MASTER’S THESIS IN PUBLIC POLICY AND FINANCIAL MANAGEMENT

HUMAN RESOURCE DEVELOPMENT FOR THE GREEN GROWTH - THE CASE OF MINISTRY OF INDUSTRY AND TRADE IN VIETNAM

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November, 2017
ACKNOWLEDGEMENT

First of all, I would like to convey my thankfulness to Professor Jari Stenvall, my thesis supervisor for the continuous support and guidance throughout my research.

Besides my supervisor, I would like to thank Dr Harri Laihonen for giving me useful comments, Ms. Marika, Ms. Van Truong from The University of Tampere, Finland, and all teachers in Napa, Vietnam for their support in my acquiring knowledge to complete this research from choosing idea, using Moodle’s account, learning through webinar… to the completion of the study.

Last but not least, I would like to thank my friends, my colleagues, units and institutions under the Ministry of Industry and Trade who responded to my questions and provided data and reports for this research.

Despite limited resources, I have tried my best to apply the knowledge obtained at Tampere University to meet research requirements of the University. This research might be of great help to policy makers and a learning model in preparing human resources for green growth of the Ministry in Vietnam in the future.

Ha Noi, November, 2017.

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ABSTRACT

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Master’s thesis: 83 pages, 25 pages attachment

Date: November, 2017

Keywords: Green growth, economic growth, human resource development, trade and industry sector, action plan, Ministry of Industry and Trade of Vietnam, the period from 2015 to 2020, public policy, the Ministry

Human resources are the driving force of development of all countries. Vietnam chooses Green growth for its development. How Vietnam has prepared for human resource for our Green Growth plan? In order to have well-prepared human resources for green growth 2015-2020, The Ministry, the Government's agency performing State management in Industry and Trade sector, an import sector of the economy should do something to improve preparing human resource of MOIT for green growth because there are poor manpower training, limited skill of human resource, low capacity of the human resource..), the policies for this field is occasional and unsystematic.

Carrying out this research, I did literature review to know well about phenomenon and gave research questions. Then, I collected data by reviewing documents, interviewing, using the announced reports, gathered and analyzed them to answer my research questions.

After analyzing data by qualitative method, I found some weaknesses of such kind of policy of The Ministry, Vietnam: lack of objective, requirement, no indicators assessing knowledge, cognition, skill, attitude relating to green growth in labor demand, the human resource training instituted are neglected, late in training green growth, loose cooperation, waste of facility and finance, evaluation mechanism is unclear.

For strengthening and well preparing labor force for green growth, policy makers of the Ministry should adjust and add the tasks of green growth into the systems as well as deliver training for teaching staff and reinforce the coordination mechanism between departments and agencies under the Ministry. Especially, The Ministry should have evaluation their action plan by some independent evaluating specialists to have better policies for next period.
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Chapter 1: Introduction

1.1 Background for research

There have been ongoing discussions on strategic policies promoting the transformation of the development paradigm. The economy overexploiting natural and fossil resources has caused enormous environmental damage such as environmental pollution and degradation. Old ways of development have generated too much greenhouse gas emissions causing global climate change that threatens human life and damages economic activities. In order to change this situation, the United Nations Environment Program (UNEP) has introduced a new approach to economic development that receives positive responses from many countries, namely green growth and development.

A typical definition states that “a green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services” (UNEP 2011).

Vietnam is a developing country that has fallen out of the low-income classification and joined lower-middle income countries. However, after 31 years of development, since 1986, Vietnam has had to pay for the economic growth, which is the loss of natural resources and environmental pollution. Clusters of industrial zones and craft villages have caused serious environmental pollution. Land in urban and suburban areas, industrial clusters, craft villages and factories are affected by untreated waste water discharge. Parameters of air pollution in most metropolitan areas exceed the permissible standards and organic pollutants on surface water exceed 2-6 times compared to the standard (Green growth through green industry development in Vietnam, UNIDO, 2012, page15). In the context of these challenges, the phenomenon of global climate change also becomes a particular threat because Vietnam is one of the five countries that is most vulnerable to climate change due to long coastline and large area of low land (Green growth through green industry development in Vietnam, UNIDO, 2012, page 15&16).

In order to overcome this situation and shorten the gap in long-term development in line with the trend of human development, the Government of Vietnam has approved the Green Growth Strategy for the period of 2011-2020 and National Action Plan for Green Growth in the decision 1393/QD –TTg date 25 September 2012 approving the National Strategy for Green Growth for the period 2011-2020 and vision to 2050 with the overall objectives: “Green growth is an important part of sustainable development to ensure fast, efficient and sustainable growth while making a significant contribution to the implementation of the national climate change strategy”.

