedegebuure. (2003). New Rules of the Game? Reflections on Governance, Management and System Change. In J. File (ed.), *Real-Time Systems. Reflections on Higher Education in the Czech Republic, Hungary and Slovenia*. Centre for Higher Education Policy Studies, Vutium Press, pp. 209–231.
- De Castro, S. (1998). Technological implications of the New Growth Theory for the South. Cooperation South Special Unit for TCDC, United Nations Development Programme, pp. 68–79.
- Denzin, N. K., & Lincoln, Y. S. (eds.). (2005). *Handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage.

- Department of Trade and Industry. (2000). *Excellence and Opportunity: A Science and Innovation Policy for the 21st Century*. London: Office of Science and Technology. Department of Trade and industry. United Kingdom.
- Desrochers, D. (2005). Higher Education's Contribution to the knowledge Economy. Available at: <http://solutionsforourfuture.org>.
- Doh, P. S. (2007). *Harmonisation Challenges in Higher Education: Case of the French and British Bicultural System in Cameroon*. Published M.Phil Thesis, University of Tampere, Finland. Available at: <http://tutkielmat.uta.fi> & www.uv.uio.no/hedda/masterprogramme/published_thesis.html.
- Doh, P. S. (2008a). Global Integration Policies Versus Institutional Dynamics of Higher Education. In Sarah & Chalier, (eds.), *The Implications of Competition for the Future of European Higher Education*. European Education, vol. 40, pp. 78–97.
- Doh, P. S. (2008b, April 24–25). Towards greater economic & developmental perspectives in the funding of fast-expanding higher education systems in Sub-Saharan Africa: the case of Cameroon. Conference on *Development, Justice & Governance: New Challenges in the Global South*. Finnish Society for Development Research. Working Group on Economics of Development. Helsinki.
- Dollar, D., & Kraay, A. (2002). *Growth is Good for the Poor*. Development Research Group, World Bank. Washington D.C.
- Drucker, P. (1985). *The Discipline of Innovation*. Harvard Business Review.
- Drucker, P. (1987). The Age of Transformation. *Atlantic Monthly*, pp. 53–80.
- Duke, C. (2002). Staying Engaged-how do you learn to do it, and know if it is good? *Australian Weekly Campus Review*.
- Edquist, C. (2005). Systems of Innovation: Perspectives and Challenges. In J. Fagerberg, D. C. Mowery & R. R. Nelson (eds.), *The Oxford Handbook of innovation*. Oxford: Oxford University Press, pp. 181–208.
- Edquist, C. (ed.). (1997). *Systems of Innovation – Technologies, Institutions and Organisations*. London and Washington: Printer Publishers.
- Edquist, C., & B. A. Lundvall. (1993). Comparing the Danish and Swedish Systems of Innovation. In R. R. Nelson (ed.), *National Innovation Systems*. New York: Oxford University Press, pp. 265–298.
- Effah, P. (2006). Private Higher Education in Ghana. In N. V. Varghese (ed.), *Growth and Expansion of Private Higher Education in Africa*. IIEP, UNESCO.
- Emeagwali, P. (2010). Africa Must Innovate or Perish. Excerpt from Nigeria's 50 anniversary lecture at the Embassy of Nigeria, Paris. Lecture video and audio are posted at <http://www.youtube.com/watch?v=mxU-izhbEWI> and emeagwali.com.
- Enders, J. (2001). Between State Control and Academic Capitalism: A Comparative Perspective of Academic Staff in Europe. In Jurgen Enders (ed.), *Academic Staff in Europe: Changing contexts and Conditions*. Westport CT, London: Greenwood Press, pp. 1–23.

- Enders, J. et al. (2003, September 4–6). *Higher Education Policy Formulation: a framework for Case Analysis*. Paper prepared for the CHER 16th annual conference on *Reform and Change in Higher Education: Renewed Expectations and Improved Performance?* Porto.
- Ernst, D., & Lundvall B. A. (1997). Information Technology in the Learning Economy: Challenges for Developing Economies. DRUID Working Papers, No, 12. Copenhagen, Denmark: Danish Research Unit for Industrial Dynamics.
- Etzkowitz, H. (2003). Research Groups as Quasi Firms: The invention of the Entrepreneurial University. *Research Policy*, vol. 32, pp. 109–121.
- Etzkowitz, H. (2004). The Evolution of the Entrepreneurial University. *International Journal of Technology and Globalisation*, 1(1), pp. 64–77.
- Etzkowitz, H., & Leydesdorff, L. (2000). The Dynamics of Innovation: From National systems and ‘Mode 2’ to Triple Helix of University–Industry–Government Relations. *Research Policy*, vol. 29, pp. 109–123.
- Etzkowitz, H., & Leydesdorff, L. (eds.). (1997). *Universities in the Global Economy: A Triple Helix of University–Industry–Government Relations*. London: Cassell Academic.
- Etzkowitz, H., & Zhou, C. (2008). Introduction to special issue building the entrepreneurial university: a global perspective. *Science and Public Policy*, 35(9), pp. 627–635.
- Etzkowitz, H., Ranga, M., Benner, M., Gurany, L., Maculan, A. M., & Kneller, R. (2008). Pathways to the Entrepreneurial University. *Science and Public Policy*, 35(9), pp. 681–695.
- European Council. (2000, March 23–24). *Strategic Goal for the European Union to Strengthen Employment, Economic and Social Cohesion as Part of the Knowledge Economy*. Lisbon.
- Fagerberg, J., & M, Srholec. (2008). Innovation and Development? A fresh look at the evidence. Paper presented in the 6th Globelics Conference. Mexico, September 2008. Revised version. In B. A. Lundvall, K. J. Joseph, C. Chimnade, & J. Vang (eds.), *Handbook of Innovation Systems and Developing Countries*. Cheltenham: Edward Elgar.
- Fagerberg, J. & Srholec, M. (2008) National Innovation Systems, Capabilities and Economic Development. *Research Policy*, 37, pp. 1417–1435.
- Fambon, S. (2010). Poverty and growth in Cameroon during the post devaluation period (1996–2001). *Journal of African Studies and Development*, 2(4), pp. 81–98.
- Farley, S., Arnold, E., Bell, M., Ilzuka, M., Kok, E., & Assaf, G. (2007). Innovation Systems in Practice: the relevance of industry in developing countries. Implications for UNIDO and its development partners in Vienna. UNIDO
- Fox, R., & Weiz, G. (1980). Introduction: The institutional basis of French science in the nineteenth century. In R. Fox, & George Weiz (eds), *The organisation of science and technology in France 1808–1914*. Cambridge: Cambridge University Press, pp. 1–28.
- Freeman, C. (1987). Japan, a New System of Innovation. In G. Dosi, C. Freeman, R. Nelson, G. Silverberg, & L. Soete (eds.), *Technical Change and Economic Theory*. London: Pinter Publishers.
- Freeman, C. (1995). The National System of Innovations in Historical Perspective. *Cambridge Journal of Economics*, 19(1).

- Freeman, C., & Perez, C. (1988). Structural Crises of adjustment, business cycles and investment behaviour. In G. Dosi, C. Freeman, R. Nelson, G. Silverberg & L. Soete (eds.), *Technical Change and Economic Theory*. London: Printer.
- Friedman, R. D. (1965). *Poverty: Definition and Perspective*. Washington D.C: American Enterprise Institute.
- Froment, E. (2003). The European Higher Education Area: A New Framework for the Development of Higher Education. *Higher Education in Europe*, 28(1), pp. 27–31.
- Fuller, S. (2005). What Makes Universities Unique? Updating the Ideal for an Entrepreneurial Age. *Higher Education Management and Policy*, vol.3.
- Gaillard, J., & Zink, E. (2003). *Mesia Impact Studies, Scientific Research Capacity in Cameroon: An Assessment of IFS Support*. Stockholm, Sweden. International Foundation for Science.
- Geiger, R. L. (2006). The Quest for Economic Relevance by US Research Universities. *Higher Education Policy*, 19, pp. 411–431.
- Gibb, A., Haskins, G., & Robertson, I. (2009). *Leading the Entrepreneurial University: Meeting the entrepreneurial needs of higher education institutions*. Said Business School, Oxford, National Council for Graduate Entrepreneurship.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The New Production of knowledge: The Dynamics of Science and Research in contemporary Societies*. London: Sage Publications.
- Gioia, D. A. (1991). Sensemaking and Sensegiving in Strategic Change Initiation. *Strategic Management Journal*, 12, pp. 433–448.
- Gjerding, A. N., Wilderom, C. P. M., Cameron, S. P. B., Taylor, A., & Scheunert, K. J. (2006). Twenty Practices of an Entrepreneurial University. *Higher Education Management and Policy*, 8(3), pp. 76–103.
- Glassman, A. M., Moore, E. W., Rossy, G. L., Neupert, K., Napier, N.K., Jones, D. E., & Harvey, A. (2003). Academic Entrepreneurship: Views on Balancing the Acropolis and the Agora. *Journal of Management Inquiry*, 12, pp.253-374.
- Godin, B., & Gingras, Y. (2000). The Place of Universities in the system of knowledge production. *Research Policy*, 29, pp. 273–278.
- Goktepe-Hulten, D. (2008). Academic inventors and research groups: entrepreneurial cultures at universities. *Science and Public Policy*, 35(9), pp. 657–66.
- Gornitzka, Å. (1999). Governmental Policies and Organisational Change. *Higher Education*, 38, pp. 5–29.
- Gornitzka Å., & Maassen, P. (2000). Hybrid Steering Approaches with Respect to European Higher Education. *Higher Education Policy*, 13, 267–285.
- Gornitzka, Å., Kyvik S., & Stensaker, B. (2005). Implementation analysis in higher education. In Å. Gornitzka, M. Kogan, & A. Amaral (eds.), *Reform and Change in Higher Education – Analyzing Policy Implementation*. Springer, pp. 33–56.