One of solutions to this strategy is training and developing human resources because human resources are the key determinant of growth, economic development, especially green growth. The specific
The objective of the solution is to organize training and retraining to provide knowledge, management skills in the green economy, green manufacturing for the public and corporate governance staff, with priority for leaders, policy makers and strategic and socio-economic development planners. Developing human resources for green growth based on research and selection of green growth and green technologies to exploit resources sustainably.


1.2 Reason for research

One of the gaps in policy for Vietnam's green growth is the development of human capacity. According to UNIDO, (Toward green growth from green industry development in Vietnam 2012: “The enforcement of regulations and the application of economic and/or market instruments are hampered by limited capacity of staff and institutional capacity. Therefore, it is necessary to continue training human resources in Vietnam if they want to implement management functions to achieve the green growth model. Vietnamese companies also seem to lack technical competences to better accept and absorb Operate & Maintenance methods, management systems, as well as practices and environmental technologies. At present, the organizational system and the management apparatus are still inappropriate and functional overlap with the development of the country the integration process as well as for green growth”1 The fact is that limited skill of human resources, poor manpower training, and policy making and planning in the policy transition process will be the factors responsible for a sustainable green growth effort.

In addition, low awareness and capacity of the whole system (human, infrastructure, financial and institutional system), old habits in production, lifestyle and management are slow to change. Therefore, Vietnam needs to make more strategic changes in human resources development for green growth. In order to make those changes, it is necessary to study human resources in this field.

The Industry and Trade sector is one of the most noteworthy sectors in the national economy of Vietnam. This is reflected in the structure of GDP in 2016 (World fact book of US Center Intelligence 2016).

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1: Toward green growth from green industry development in Vietnam, UNIDO 2012.
Agency): the industry sector accounted for 32, 7% and the service sector (including the commercial sector) accounted for 40.9% (estimated)

In the five-year development orientation of the country (2011-2015), the Resolution of the Party Congress has set the main targets, of which GDP proportion of industry - construction is 41 - 42%, 41 - 42% for service sector; The percentage of skilled workers is 55%. To achieve these targets, human resources play a decisive role. According to the report of the Department of Human Resource Development of the Ministry of Industry and Trade The current human resources of industry and trade sector is assessed as follows (Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035(Hanoi, 1-2016): The number of industrial labor increases rapidly and its quality is improving. However, the proportion of industrial labor in total labor force of the economy is still low, only 15.2%. There has been a rapid increase in the quantity of labor forces in commercial services (trade, motor vehicle and home appliance repair services, asset management and consulting services). Furthermore, The Ministry’s report also quoted that labor force in the industry and trade sector has primary and secondary professional level. They are recruited mainly from training schools and universities under the Ministry of Industry and Trade, domestic and overseas colleges, vocational colleges and universities, in which high quality human resources are mainly trained abroad.

Moreover, UNIDO, (Toward green growth from green industry development in Vietnam, 2012) pointed out that evaluating human resource scale fluctuations in production and service development: According to the Vietnam Industrial Development Master Plan, Oil and Gas Planning, Electricity Planning VII, Steel Planning, Trade Development Planning… demand for human resources in industry and trade sector keeps increasing with a sharp increase in five years.

It is also quoted in the above said report of UNIDO, (Toward green growth from green industry development in Vietnam 2012), the allocation of human resources by region: Units under the industry and trade sector are operating throughout the whole country; its labor force is distributed in all provinces and cities. However, units in remote areas are difficult to attract highly qualified workers. In addition, a number of corporations in the sector are deploying projects to cooperate in exploring and exploiting oil and minerals in foreign countries such as Russia, Kazakhstan, Venezuela, Middle East (Petro Vietnam), Laos and Cambodia (Vinacomin) with an average of 100 employees working regularly in foreign countries. The labor force of the industry and trade sector working abroad (mainly technical staff with high professional qualifications) is expected to increase when the projects of oil and mineral exploitation go into the production stage.
Although the Ministry of Industry and Trade has human resource planning for the period 2015-2020, and there have been assessments on the current situation of human resources in terms of quantity, structure of qualifications and occupations, and specific performance indicators for the period 2011-2015. However, the planning, preparation and solutions of human resources for green growth and development of the sector have not been strong and clearly defined. At the same time, the Ministry's analysis of these policies is occasional and unsystematic. Therefore, it is essential to scrutinize the Ministry of Industry and Trade's plans on human resources, with special attention to the Action plan, to have a better human resource solution for green growth in the coming time. A specific project is needed to carefully analyze and evaluate the Ministry of Industry and Trade's green growth action plan and the resources related to this policy for timely solutions for the time to come.

For the above reasons, within the scope of this thesis, I chose human resources development for green growth, the case of the Ministry to be my thesis.

1.3 Research objectives
- Review systematically the fundamental literature on human resource development for green growth of the industrial and trade sector in a developing country.
- Evaluate the implementation of the Ministry of Industry and Trade in training and developing human resources for green growth together with achievements, limitations and causes.
- Identify causes, factors affecting the implementation of the human resource development strategy for green growth of the Ministry of Industry and Trade.
- Propose some suggestions to implement human resource development strategic plan for green growth in 2015-2020 period of the Ministry of Industry and Trade.

1.4 Research questions
How has the Ministry of Industry and Trade prepared human resource action plan for green growth of its sector? What are the gaps between policies and real situations of human resource for green growth of the action plan of Industry and Trade sector? Why?

1.5 Thesis structure
The thesis aims to clarify the direction of human resource development of the Ministry for green growth of Vietnam. In addition to the table of contents, appendices, the thesis are structured with following sections: The 1st part generally introduces to the reader reasons for selecting thesis topic, objectives and research methods, expected research results. In part 2nd, the author conducts a literature review on the theories of green growth, roles of human resources for green growth as well as the methodology, study method. In part 3rd, the author reviews the research context, such as growth,
economic development in Vietnam, green growth as an inevitable choice of Vietnam's economic growth, and the role of developing human resources versus green growth for the case of the Ministry of Industry and Trade. Then there are discussions and recommendations to the concerned parties on innovation and policy to develop human resources for green growth. Part 4th includes findings discovered during the research.

Part 5th summarizes the results of the research, and conclusions about the issues posed by research questions and the limitations of the thesis.
Chapter 2: Literature review on Human Resource Development for Green Growth, methodology and study method

2.1 Green growth economy

“In recent years, the idea of "green growth" has emerged in the context of the world's worst economic crisis in decades”\(^2\) (Grantham Research Institute on Climate Change and the Environment London School of Economics and Political Science). This context enhances the growing convergence of many world economies, a theme that warms global concern of a certain danger to the destiny of the earth. The economic crisis could not be a better excuse for countries to revise their natural resource-intensive growth model, thus creating the impetus for rapid transformation to other models to create sustainable development. "Green Growth" under the United Nations Environment Program (UNEP, 2011) is the focus of economic development policy of many countries in the world, referring to the economy emphasizing on the process of economic growth and environmental sustainability to promote social development.

According to the World Bank (2012b), “green growth is effective growth in using clean, natural resources to reduce pollution and environmental impact”. The elements are natural dangers, the role of ecological management as well as natural resources to be considered in prevention of disaster.

According to the OECD (2011), "Green growth means promoting economic growth and development while preserving natural assets, continuing to increase the supply of goods and services that increase human well-being."

These above definitions have a clarification analysis in common: environmental protection levels are not met by current growth models or under "normal business" conditions. This has brought about the concept of political drag. Politics plays an important role in planning and executing green growth strategies.

A wide range of concepts are also frequently used, the majority of them looking for expanding the concept of development of economy to grow to be more impartial social growth. This improvement may be 'low carbon', 'low emissions', and 'climate compatible'(Climate and Development knowledge Network 2012) UNEP's "green economy" definition has recognized these ideas as "the result of improving wellness of human being and fairness of society, whereas considerably dropping ecological dangers and shortage of environmental" (UNEP 2011). Although these expressions do not convey the exact sense of "green growth," they are still considered variants of the same concept, because they all

have the same development ideas as protecting environment, and largely for the reason that the same systems and organizations are being argued and assisted (World Bank 2012c, Green Economy Coalition 2012).

The green economy is characterized by the followings: energy markets, natural capital development (plant and forest management for protecting soil and water), clean and maintainable production, innovative environments (e.g. capture and storage of carbon, new materials), service industries (Hamdouch and Depret 2010). However, the major driving force for promoting green growth is not eco, but economics. Green growth was anticipated as a post-financial measure to restore the poor economy, focusing on investment in commodity markets and ecological services, and developing "natural facilities" namely forest, water, air, and biodiversity (Lane 2010).