- Gornitzka, Å., Stensaker, B., Smedy, J. C., & de Boer, Harry. (2004). Contract Arrangement in the Nordic Countries – Solving the Efficiency/Effectiveness Dilemma. *Higher Education in Europe*, 29(1), pp. 87–101.
- Government of Cameroon (2009). Growth and Employment Strategy Paper for 2010–2020. Cameroon.
- Greenway, D., & Haynes, M. (2003). Funding Higher Education in the UK: the Role of Fees and Loans. *The Economic Journal*. UK: Blackwell Publishing.
- Gu, S. (1999). Implications of the National Innovation System for Developing Countries: Managing Change and Complexity in Economic Development. UNU-INTECH, Maastricht.
- Gumport, P. (2000). Academic Restructuring: Organisational Change and Institutional Imperatives. *Higher Education*, 39, pp. 67–91.
- Gunasekara, C. (2006). Leading the horses to water The dilemmas of academics and university managers in regional engagement. The Australian Sociological Association. *Journal of Sociology*, 42(2), pp. 145–163.
- Hall, P., & Soskice D (eds.). (2001). *Varieties of Capitalism*. Oxford: Oxford University Press.
- Hartog, J. (2000). Over-education and earnings: where are we, where should we go? *Economics of Education Review*, 19, pp. 131–147.
- Hatakenata, S. (2005). *Development of third stream activities: Lessons from International experience*. Higher Education Policy Institute, UK.
- Hazelcorn, E. (2005). *University Research Management: developing research in new institutions*. Paris: OECD.
- Hearn, J. C., & Holdsworth, J. M. (2002). The societally responsive university: Public ideals, organisational realities, and the possibility of engagement. *Tertiary Education and Management*, 8(2), pp. 127–144.
- Hicks, D. M., & Katz, J. (1997). The Changing Shape of British Industrial Research. STEEP Special Report, No. 6. Brighton, UK. Science Policy Research Unit. *Higher Education in Europe*, 27(1–2), pp. 89–99.
- Hirschman, E. C. (1981). Symbolism and technology as sources for the generation of innovations. *Advances in Consumer Research*, 9, pp. 537–541.
- Holland, B.A. (2004, January). *Scholarship and Mission in the 21st Century: The Role of Engagement*. Address to Faculty, University of Washington Tacoma.
- Holland, B. A. (2005, July 5). Scholarship and Mission in the 21st Century: The Role of Engagement, Proceedings, Australian Universities Quality Agency Forum.
- Huisman, J. (1998). Differentiation and diversity in higher education systems. In J. C. Smart (ed.), *Higher Education: Handbook of theory and research*. New York: Agathon Press, pp. XIII, 75–110.
- Human Rights Facts. (2009). What is poverty? Different Definitions of Poverty an attempt to make some order, January 2009.

- Hölttä, S. (2007). Regional Innovation Systems-The Changing Mode and Organisation of Higher Education and Research. Submitted to *Higher education and Regional Development*, (HEMARD) Publication, Krems, Austria.
- Intarakumnerd, P., Chairatana, P., & Tanchitpiboon, T. (2002). National Innovation system in less successful developing countries: The Case of Thailand. *Research Policy*, 31, pp. 1445–1457.
- Jacob, M. & Orsenigo. (2006). Leveraging Science for innovation: *Swedish Policy for University-Industry Collaboration*, 1990–2005.
- Jensen, B. M., Johnson, B., Lorenz, E., & Lundvall, B. (2007). Forms of knowledge and Modes of innovation. *Research Policy*, 36, pp. 680–993.
- Johnson, B., & Lundvall, B. A. (2000). Promoting Innovation Systems as a Response to the Globalising Learning Econom. paper presented at the Seminar “Arranjos e Sistemas Produtivos Locais as Novas Políticas de Desenvolvimento Industrial e Tecnológico”, Rio de Janeiro.
- Johnson, B., & Segura-Bonilla, O. (2001). Innovation Systems and Developing Countries: Experiences from the SUDESCA project. DRUID Working Paper No. 01-12. Alborg: Danish Research Unit for Industrial Dynamics, University of Aalborg.
- Johnstone, D. B. (1986). *Sharing Costs of Higher Education: Student Financial Assistance in the United Kingdom, the Federal Republic of Germany, France, Sweden, and the United States*. New York: College Entrance Examination Board.
- Johnstone, D. B. (2003). Cost-Sharing in Higher Education, Tuition, Financial Assistance and Accessibility in Comparative perspective. *Czech Sociological Review*, Vol. 39, No. 3, pp. 351–274.
- Jongbloed, B. (2000). The funding of Higher Education in developing countries. In Ben, Jongbloed & Hanneke Teekens (eds.), *The financing of Higher Education in Sub-Saharan Africa*, pp. 13–34.
- Jongbloed, B. (2003). Tuition Fees in Europe and Australia: Theory, Trends and Policies. In J. C. Smart (ed.), *Higher Education: Handbook of Theory and Research*, vol. XIX. Dordrecht: Kluwer, in press.
- Jongbloed, B., Enders, J., & Salerno, (2008). Higher Education and its Communities: Interconnectedness, Interdependence and Research Agenda. *Higher Education*, 56(3), pp. 303–324.
- Kahn, R., & Cannell, C. (1957). *The Dynamics of Interviewing*. New York: John Wiley.
- Kalvermark, T. & van Der Wende, M. (1997). *National Policies for Internationalisation of Higher Education in Europe*. Stockholm, National Agency for Higher Education.
- Kantor, R. M. (1983). *The Change Masters: Innovations for Productivity in American Corporations*. New York: Simon Schuster.
- Kelly, K. (1997). New Rules for the New Economy: available at [http://www.wired.com/wired/archive/5.09/newrules_pr.html].
- Knight, J. (2003). Internationalisation of the practices and priorities in higher education. 2003 *IAU Survey Report*. Available at www.unesco.org/iau.

- Kraay, A. (2006). 'When is growth proper? Evidence from a panel of countries.' *Journal of Development Economics*, 80(1), pp. 198–227.
- Kyvik, S. (2004). Structural Changes in Higher Education Systems in Western Europe. *Higher Education in Europe*, 29(3), pp. 393–409.
- Lall, S. (1992). Technological capabilities and industrialization. *World Development*, Vol. 2, Great Britain, Pergamon Press Plc, pp. 165–186.
- Lall, S. (1996). *Learning from the Tigers*. London: Macmillian.
- Laredo, P. (2007). Revising the third mission of universities: towards renewed categorization of university activities. *Higher Education Policy*, 20(4), pp. 441–456.
- Lederman, D., & Maloney (2003). R & D and Development Policy Research Working Paper No. 3024. World Bank.
- Lenoir, René. 1974/1989. *Les Exclus: Un Français sur Dix*. Paris: Editions du Seuil.
- Leydesdorff, L., & Meyer, M. (2003). The Triple Helix of University Government Relations. *Scientometrics*, 58(2), pp. 191–203.
- Leydesdorff, L., & Meyer, M. (2006). Triple Helix of Knowledge based innovation systems Introduction to a Special Issue. *Research Policy*, 35, pp. 1441–1149.
- Leydesdorff, L., & Etzkowitz, H. (1998). The Triple Helix as a model for innovation studies. *Science and Public Policy*, 25(3), pp. 195–203.
- List, F. (1841). *The National System of Political Economy*. English Edition (1904). London: Longman.
- Louis, K. S., Blumenthal, D., Gluck M. E., & Stoto, M. A. (1989). Entrepreneurs in academe: an exploration of behavior among life scientists. *Administrative Science Quarterly*, 34(1), pp. 110–131.
- Lundvall, B. A. (1985). Product innovation and user-producer interaction. *Industrial Development Research Series*, N° 31. Aalborg: Aalborg University Press.
- Lundvall, B. A. (1988). Innovation as an interactive process: from user-producer interactions to the national system of innovation. In G. Dosi, C. Freeman, R. Nelson, G. Silverberg & L. Soete (eds.), *Technical Change and Economic Theory*. London: Pinter, pp. 349–369.
- Lundvall, B. A. (1996). National systems of innovation and input-output analysis. In C. DeBredsson (ed.), *Economic Interdependence and innovative activity*. Cheltenham: Edward Elgar, pp. 356–363.
- Lundvall, B. A. (2000). From Economics of Knowledge to the Learning Economy. Postprint. *Knowledge Management in the Learning Economy*. Paris, OECD.
- Lundvall, B. A. (2002b). The University in the Learning Economy. *DRUID Working Paper No 02-06*.
- Lundvall, B. A. (2006). Knowledge Management in the Learning Economy. DRUID Working Papers 06-06, DRUID, Copenhagen Business School, Department of Industrial Economics and Strategy/Aalborg University, Department of Business Studies.
- Lundvall, B. A., & Borrás, S. (1998). The Globalising Learning Economy: Implications for Innovation Policy, *DG XII-TSER*. Bruxelles: The European Commission.

- Lundvall, B. A., & Johnson, B. (1994). The Learning Economy. *Journal of Industry Studies*, 1(2), pp. 23–42.
- Lundvall, B. A., Johnson, B., Andersen, E. S., & Dalum, B. (2002). National systems of production, innovation and competence building. *Research Policy*, 2, pp. 213–231.
- Lundvall, B. A., Muchie, M., & Gammeltoft, P. (2003). Introduction. In M. Muchie, P. Gammeltoft & B. A. Lundvall (eds.), *Putting Africa First: The Making of African Innovation Systems*. Aalborg, Denmark: Aalborg University Press, pp. 1–28.
- Lundvall, B. A., & Soete, L. (2002). *Innovations and Competence building systems*. Aalborg, Denmark: Department of Business Studies, University of Aalborg.
- Lundvall, B. A. (ed.). (1992). *National Systems of Innovation – Toward a Theory of Innovation and Interactive Learning*. London: Pinter Publishers.
- Lynn, L. H., Reddy, M. N., & Aram, J. D. (1996). Linking technology and institutions: the innovation community framework. *Research Policy*, 25, pp. 91–106.
- Maassen, P. (2003). Shifts in governance arrangements: An interpretation of the introduction of new management structures in higher education. In A. Amaral, L. Meek, & I. M. Larsen (eds.), *The Higher Education Managerial Revolution*. Dordrecht: Kluwer Academic Publishers, pp. 31–55.
- Maassen, P. (2006, October 19–20). The Modernisation of European Higher Education – A Multi-Level Analysis. Paper presented at the Directors’ General Meeting for Higher Education, Helsinki.
- Maassen, P., & Cloete, N. (2002). Global Reform Trends in Higher Education. In Nico Cloete et al. (eds.), *The Transformation of Higher Education. Global Pressures and Local Responses in South Africa*. Dordrecht: Kluwer Academic Publishers, pp. 13–58.
- Maassen, P. & Uppstrom, T. (2004). Internationalization of Higher Education Institutions in Northern Europe after Bologna – Rethinking Nordic Cooperation in Higher Education. NIFU STEP, Oslo, pp. 3–54.
- Maassen, P., & van Vught, F. (1994). Alternative Models of Governmental Steering in Higher Education. An Analysis of Governmental Steering Models and Policy Instruments in Five Countries. In L. Goedegeburre & F. van Vught (eds.), *Comparative Policy Studies in Higher Education*. Utrecht-LEMMA, pp. 35–63.
- Mandjack, A., Folefack, E., Pokam, K., & Ngwe, L. (1995). The role played by universities and their agents in political and educational change in Cameroon. Social Science Research Council, New York.
- Marginson, S., & van der Wende, M. (2007). *Globalization and Higher Education*. Paris: OECD/CERI.
- Markham, Annette N. (2004). Internet Communication as a tool for Qualitative Research. In David Silverman (ed.), *Qualitative Research, Theory Method and Practice*. London, Thousand Oaks, New Delhi: Sage Publications.
- Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research*. Thousand Oaks, CA: Sage Publications.
- Marshall, C., & Rossman, G. (2006). *Designing Qualitative Research* (4th ed.). Thousand Oaks, CA: Sage Publications.

- Martinelli, A., M. Meyer & N. von Tunzelmann (2008). Becoming an entrepreneurial university? A case study of knowledge exchange relationships and faculty attitudes in a medium-sized, research-oriented university. *Journal of Technology Transfer*, 33(3), pp. 259–283.
- Mason, J. (1996). *Qualitative Researching*. London: Sage.
- Mason, J. (2006). Mixing Methods in a Qualitatively-driven way. *Qualitative Research*, 6(1), pp. 9–26.
- Mason, J. (2006b, July). Six Strategies for Mixing Methods and Linking Data in Social Sciences. Working Paper. University of Manchester.
- Mbongo, J., & Ngaling, M. (2007). Challenging inequality in higher education: attitudes of teaching staff and administrators at the University of Buea, Cameroon. *Feminist Africa*, 9, pp. 63–84.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.
- Miettinen, R. (2002). *National Innovation System: Scientific Concept or Political Rhetoric*. Helsinki: Sitra.
- Miettinen, R. (2009). Rhetoric and Practice in Innovation Policy: Lessons from Finland. An unpublished book manuscript. Oslo Summer School, August 2009.
- Mokyr, J. (2008). Institutional Origins of the Industrial Revolution? In Elhanan Helpman (ed.), *Institutions and Economic Performance*. Harvard University Press, pp. 64–119.
- Molas-Gallart, J., & Castro-Martinez, E. (2007). Ambiguity and Conflict in the Development of Third Mission indicators. *Research Evaluation*, 16(4), pp. 321–330.
- Molas-Gallart, J., Salter, A., Patel, P., Scott, A., & Duran, X. (2002). *Measuring Third Mission Activities*. Final Report to the Russell Group of Universities.
- Montesino, P., Carot, J. M., Martinez, J., & Mora, F. (2008). Third mission ranking for world class universities: beyond teaching and research. New dimensions to rank. Preprint. *Higher Education in Europe*, 33(2–3), pp. 259–271.
- Mora, J., & Villa L. (2003). The Economics of Higher Education. In R. Begg (ed.), *The Dialogue between Higher Education Research and Practice*. Kluwer Academic Publishers, pp. 121–134.
- Muchie, M. (2003). Re-thinking Africa's Development through the National Innovation System. In M. Muchie, P. Gammeltoft & B. A. Lundvall (eds.), *Putting Africa First: The Making of African Innovation Systems*. Aalborg: Aalborg University Press, 1–28.
- Muchie, M., Gammeltoft, P. & Lundvall, B. A. (eds.). (2003). *Putting Africa First: The Making of African Innovation Systems*. Aalborg, Denmark: Aalborg University Press.
- Neave, G. (1998). The Evaluative State Reconsidered. *European Journal of Education*, 33, pp. 265–284.
- Neave, G. (2002). The Stakeholder Perspective Historically Explored. In J. Enders & O. Fulton (eds.), *Higher Education in a Globalising World. International Trends and Mutual Observation*. Dordrecht: Kluwer, pp. 1–14.

- Neave, G. (2003). The Bologna Declaration: Some Historic Dilemmas Posed by the Reconstruction of the Community in Europe's Systems of Higher Education. *Educational Policy*, 17(1), pp. 141–64.
- Nelson, R. (1994). What has been the Matter with Neoclassical Growth Theory. In G. Silverberg & Luc Soete (eds.), *The Economics of Growth and Technical Change: Technologies, Nations, Agents*. Aldershot, U.K.: Edward Elgar, pp. 290–324.
- Nelson, R. (2007). The Changing Institutional Requirements for Technological and Economic Catch-up. *International Journal of Technological Learning, Innovation and Development*, 1(1), pp. 4–1.
- Nelson, R., & Rosenberg, N. (1993). Technical innovation and national systems. In R. Nelson (ed.), *National innovation systems: a comparative analysis*. New York, Oxford: Oxford University Press.
- Ngufor, L. F. (2009). Bologna Implementation in Cameroon: Case of the University of Buea. Master's Thesis, University of Oslo, Norway.
- Ngwana, T. A. (2003). University Strategic Planning in Cameroon: What Lessons for Sub-Saharan Africa? *Education Policy Analysis Archives*, 11(47).
- Njeuma, D. L (2003). Cameroon. In D. Teferra & P. G. Altbach (eds.), *Higher Education: An International Reference*. Indiana University Press, 215–223. Available at http://www.bc.edu/bc_org/avp/soe/cihe/inhea/profiles/Cameroon.htm.
- Njeuma et al. (1999). Reforming a National System of Higher Education: The case of Cameroon. ADEA/WGHE World Bank, Washington DC.
- Nji, A. (1981). *Revitalisation of Rural Communities Through Integrated Rural Development*. Buea: Cameroon National Printing Press Annex.
- Nji, A. (2000). Creating a knowledge society through distance and open learning in Cameroon. In A. Sabo, A.O. Indabawa, A. Tai & W. Shirley (eds.), *The state of adult and continuing education in Africa*. Department of Adult and Nonformal Education, Windhoek, Namibia, pp. 65–78.
- Nji, A. (2004). *Why Poor People Remain Poor: Key Elements for Poverty Alleviation and Sustainable Development*. Yaounde: Buma Kor Publishers.
- OECD. (1990). *Financing Higher Education. Current Patterns*. Paris: OECD
- Osborne, D., & Gaebler, T. (1992). *Reinventing Government*. Reading MA: Addison-Wesley.
- Papatsiba, V. (2006). Making Higher Education more attractive through student mobility? Revisiting EU initiatives in the context of the Bologna Process. *Comparative Education*, 42, pp. 93–111.
- Patel, P., & Pavitt, K. (1994). The Nature and Economic Importance of National Innovation Systems. STI Review, No. 14. Paris: OECD.
- Patfield, C. (2004). The impact of the collaborative learning in the engineering learning process. European Society for Engineering Education (SEFI). Annual conference, Valencia. www.cfp.upv.es/sefi2004/keynotes/html.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

- Pavitt, K. (1984). Sectoral Patterns of technical Change: towards a taxonomy and theory. *Research Policy*, 13, pp. 343–373.
- Peters, B. G. (1999). *Institutional Theory: The New Institutionalism*. London: Continuum.
- Peters, B. Guy (2001). Changing States, Governance, and the Public Service. In: B. Guy Peters (ed.), *The Future of Governing* (2nd ed.). Lawrence, Kansas: University of Kansas Press, pp. 1-23.
- Powell, W.W., & Snellman, K. (2004). The knowledge Economy. *Annual Review of Sociology*, 30, pp. 199–220.
- Psacharopoulos, G. (1981). Returns to Education: an updated international comparison. *Comparative Education*, 17,(3), pp. 321–341.
- Psacharopoulos, G. (1985). Returns to Education: a further international update and implications. *Journal of Human Resources*, 20(4), pp. 583–604.
- Psacharopoulos, G. (1994). Returns to Investment in Education: a global update. *World Development*, 22, pp. 1325–1343.
- Psacharopoulos, G., & Woodwall, M. (1985). *Education for Development: An Analysis of Development Choices*. Oxford: The World Bank/Oxford University Press.
- Punch, M. (1986). *The Politics and Ethics of Fieldwork*. Beverly Hills, CA: Sage.
- Punch M. (1994). Politics and Ethics in Field Work. In N. Denzin & Y. Lincoln (eds.), *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage, pp. 83–97.
- Punch, M. (1998). *Introduction to Social Research. Quantitative and Qualitative Approaches*. London: Sage Publication.
- Rabinow, P., & Sullivan, M. (1979). The Interpretive Turn. Emergence of an Approach. In P. Rabinow & W. Sullivan (eds.), *Interpretive Social Science*. Los Angeles: University of California Press, pp. 1–21.
- Ravallion, M. (1997). Can High Inequality Development Countries Escape Absolute Poverty? *Economics Letters*, 56, pp. 51–57.
- Ravallion, M. (2004). Pro-poor Growth: A primer. The World Bank Policy Research Working Paper, No. 3242.
- Ravallion, M., & Datt, G. (2002). Why has Economic Growth Been More Pro-Poor in some States of India than Others? *Journal of Development Economics*, 68(2), pp. 381–400.
- Reinert, E. (2007). *How rich countries got rich and why poor countries stay poor*. New York: Carroll and Graf Publishers.
- Rodrik, D. (2007). *One Economics, Many Recipes: Globalisation, Institutions and Economic Growth*. Princeton, NJ: Princeton University Press.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Romer, P. M. (1986). Increasing Returns and Long Run Growth. *Journal of Political Economy*, 94(5), pp. 1002–1037.
- Romer, P. M. (1993a). Ideas and things: The concept of production is being retooled (The Future Surveyed: 150 Economist Years). *The Economist*, (September 11, 1993), F70(3).

- Romer, P. M. (1993b). Implementing a National Technology Strategy with Self-Organizing Industry Investment Boards. *Brookings Papers on Economic Activity: Microeconomics* 2, p. 345.
- Romer, Paul. (1994). The origins of endogenous growth. *Journal of Economic Perspectives*, 8(1), pp. 3–22.
- Rosenberg, N. (1982). *Inside the Black Box: Technology and Economics*. Cambridge: Cambridge University Press.
- Rossmann, G. B. & Rallis, S. F. (1998). *Learning in the field. An introduction to qualitative research*. Thousand Oaks, CA: Sage.
- Rubin, H. J., & Rubin, I. S. (2005). *Qualitative Interviewing. The Art of Hearing Data*. (2nd ed.). London: Sage Publications.
- Sabato, J. (1975). *El pensamiento Latinoamericano en la problemática ciencia-tecnología-desarrollo-dependencia*. Paidós: Buenos Aires.
- Sabato, J., & Mackenzi, M. (1982). *La producción de Tecnología Autónoma Transnacional*. Nueva Imagen, Mexico.
- Samfoga-Doh, B. T. (2010). *Performance-Based Funding Mechanisms in the Cameroon Higher Education System: Case of the Staff Development Grant at the University of Buea*. Master's Thesis, University of Tampere. Saarbrücken: Lambert Academic Publishing. Available at <http://tutkielmat.uta.fi/pdf/gradu03781.pdf>.
- Sapsed, J., Grantham, A., & De Fillippi, R. (2007). A bridge over troubled waters: bridging organisations and entrepreneurial opportunities in emerging sectors. *Research Policy*, 36, pp. 1314–1334.
- Schultz, T. (1961). Investment in human capital. *American Economic Review*, 51, pp. 1–17.
- Schumpeter, J. (1964). *Business Cycles: A Theoretical, Historical and Statistical Analysis of Capitalist Process*. New York: McGraw-Hill. [1939].
- Schumpeter, J. (1966). *Invention and Economic Growth*. Cambridge, MA: Harvard University Press,
- Schumpeter, J. (1969). *The Theory of Economic Development*. Oxford: Oxford University Press.
- Scott, P. (1998). Massification, Internationalization and Globalization. In P. Scott (ed.), *The globalisation of Higher Education*. Buckingham: SRHE and Open University Press.
- Scott, P. (2003). Changing Players in a Knowledge Society. In G. Bretton & M. Lambert (eds.), *Universities and Globalization, Private Linkages, Public Trust*. Paris: UNESCO, pp. 211–22.
- Scriven, M. (1967). The methodology of evaluation. In R. E. Stake, *Curriculum evaluation*. Chicago: Rand McNally. American Educational Research Association (monograph series on evaluation, no. 1).
- Sen, A. 2000. *Social Exclusion: Concept, Application and Scrutiny*. Manila: ADB.
- Senges, M. (2007). *Knowledge Entrepreneurship in Universities: Practices and Strategy in the case of internet-based innovation*. Doctoral thesis. Universitat Oberta de Catalunya, Barcelona, Spain.
- Shattock, M. (2003). *Managing Successful Universities*. Buckingham: SRHE.

- Shattock, M. (2005). European Universities for Entrepreneurship. Their Role in the Europe of Knowledge: Theoretical Context. *Higher Education Management and Policy*, 17(3).
- Shills, E. & Roberts, J. (2004). The Diffusion of European Models outside Europe. In Walter Ruegg (ed.), *A History of the University in Europe. Vol. III. Universities in the Nineteenth and Early Twentieth Centuries (1800–1945)*. Cambridge: Cambridge University Press, pp. 163–230.
- Silver, H. 1995. Reconceptualizing Social Disadvantage: Three Paradigms of Social Exclusion. In G. Rodgers, C. Gore & J. Figueiredo (eds.), *Social Exclusion: Rhetoric, Reality, Responses*. Geneva: International Institute for Labour Studies.
- Silverman, D. (1993). *Beginning Research. Interpreting Qualitative Data. Methods for Analysing Talk, Text and interaction*. London: Sage Publications.
- Silverman, D. (2000). *Doing Qualitative Research: A practical Handbook*. Thousand Oaks, CA: Sage.
- Silverman, D. (2001). *Beginning Research. Interpreting Qualitative Data. Methods for Analysing Talk, Text and interaction* (2nd ed.). London: Sage Publications.
- Silverman, D. (2004). (ed.). *Qualitative Research: Theory, Method, Practice* (2nd ed). London: Sage Publications.
- Silverman, D. (2005). (ed.). *Doing Qualitative Research: A Practical Handbook*. London: Sage Publications.
- Slaughter, S., & Leslie, L. L. (1997). *Academic Capitalism, politics, policies and the Entrepreneurial University*. Baltimore, London: The John Hopkins University Press.
- Smeby, J. (1998). “Knowledge Production and Knowledge Transmission. The interaction between Research and Teaching at Universities”. *Teaching in Higher Education*, (3), pp. 5–20.
- Solow, R. (1956). A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics*, 70, pp. 65–94.
- Stiglitz, J. E. (1975). The Theory of ‘Screening’ Education and the Distribution of Income. *American Economic Review*, 65, pp. 283–300.
- Strohmeier, G. (2007). The Role of Universities in Human Resource Building for Regional Development: Cross-border co-operation between Austria and Hungary. Submitted to *Higher education and Regional Development*, (HEMARD) Publication, Krems, Austria.
- Szog, A., Cummings, & Chimnade, A. (2009). Building systems of innovation system in less developed countries: The Role of intermediate organisations. CIRCLE.
- Szogs, A. (2008). The Role of Mediator Organisations in the making of innovation systems in Least Developing Countries: Evidence from Tanzania. Postprint. *International Journal of Technology and Globalisation*, 4(3), pp. 223-237.
- Tanga, P. T., & Stears, L. H. (2004). Recruitment of international students into Cameroon tertiary institutions in the absence of international offices. In J. van der Elst & C. C. Wolhuter (eds.), *Internationalization and human resource development in the African Union: challenges for the tertiary education sector*. North-West University, North West Province, South Africa: PUKKE Publications, pp. 296–301.

- Tchombe, T. M. (2001). Structural Reforms in Education in Cameroon. Unpublished policy paper.
- Teixeira, P. (ed.) (2003). Special Issue on Market Mechanisms in Higher Education. *Higher Education Quarterly*, 57(2).
- Teixeira, P., Johnstone, B. D., Vossensteyn, H., & Maria, J. R. (2006). Conclusion. In P. Teixeira, B.D. Johnstone, H. Vossensteyn & J. R.Maria (eds.), *Cost-Sharing and Accessibility in Higher education. A fairer Deal?* Dordrecht: Springer.
- Teixeira, P., Jongbloed, B., Dill, D., & Amaral, A. (2004). *Markets in Higher Education: Rhetoric or Reality?* Dordrecht: Kluwer Academic Publishers.
- Thorn, K., & Soo, M. (2006). Latin American Universities and the third mission, Trends, Challenges and Policy Options. World Bank Policy Research Working Paper.
- Trow, M. (1970). Reflections on the Transition from Mass to Universal Higher Education. *Journal of the American Academy of Arts and Sciences*, 90(1), pp. 1–42.
- Trow, M. (1974). Problems in the Transition from Elite to Mass Higher Education. In: *OECD, Policies for Higher Education: General Report on the Conference on Future structures of Post-secondary Education*. Paris: OECD.
- UNCTAD. (2007). *The Least Developed Countries Report 2007: Knowledge, Technological Learning and Innovation for Development*. United Nations publication. Sales No. E.07.II.D.8. New York and Geneva.
- van der Wende, M. (2000). The Bologna Declaration: Enhancing the Transparency and Competitiveness of European Higher Education. *Higher Education in Europe*, 25(3), pp. 305–310.
- Varghese, N.V. (2004). Private Higher Education in Africa. IIE, UNESCO. Paris.
- Vincent, Lacin S. (2006). What is changing in academic research? Trends and future scenarios. *European Journal of Education*, 41(2), pp. 169–202.
- Viotti, E. B. (2002). National Learning Systems: A new approach on technological change in late industrialising economies and evidences from the cases of Brazil and South Korea. *Technological Forecasting and Social Change*, 69(7), pp. 653–680.
- Weerts, D. J. (2007). Towards and Engagement Model of Institutional Advancement at Public Colleges and Universities. *International Journal of Educational Advancement*, 7(2).
- Weick, K. E. (1995). *Sensemaking in organisations*. Thousand Oaks, CA: Sage.
- Weiss, A. (1995). Human Capital vs Signalling Explanation of Wages. I Journal of Economic perspectives. *A journal of American Economic Association*, 9(4), pp. 133–155.
- Williams, G., & Kitaev, I. (2005). Overview of National Policy Contexts for Entrepreneurship in Higher Education Institutions. *Higher Education Management and Policy*, 17(3).
- Wittrock, B. (1993). The Modern University: The Three Transformation In Sheldon Rothblatt & Bjorn Wittrock (eds.), *The European University since 1800. Historical and Sociological Essays*. Cambridge: Cambridge University Press, pp. 303–3629.
- Wolfe, B. L., & Haveman (2001). Accounting for the Social and non-market benefits of education. In John Helliwell (ed.), *The Contribution of Human and Social Capital to Sustained Economic Growth and Well Being*. Paris: OECD.

- Wolpert, J. D. (2002). Breaking out of the innovation box. *Harvard Business Review*, 77–83.
- World Bank. (1992). *Poverty Reduction Handbook*. Washington, D.C.
- World Bank. (2000). *Taskforce on Higher Education and Society. Higher Education in Developing Countries. Perils and Promise*. Washington D.C: The World Bank.
- World Bank. (2002). *Constructing Knowledge Societies: New Challenges for Tertiary Education*. Washington DC: IBRD/World Bank.
- World Bank. (2006). *Plan of action 2006–2008*. Washington D.C.
- World Bank. (2009). Knowledge Economy Index for 2009. Available at: http://info.worldbank.org/etools/kam2/kam_page5.asp. Accessed 14.01.2011.
- World Bank. (2009). *Accelerating Catch-up: tertiary education for growth in Sub-Saharan Africa*. Washington, D.C.: The World Bank.
- World Bank. (2011). Time for the Lion to Wake Up: An Economic Update on Cameroon with Focus on Telecoms. I issue No. 1. January 2011. Poverty Reduction and Management Unit/The World Bank, Africa Region.
- Yin, R. K. (2003). *Case Study Research: Design and Methods*. Thousand Oaks, California: Sage Publication.
- Yuh, T. (2009). Government regulatory framework and University Management. The case of the University of Buea. Master thesis, University of Oslo, Norway.
- Zhou, C. (2008). Emergence of the Entrepreneurial University in the Triple Helix. *Journal of Technology Management in China*, 3(1), pp. 109–126.
- Zhou, C. & Peng, X. (2008). The Entrepreneurial University in China: non linear paths. *Science and Public Policy*, 35(9), pp. 637–646.

Official Documents

- Arrêté n° 03/0050/MINESUP/DDES of 30 July 2003 to stipulate recruitment and promotion criteria for the higher education teaching corps in Cameroon.
- Arrêté n° 066/CAB/PM of 8 April 2004 stating the modalities for the implementation of the Support Programme to the Educational Sector. Ministry of Higher Education, Yaoundé, Cameroon.
- Arrêté no. 10/0393 of 16 November 2010 to provide a framework and conditions for accreditation of professional and technological training in the Cameroonian State Universities.
- Cameroon. (1996) – Enquête Camerounaise Auprès des Ménages II (ECAM 2), Institut National de la Statistique.
- Cameroon. (2001) – Enquête Camerounaise Auprès des Ménages II (ECAM 2), Institut National de la Statistique.
- Decision N° 18070015/ MINESUP/SG/IA4 of 25 January 2007 to institute the Operational Cell of the Support Programme to the Educational Sector.
- Decree No. 93/026 of 19 January 1993 Creating the State Universities in Cameroon.

- Decree No. 93/027 of 19 January 1993 providing common guidelines on the operations of the State Universities in Cameroon.
- Decree No. 2005/383 of 17 October 2005 to define guidelines on financial management of the Cameroonian State Universities.
- Decree No. 2007/317 of 04 November 2007 to appoint Deputy Vice-Chancellors and Vice-Rectors of Cameroonian State Universities.
- Decree No. 2009/121 of 8 April 2009 to create a special fund for the modernisation of research in Cameroonian State Universities.
- GICAM. (2010). Rapport Moral du Président: 110eme Assemblée Générale du GICAM, 17 Décembre 2010, Douala, Immeuble Siege.
- Government of Cameroon. (2003). Poverty Reduction Strategy Paper. Third Annual Progress Report, IMF, Washington DC.
- Government of Cameroon. (2006). Poverty Reduction Strategy Paper. Third Annual Progress Report, IMF, Washington DC.
- Government of Cameroon. (2009). Growth and Employment Strategy Paper for 2010–2020. Cameroon
- IMF. (2003) Cameroon: Poverty Reduction Strategy Paper. Country Report No. No.03/249 August 2003. IMF, Washington D.C.
- IMF. (2006). Cameroon: Poverty Reduction Strategy Paper Third Annual Progress Report, No. 06/260, July 2003. IMF, Washington DC.
- Law No. 005 of 16 April 2001 on the Orientation of Higher Education, Cameroon
- Law No. 2005/342 of 10 September 2005 to modify and complete certain dispositions of Decree No. 93/027 of 19 January 1993 to define common conditions for the operation of Universities in Cameroon.
- Libreville Communiqué. (2005) Declaration of Heads of State of the CEMAC Zone on the creation of a Research, Higher and Profession Education Area, 11 February 2005, Libreville, Gabon.
- MINEPAT. (2009). Population and Housing Census for Cameroon. Yaoundé, Cameroon.
- MINESUP. (2004). Statistical Year Book of Higher Education in Cameroon.
- MINESUP. (2007). Statistical Year Book of Higher Education in Cameroon
- MINESUP. (2009). Operational Strategy of the New University Governance Policy, a New Vision for the Cameroonian University-2020 Horizon. Ministry of Higher Education, Yaoundé , Cameroon.
- MINESUP. (2010). Partnership Charter Between University and the Industry. MINESUP, 20 December 2010, Yaoundé, Cameroon.
- MINESUP. (2010). Sectoral Policy Document (For Higher Education) in Cameroon. Unpublished. Obtained in November 2010.
- Ministerial Circular No. 05/0005 of 17 October on the functioning of the State Universities in Cameroon
- Ministry of Education, Finland. The 2009 University Act. 16 June 2009, Finland.

- Ministry of Foreign Affairs. (2007). Development policy programme 2007 – Towards a Sustainable and Just World Community, Finland.
- National Institute of Statistics. (2002a). Evolution de la pauvreté au Cameroun entre 1996 et 2001, Rapport, Yaoundé
- National Institute of Statistics. (2002b). Deuxième Enquête Camerounaise auprès des ménages. Document de Methodologie, tome 4. Calculs du seuil de pauvreté et indicateur de niveau de vie. Yaoundé
- NEPAD. (2001). The New Partnership for Africa's Development, NEPAD. October 2001. United Nation's Copy, Available at www.un.org/africa/osaa/.../nepadEngversion.pdf.
- Presidency of the Republic of Cameroon. (2007). Head of State's Message to the Youth. 10 February 2007. Available at www.prc.cm. Accessed on 18.09.2010.
- Science and Technology Policy Council of Finland. (1990). Guidelines for Science and Technology Policy. Helsinki, Government Printing Centre.
- SUP INFOS. (2010a). A Bilingual Quarter Review of Higher Education in Cameroon. No. 13, MINESUP Yaoundé, Cameroon.
- SUP INFOS. (2010b). A Bilingual Quarter Review of Higher Education in Cameroon. No. 14, MINESUP Yaoundé, Cameroon.
- SUP INFOS. (2010c). A Bilingual Quarter Review of Higher Education in Cameroon. No. 16, MINESUP Yaoundé, Cameroon.
- SUP INFOS. (2010). A Quarterly Bilingual Review of the Higher Education in Cameroon, No. 14, MINESUP Yaoundé, Cameroon.
- The BUN. (2007). Buea University Newsletter. University of Buea, Vol. 10. Buea Cameroon.
- UB (2008). The University of Buea Strategic Plan 2007-2015. University of Buea, Cameroon.
- UNDP. (2000). Millennium Development Goals. Available at beta.undp.org/undp/en/home/mdgoverview.html.
- UNDP. (2010). Cameroon: Country profile of human development indicators. Available at: <http://hdrstats.undp.org/en/countries/profiles/CMR.html>.
- UNESCO. (1998). World Declaration on higher education in the twenty-first Century. A Framework for priority Action and Change and Development in Higher Education. Paris, UNESCO.
- UNESCO. (2000). Education for All. Paris, UNESCO.
- UNESCO. (2009). Situation of the Higher Education in Sub-Saharan Africa. Institute of Statistics, Paris, UNESCO.
- United Nations. (1995). Report of the World Summit for Social Development of 6–12 March 1995. Copenhagen, Denmark.
- United Nations Population Fund. (2009). Population and Housing Census in 2009. UNDP
- University of Buea. (2007). Research Partnership Agreement between the University of Buea, Cameroon and the Cameroon Development Corporation, Cameroon.
- University of Buea. (2007). Research Policy and Management Guide 2007–2012. University of Buea, Cameroon

- University of Buea. (2008). Memorandum of Understanding between the National Forestry Development Agency (ANAFOR) and the University of Buea, October 2008. Buea, University of Buea
- University of Buea. (2010). "Budget Estimates for 2010" of the University of Buea.
- University of Douala. (2010). Rapport Bilan de l'Université de Douala, 2009-2010. University of Douala.
- University of Yaoundé I. (2010). First University Magazine: A Bilingual Review of the University of Yaoundé I. University of Yaoundé I, No.009.

Mentioned Websites

- Ministry of Higher Education/Ministère d'Enseignement Supérieur, Cameroon: www.minesup.gov.cm.
- Mission of the SBIR/SBTT, <http://archive.sba.gov/aboutsba/sbaprograms/sbir/index.html>. Accessed 03.08.2001 .

Appendix 1. Request letters for authorisation

**Johtamistieteiden laitos
Tampereen yliopisto**



TAMPEREEN
YLIOPISTO

**Department of Management Studies
University of Tampere**



HEG
Higher Education Group

His Excellency the Minister of Higher Education,
Cameroon.

Sir,

Subject: Research on Policies and Management of Higher Education in Cameroon.

It gives me immense pleasure to contact you on the above subject. We are of the Higher Education Group of the Department of Management Studies, University of Tampere, Finland. Our institute has as its main missions to do teaching, research and consultancy on various management practices and policies in higher education and universities. Given that Cameroon is one of the few African countries that highlighted the use of its higher education in its Poverty Reduction Strategy Papers, it has been of interest to us to understand the perceptions of the policy makers. The above study would be qualitative involving interviews and document reviews and would be conducted by our Cameroonian researcher, Pascal Doh, for data required for his doctoral dissertation. The interviews and document reviews aim at retaining Policy makers' perceptions on:

1. The role of Cameroonian Higher Education in the poverty reduction strategies
2. The role of Cameroonian Higher Education in the evolution of its knowledge society and knowledge based economic development.
3. System and institutional perceptions on university third mission, University Entrepreneurialism and university-industry relationship and strategies.

Our target respondents are staff at the conceptual level of the Cameroon system, the Ministry of Higher Education and of the central administration of some of the 7 State Universities and of poverty or economic related policy projects in the ministry or universities. Considering that our researcher is a bilingual Cameroonian, the interviews would be conducted in French and English and will take about four or five weeks. On grounds of the interest we and the higher education research community attach to the relevance of such research projects in current international development agendas, we would appreciate if you would kindly authorise and provide the necessary assistance to enable Mr Doh undertake the research.

Sincerely

Head of Unit (Project Supervisor)
Higher Education Group
Department of Management Studies
University of Tampere, Finland.

Postiosoite: 33014 TAMPEREEN YLIOPISTO
Käyntiosoite: Kanslerinrinne 1, 33100 Tampere

Puh. Vaihde 358 3 3551 11 ♦ Fax. 358 3 3551 6020 ♦ Sähköposti: johtamistieteiden.laitos@uta.fi

PASCAL SAMFOGA DOH

**Johtamistieteiden laitos
Tampereen yliopisto**



**Department of Management Studies
University of Tampere**



The Chairperson of the Rectors' Conference & Rector
University of Douala
Cameroon.

Sir,

Subject: Research on Policies and Management of Universities in Cameroon.

It gives me immense pleasure to contact you on the above subject. We are of the Higher Education Group of the Department of Management Studies, University of Tampere, Finland. Our institute has as its main missions to do teaching, research and consultancy on various management practices and policies in higher Education and universities. We would like to undertake a qualitative study involving interviews and document reviews at your University. The study would be conducted by our Cameroonian researcher, Pascal Doh for data required for his doctoral dissertation. The interviews and document reviews would centre around the university's perceptions on the following related topics:

1. The role of the university in the poverty reduction policy (strategies, challenges & perspectives).
2. The role of the university in the evolution of its knowledge society and knowledge based economic development in Cameroon.
3. University third mission, Entrepreneurialism and university-industry relationship and strategies.
4. Accompanying cultural, curricular, structural and infrastructural transformation to drive No.1-3 (Poverty reduction, knowledge economy, third mission, entrepreneurialism, university-industry interactions).

Our target respondents are officials at the conceptual level of the university and academic blocs and related projects. Considering that our researcher is a bilingual Cameroonian, the interviews would be conducted in French and English and will take about four or five weeks. On grounds of the interest we and the higher education research community attach to the relevance of such a research project in current international development agendas, we would appreciate if you would kindly provide the necessary assistance to enable Mr Doh undertake the research.

Sincerely,

Head of Unit (Project Supervisor)
Higher Education Group
Department of Management Studies
University of Tampere, Finland.

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Käyntiosoite: Kanslerinrinne 1, 33100 Tampere
Puh. Vaihde 358 3 3551 11 ♦ Fax. 358 3 3551 6020 ♦ Sähköposti: johtamistieteiden.laitos@uta.fi*

**Johtamistieteiden laitos
Tampereen yliopisto**



**Department of Management Studies
University of Tampere**



The Vice-Chancellor
University of Buea
Cameroon.

Sir,

Subject: **Research on Policies and Management of Universities in Cameroon.**

It gives me immense pleasure to contact you on the above subject. We are of the Higher Education Group of the Department of Management Studies, University of Tampere, Finland. Our institute has as its main missions to do teaching, research and consultancy on various management practices and policies in higher Education and universities. We would like to undertake a qualitative study involving interviews and document reviews at your University. The study would be conducted by our Cameroonian researcher, Pascal Doh for data required for his doctoral dissertation. The interviews and document reviews would centre around the university's perceptions on the following related topics:

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Higher Education Group
Department of Management Studies
University of Tampere, Finland.

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PASCAL SAMFOGA DOH

**Johtamistieteiden laitos
Tampereen yliopisto**



**Department of Management Studies
University of Tampere**



The Rector
University of Yaounde I.
Cameroon.

Sir,

Subject: Research on Policies and Management of Universities in Cameroon.

It gives me immense pleasure to contact you on the above subject. We are of the Higher Education Group of the Department of Management Studies, University of Tampere, Finland. Our institute has as its main missions to do teaching, research and consultancy on various management practices and policies in higher Education and universities. We would like to undertake a qualitative study involving interviews and document reviews at your University. The study would be conducted by our Cameroonian researcher, Pascal Doh for data required for his doctoral dissertation. The interviews and document reviews would centre around the university's perceptions on the following related topics:

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Sincerely,

Head of Unit (Project Supervisor)
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Appendix 2. Requests for interview

Dear Sir/Madam,

Subject: Request for Interview

My Name is Pascal Samfoga Doh. I am a Cameroonian Researcher in the Higher Education Group of the Department of Management Studies, University of Tampere, Finland. As part of my doctoral research, I will like to discuss with you about the support cultures and structures towards a more entrepreneurial university unit in Cameroon. My operational definition of entrepreneurialism here is in two facets: 1. Interaction with non-academic socio-economic actors (the societal relevance of your activities) and state of linkages. 2. Your/the ability of your institute to generate income from non-government sources. You may, at any moment, choose to respond as an official or in your capacity as a scientist/researcher. Also, you may reflect on the Cameroonian landscape with reference to your experience on practices in other countries.

Sincerely,

The Researcher

2b. (French version)

Cher (e) Monsieur / Madame,

Objet: Demande d'interview

Je m'appelle Pascal Samfoga Doh. Je suis chercheur camerounais au Higher Education Group (HEG) du Département de Gestion de l'Université de Tampere, Finlande. Je suis en train de collecter les données dans le cadre de mes recherches doctorales. Je voudrais avoir un entretien avec vous dans le but d'avoir votre point de vue sur le sujet de cultures et structures d'appui, la gouvernance et les motivations propice pouvant soutenir une culture d'entrepreneuriat universitaire au Cameroun avec l'exemple de votre groupe, unité de formation ou de recherche. Cette entrepreneuriat universitaire selon mon cadre théorique impliquerait l'augmentation de la capacité d'interaction avec d'autres intervenants non universitaires, les autres acteurs socio-économiques, la culture du risque et d'investissement, l'esprit vers l'initiative rentable et la capacité d'attirer les ressources non-gouvernementales. Vous avez le choix de répondre en votre qualité de chercheur / chercheuse ou officiellement comme responsable d'une unité de recherche. En outre, vous pouvez faire une réflexion sur le paysage camerounais en référence à votre expérience sur les pratiques dans d'autres pays. Vos propos seront recueillis et gardés sous anonymat.

Cordialement

Le Chercheur

Appendix 3: Interview guide

Background: For Researcher's Personal Use.

Please Provide the information about the following (by marking x and/or stating).

a. **Gender**

b. **Current/Formal Position**

- i. Ministry Official Post
- ii. Former Ministry official Post held.....
- iii. University Administrator/Manager Pos
- iv. Former University Administrator/Manager Post held.....
- v. Other (s) (please state.....)
- vi. Several (in Ministry &or University) (Please State.....)

c. **Profession**

- i. University Lecturer/Professor
- ii. Ministry Administrator/Manager
- iii. University Administrator
- iv. Ministry Project Coordinator
- v. Researcher/Scientist
- vi. Scientific/Research Project Coordinator
- vii. Principal Investigator
- viii. Consultant
- ix. Several of the above (please state
- x. Other (Please State)

If a current or former University Professor, Researcher/Project Coordinators or Principal Investigator:

- xi. Specialty or discipline.....
- xii. Unit.....
- xiii. Department.....
- xiv. Faculty.....
- xv. Other affiliations.....

Summary: (For Central Administration of the system and Universities).

We would assume that today, economies have moved from “resource” to being dominantly “knowledge-based”. Most successful and competitive economies nowadays are dependent on the production, application and management of knowledge- the supply, transfer and introduction of knowledge into economies. Knowledge is a territory of higher education. As a knowledge system and institution, higher education and universities have more impetus in the process. The roles and expectations from higher education have increased as well as the necessity for their commensurate adjustment to keep pace. This interview examines current efforts and perspectives in the “knowledge economy processes”. It explores the current state of

the interaction between higher education, the university and economic sectors in Cameroon, also in terms of poverty reduction and how the interactions can be reinforced.

3a: Interview with Staff of Central Administration (Ministry)

Questions:

1. Given that Cameroon is one of the few African countries that emphasized the use of its higher education in its Poverty Reduction Strategy Papers, what were and are your perspectives and perceptions in this direction?
 - b. How could that be made possible? (Higher education & poverty reduction?)
 - c. What were and have been the strategies?
 - d. What are the strengths and weaknesses of the related processes and strategies?
2. How do you perceive or define knowledge-based economy with regard to the role of higher education in Cameroon?
3. What are the prospects and challenges for an efficient marriage of the higher education and economic growth policies?
4. It can be observed that within the last decade, so many programmes (with professional and technological components) have been introduced into the curriculum in Cameroon. There has been a recent syllabus review/overhaul as well as changes in missions (teaching and research) and funding
 - a. What are the theoretical explanations for the new designs and
 - b. The links to economic growth policies and the knowledge society
5. How are the other sectors of the national system in Cameroon connected to its higher education and vice-versa (S & T, R & D, innovation, employment, the labour market, social, agricultural and industrial policies etc.)?
6. How would the integration of higher education in economic policies benefit the poor?
7. In one of the Poverty Reduction Strategy Papers, it is stated that Cameroon aims at stepping up the budget of its higher education from 3.8 per cent to 5.8 per cent. What is that budget increase necessary for and how would it reduce poverty?
8. How have the funding perspectives and allocations for higher education changed with respect the evolution of knowledge societies and knowledge-based economic development? What are the priority areas?
 - b. What about in relation to the missions Research, Teaching, Service Function?
9. How have the third mission, university entrepreneurialism and university-industry relationship been designed at the policy level with respect to the poverty reduction policies and the evolution to knowledge based society and economies?
10. What measures are being made or should be made to localise or make higher education more adaptable to the Cameroonian context?

11. What structural reforms have been carried out or would be needed to enable the higher education system perform a more efficient role in knowledge based economic growth?
12. What about changes in Governance?- university-government relationship, distribution of roles, perhaps autonomy?
13. What measures are being taken at the policy level to incentivise and induce cultural change in Cameroon with regard to the evolution to knowledge-based societies or economy?
14. What is the nature of international collaboration with regard to the development of knowledge based society and economic development in Cameroon?
 - b. Any practical examples?

3b: Interview with Staff of Central Administration of the University

General Question

1. What is the university's perspective and position on its role in socio-economic development and in the evolution of knowledge-based economy and in Cameroon?
2. How are the roles changing in recent years with reference to the discourse on knowledge based societies or knowledge based economic development?
3. How are such changes reflected in the missions, roles and functions of the university as well as their funding in terms of?
 - a. Teaching/Curriculum alignment
 - b. Research
 - c. Service function
 - d. Basic Research
 - e. Applied Research
 - f. Disciplinarity/Transdisciplinarity/Interdisciplinarity
 - g. Technology Transfer
 - h. Life-Long Learning
 - i. University-industry linkages
 - j. Formation and knowledge Production function
4. How are your university's activities connected to other related sectors of the national economy (S & T, R & D, innovation, employment, labour market, Social, Agricultural and industrial policies)? b. How can they be efficiently connected?

University Entrepreneurialism/Third Mission:

“University Entrepreneurialism” would be operationised as: a more immediate interaction between the University and the society, activities with its external environment that generate non-government in income, university's investments and risk-taking, commercialisation, patenting etc.). *“Third mission”* would be operationalised as “generation, use and application of knowledge and other capabilities for non academic purposes” with the university's external environment. How does this take place in your university?

5. How does your university define university entrepreneurialism and third mission?
 - b) What is the current state of entrepreneurialism and third mission of your University?
 - c) Who is steering them: the University Administration, the (Ministry), industries, the academics themselves?
6. What are the current cultural, structural and infrastructural transformations to encourage and incentivise university entrepreneurialism and third mission or to assist academics?
7. What factors influence entrepreneurial and third stream activities in your university?
8. What are the challenges about university entrepreneurialism and third mission activities in your university?
 - b) How can they be improved?
9. How do the University's activities benefit various segments of the Cameroonian society?: the poor, other stakeholders and the university participants?
10. In one of the Poverty Reduction Strategy Papers, it is stated that Cameroon aims at stepping up the budget of its higher education from 3.8 per cent to 5.8 per cent. Given sufficient budget for the university to meet most of its ambitions, what will your university do? Perhaps in terms of poverty alleviation and increasing its contribution in immediate socio-economic development?
 - a. What role does funding play in the efficiency of the university in its missions?
 - b. What are the challenges in terms of funding, its allocation mechanisms and how can they be improved?
 - c. Which non-government sources can you identify for your university?

3c: Interview with Individual Academics, Scientists and Researchers, Principal Investigators of Projects:

Background (Please Provide information about the appropriate category below:

- a. Position in:
 - i. Research Unit.....
 - ii. Research Group/Principal Investigator.....
 - iii. University Lecturer/Scientist/Researcher
- b. Specialty or discipline/Faculty.....

Questions

1. What status/reputation would you personally want to reserve for your institute?
2. How would you define the following with reference to the missions and activities of your unit/research group?:
 - i. Direct Socio-economic development/Poverty alleviation.
 - ii. Knowledge economic development.
 - iii. Entrepreneurialism as above.
 - iv. Third Mission (beyond teaching and research).

3. What is the state of the interaction between your unit and socio-economic actors (industries and other development agents; a more societal relevance and attachments of your activities?
4. What is the current state of the ability of your unit to generate non-government income?
5. What is the state of administrative, governance, cultural and structural support received by you/your institute to generate more societal relevance of the activities?
 - a. University administration (Steering)
 - b. Bridging (linking and mediating) Structures for knowledge transfer activities with other actors (also internally for interdisciplinarity, mode 2 and transdisciplinarity).
 - c. Strategic Planning.
 - c. Funding and the allocation system and mechanisms.
 - d. Autonomy/Freedom.
 - e. Intellectual Property Regime.
 - f. Regulations.
6. What are the cultural, structural, governance and financial challenges with regard to university system in Cameroon for achieving a greater societal relevance your unit?
 - a. What facility and advantages are already in place and what perspectives for greater achievements?
7. What are the sources of the government and non-government income do you receive for your projects and activities?
 - a. How sustainable? What structures?
 - b. What suggestion would you like to make in terms of sources and of the allocation mechanism to speed up the societal relevance of your unit in particular and of the HE system?
8. How do your activities fit within the ambit of socio-economic development and poverty reduction in Cameroon?
9. In one of the Poverty Reduction Strategy Papers, it is stated that Cameroon aims at stepping up its budget. Given sufficient finance, a special status and more attention to the relevance of the activities of your unit, what is your unit capable of doing to reduce poverty and its contribution to the knowledge based socio-economic development in Cameroon?

Appendix 4. (French Version)

4a. Résumé for Staff of the Central Administration, Ministry and Universities

De nos jours, l'on suppose que les économies des sociétés les plus industrialisées, émergentes ou visant être ainsi se basent beaucoup plus sur la 'connaissance' que sur les 'ressources' comme était le cas auparavant. L'introduction de la connaissance dans les économies et sur l'utilisation des ressources rend plus efficace, performante et rentable les économies. Etant un système et institution de connaissance, l'enseignement supérieur (ES) et les universités ont un appui important dans le processus. La 'connaissance' et le 'savoir' deviennent ainsi un fondement majeur pour la croissance durable. La plupart des économies compétitives aujourd'hui dépendent sur la production, l'application et la gestion de la connaissance-la connaissance étant un territoire et compétence de l'enseignement supérieur et vice versa. Le rôle de l'ES dans l'économie et la société de la connaissance devient beaucoup plus important. Nous présumons que le matériel principal que l'ES et ses institutions peuvent confortablement offrir dans l'économie ou une stratégie de lutte contre la pauvreté et la transition vers une économie et société de la connaissance, comme d'ailleurs une troisième mission, est la 'connaissance'. Cela implique une transformation des formes, programmes, cultures, infrastructures, les structures ou augmenter la production et l'utilisation de la connaissance. Cela suggère aussi un examen des voies et moyens pour que l'ES/Université joue un rôle beaucoup plus efficace dans la société de la connaissance. Nous constatons que beaucoup des efforts ont été consentis en cet effet au Cameroun, ces dernières années.

4b. Staff of Ministry

Questions générales

1. Etant donné que le Cameroun est l'un des rares pays africains qui ont mis l'accent sur l'utilisation de son ES dans ses documents de stratégie de réduction de la pauvreté (DSRP) ainsi que le récent document- le Document de Stratégie pour la Croissance et l'Emploi (DOCE), quels sont vos points de vue dans ce sens?
 - a. Comment cela pourrait-il être possible; L'enseignement supérieur (ES) dans la réduction de la pauvreté?
 - b. Quelles sont les stratégies et visions en cours?
 - c. Quelles sont les forces et les faiblesses de l'utilisation d'ES dans les stratégies en cours?
2. Comment contextualisez-vous la définition de l'économie et la société de connaissance par rapport au rôle de l'ES au Cameroun?
3. Quelles sont les perspectives et défis pour un mariage efficace entre l'ES et les politiques de croissance économique au Cameroun?

4. On peut observer qu'au cours de la dernière décennie, surtout dans ce dernier demi-décennie, beaucoup des filières visant à adapter L'ES Camerounais ont été introduites dans les programmes universitaires. Il s'agit par exemple l'appui aux filières technologiques et la professionnalisation ainsi que les changements dans les missions (formation et recherche) et leur financement.
 - a. Quelles sont les explications théoriques pour ces récentes démarches et
 - b. Leur liens avec l'économie et la société de la connaissance Camerounaise?
5. Comment d'autres secteurs nationaux sont-il connecté à son ES et vice-versa (Science & Technologie, Recherche & le Développement, l'innovation, l'emploi, le marché du travail, le sociale, agricoles et industriels).
6. Comment le renforcement de l'ES et une plus grande intégration dans les politiques de la croissance économiques peuvent favoriser les pauvres?
7. Dans l'un des DSRP, il est mentionnées que le Cameroun vise à accroître le budget de son ES de 3,8 per cent à 5,8 per cent. Pour quelles raisons par rapport à la réduction de la pauvreté et la société et l'économie de la connaissance? Pourquoi cette augmentation?
8. Comment les perspectives de financement et d'allocations pour l'ES se changent en ce qui concerne l'évolution vers la société et l'économie de la connaissance au Cameroun. Quels sont les domaines prioritaires?
 - b. Comment affecte-il les différentes missions de l'ES, la formation, la recherche et le Service.
9. Comment la troisième mission, le service, l'entrepreneuriat universitaire et la relation université-industrie sont conçus au niveau politique par rapport aux politiques de réduction de la pauvreté et de l'évolution vers la société de l'économie de connaissance?
10. Quelles mesures sont prises ou devraient être faits pour localiser ou mieux adapter l'ES au contexte camerounais?
11. Quelles réformes structurelles et culturelle se réalisent ou seraient nécessaires pour permettre au système d'ES Camerounais de jouer un rôle plus efficace dans l'évolution de la société et l'économie de connaissance
12. Quels sont les changements sur la gouvernance universitaire visant a accompli ses tâches? Les relations institutionnelles: Ministère (gouvernement) – université, l'autonomie, redistributions des rôles etc.
13. Quelle est la nature de la collaboration internationale en ce qui concerne le développement d'une société et l'économie de la connaissance au Cameroun? Exemples?

4c. Staff of Central Administration of Universities (In French)

Questions générales

1. Quelle est la position et les perspectives de votre université par rapport au rôle de l'université dans le développement socio-économique et l'évolution vers la société et l'économie de la connaissance au Cameroun? Y compris, la réduction de la pauvreté?
2. Comment ces rôles et leur financement se changent-ils ces dernières années par rapport à l'évolution vers une société et l'économie de la connaissance?
3. Comment ces changements se reflètent sur les missions, rôles et fonctions de l'Université comme suivant?
 - a. L'enseignement et les programmes de formation.
 - b. La recherche
 - c. La troisième fonction, le service à la société
 - d. La recherche fondamentale et appliquée
 - f. La Disciplinarité / transdisciplinarité / pluridisciplinarité
 - g. Le transfert de technologie
 - h. L'étude toute au long de la vie et l'éducation continue
 - i. Le partenariat université-entreprise
 - j. La production des connaissances
4. Comment les activités de votre université sont-ils connecté à d'autres secteurs de l'économie nationale (science & technologie, recherche & développement, innovation nationale, l'emploi, le marché du travail, le social, les politiques agricoles et industrielles).
 - a. Comment peuvent-ils être efficacement connectés?

L'entrepreneuriat Universitaire, Université-Enterprise et Troisième mission:

«L'entrepreneuriat universitaire serait contextualisé ici comme une interaction beaucoup plus immédiate et en d'autre perspective, rentable entre l'Université, la société en générale ou avec son environnement externe. Il peut s'agit aussi des activités qui génèrent des ressources non-gouvernementales ou la culture de risque (d'investir dans les conditions incertaines) et la commercialisation. La «Troisième mission» serait opérationnalisée comme la mise en œuvre de «production, l'utilisation et l'application des connaissances et d'autres compétences universitaires pour d'autres fins que scientifiques» avec son environnement externe. Comment cela se passe dans votre université?

5. Comment votre université définir l'entrepreneuriat universitaire et la troisième mission d'enseignement supérieur (ES)?
 - a) Quel est l'état actuel de l'entrepreneuriat universitaire et de la troisième mission de votre institution?
 - b) Qui les définissent ou initient? L'administration de l'Université, le ministère, les entreprises, les universitaires eux-mêmes?

6. Quelles sont les actuelles transformations culturelles, structurelles et d'infrastructures pour encourager et inciter l'esprit d'entrepreneuriat universitaire ou la troisième mission chez les enseignants?
7. Quels facteurs influencent-ils l'entrepreneuriat universitaire ou la troisième fonction dans votre université-surtout les initiatives rentable?
8. Quels sont les défis qui se posent pour l'entrepreneuriat universitaire, les initiatives rentables, la troisième mission de votre université?
 - b) Comment peuvent-ils être améliorés?
9. Comment les activités de l'université peuvent bénéficier les divers couches de la population: les pauvres, d'autres intervenant et participants de l'université eux-mêmes?
10. Dans un des documents de stratégie de réduction de la pauvreté, il est indiqué que le Cameroun vise à accroître le budget de son ES de 3,8 per cent à 5,8 per cent. Considérant que le budget de l'université était suffisant avec beaucoup plus d'attention et priorité accordées à l'ES pour la plupart de ses projets, que fera l'université, peut-être en termes de réduction de la pauvreté et sa contribution vers l'évolution de la société et l'économie de la connaissance?
 - a. Quel rôle joue le financement dans l'accomplissement de la mission de votre université?
 - b. Quelle sont les défis à relever pour ce qui concerne le financement de l'entrepreneuriat universitaires, les initiatives rentable et l'accomplissement de la troisième mission de l'université?

4d: Individual Academic-Researchers and Principal Investigators of Research Projects (in French)

Position dans:

- i. l'Unité de recherche
- ii. Groupe de recherche / chercheur principal
- iii. Professeur des Universités / Enseignant / chercheur
- iv. Spécialité ou Programme
- v. Faculté

Questions

1. Comment définiriez-vous les activités de votre unité de recherche:
 - i. l'entrepreneuriat universitaire (EU) et la troisième mission d'enseignement supérieur (ES) en générale et l'aspect 'service à la communauté' de vos activités scientifiques et de recherche?
 - ii. La participation et contribution beaucoup plus immédiate de votre unité dans le développement socio-économique et la lutte contre la pauvreté au Cameroun.
 - iii. Votre contribution au développement de la société et l'économie de connaissance.

2. Quel est l'état de l'interaction ou lien actuel de votre unité et les acteurs socio-économiques (l'entreprise et d'autres agents du développement non-universitaire)?
3. Quel est l'état actuel de la capacité de votre unité à générer les ressources supplémentaires et non-gouvernementales? Le Pourcentage des ressources supplémentaires de votre institut.
 - b. Ces ressources proviennent de quelles sources régulières! (Les entreprises, les individus, les organismes internationaux etc.)
4. Quel est l'état de soutien structurel, culturel, de motivation et de la gouvernance donc vous recevez des couches et structures suivantes pour efficacité de votre unité pour l'interaction avec la société et pour résoudre les problèmes sociaux et même attirer les ressources supplémentaires?
 - a. l'administration d'ES Camerounais et de votre université sur tutelle?
 - b. Les unités de liaison et transfert de technologie (interne ou externe).
 - c. La planification stratégique ou le plan directeur de l'université ou de l'état
 - d. Le financement et le leur mécanisme de distribution
 - e. L'autonomie / liberté scientifique à accomplir les tâche et missions de votre unité par rapport à l'entreprenariat universitaire?
 - f. System de propriété intellectuelle et droit d'auteur et d'inventeur.
 - g. Les Règlements d'université, du ministère ou nationales.
5. Quelles sont les défis culturelles, structurelles, de la gouvernance et financière à relever en ce qui concerne l'impact sociale des activités de votre unité comme d'autre au Cameroun?
 - b. Quels sont les atouts? Quelle perspective pour un meilleur accomplissement de la pertinence sociale de vos activités?
6. Quelles sont les sources de ressources gouvernementales et privées que vous recevez pour vos projets et activités et qui facilitent la pertinence sociale de vos activités?
 - c. Sont-elles durable? Quelles sont les structures qui les facilitent?
 - b. Quelles suggestions pouvez vous faire en termes des sources de financement et de leurs mécanismes de distribution qui peuvent faciliter l'impact social des activités de votre institut en particulier et du système national d'ES en générale
7. Comment s'inscrivent vos activités dans le cadre du développement socio-économique et la réduction de la pauvreté au Cameroun?
8. Dans l'un des documents de stratégie de la réduction de pauvreté, il est mentionné que le Cameroun voudra accroître le budget de son ES de 3,8 per cent à 5,8 per cent. Présignons qu'une plus grande priorité (aussi en terme de financement), un statut spéciales était accorder aux activités de votre institut, avec les fonds suffisants, que ferait conceptuellement et pratiquement votre institut pour réduire la pauvreté et accroître sa contribution au développement socio-économique et l'évolution vers la société et l'économie de la connaissance au Cameroun?