These innovative "green industries" need to inspire comprehensive development and social growth, address climate change, and stimulate the development of skilled employment markets - research and develop clean energy technologies and low-skill jobs (e.g. forest regeneration and organic agriculture). The solid foundation of green growth is neoclassical economics, and in the process of developing this theory, successive scholars have focused on adjusting and correcting defects affecting commodity markets and environmental services. Environmental consequences due to external factors and market imperfections create hindrances to the free interaction of market forces. Adjusting externalities can improve welfare and thus be socially efficient and economically efficient and desirable. From this point of view, there is not necessarily a balance between promoting welfare and ensuring environmental quality. Regulatory intervention is needed to make markets for goods and services environment closer, work more perfectly. Industrial standards, green clients, and voluntary labors are not sufficient to change the economy as well as give new directions to ecological and economic policy in the custom of sustainable development (Green Growth: Managing the Transition to Sustainable Economies 2012)

Green growth can only be solved by environmental issues such as: (i) Environmental economics; (ii) Government’s orientations and views to develop environmental goods market in particular and consumer goods market in general; (iii) The top-down policy synchronization, the state even admits that some problems cannot be resolved (e.g., intergenerational and inter-ethnic equity). However, Green Growth may be a re-expression of the neoclassical economy applied to the service and environment sectors with a bigger focal point on ecological and societal improvement.

Being aware of growth as an essential condition but not an adequate condition of development, economic growth must be directed towards sustainable development.
This view has changed previous views that growth is attained at all costs. The Rio Treaty (1992) reaffirmed the view that "in order to be sustainable, development must balance the economic, social and environmental issues". Current economic growth is even being measured by an imperfect indicator of GDP (GDP ignores domestic work, smuggling and other illegal activities, the benefits of fresh air. In addition, GDP does not take into account the increased costs of working, living in a polluted environment and climate change. But nowadays in many developing countries it is believed that GDP is an important driver of poverty reduction and improvement of social indicators. It has caused an increase of 80 per cent in GDP per capita in developing countries throughout the past 20 years notwithstanding population growth. In fact, many developing countries have paid the price for growth by drought, soil erosion, air pollution, dust pollution, water pollution, etc. It is more dangerous at the inter-regional and intercontinental level with climate change. Of course, developing countries see only the immediate benefits of increasing incomes, improved consumption, but environmental degradation. Sometimes, the cost to the environment for obtaining consumer goods does not overweigh income improvement benefits - typically air and water pollution. So in many places economic growth causes continuous environmental degradation unless there are policies or preventing actions. It is believed that it would be costly using policies and impossible for developing countries. Moreover, many environmental destruction activities are due to market failures and ineffective policies. Consequently, overcoming them can create a more efficient economy, with increased productivity and increased social welfare. There may be green growth without too much cost and significant benefits. Reconciliation of the three issues of sustainable development requires policy effort, especially for the environment.

Green growth policy is an important part of the effort and an essential part of the implementation of sustainable development.

Theoretical frameworks for environmental improvement can contribute positively to economic growth. To do this, it is necessary to clarify the sources of development, the factors and the role of each factor in economic growth. Economic output is a combination of factors such as labor, capital, technology and human capital. Growth in output is achieved by increasing these factors (all factors increase or replace each other during growth). Resources are scarce over time, yet there is a difference in human resources factor, human capital can increase in size and productivity by investing to improve the quality of resources - such as technological improvements, better education and health care for the workforce.
It is proved historically that with proper attention to human resources from Governments there would be great achievements and miraculous growth in many countries in the world. Green growth theories consider natural environment as a matter of production which most traditional development theories and contemporary economic growth models ignore (Nordhaus 1974, Solow 1974, Smulders 1999, Brock and Taylor in 2005). The environment, an input of the production process, is considered in three aspects: supplying resources, assimilating wastes, supplying "different environmental services" including climate and ecosystem health regulation to sustain life. "Natural capital" has been underestimated in either economic theory or practice because of its overlooking. Natural capital is now being freely provided, as a reward of nature. Many functions of the surrounding are taken for granted or considered as public goods without ownership like other factors of production. Hence, there are no private incentives to evaluate them economically (Jacobs 1991).

The adequate economic conception to depict this is "market failures". Markets fail because full value of the activities was not taken into account. Consequently, decisions of production and consumption made by economic agents are moderately distorted in comparison with reality because they do not have adequate knowledge and fully assess the environmental value. Currently, natural resources are overexploited causing land erosion, fisheries depletion and rising sea level. Ecosystems providing valuable services are being ruined or damaged. Energy sources such as fossil fuels and materials are inefficiently used, with the creation of too much waste (thus generating pollution). The enjoyment, healthiness and value of the natural environment are underestimated. In above ways, green growth hypothesis suggests that present economic growth patterns are not the best; resources are misallocated between dissimilar elements of production; there is no investment in natural capital, but in activities degrading the natural capital. If systematic market failures described above are adjusted, growth may be higher. The reality is that in many parts of the world, the environment condition is getting worse as there is not only a shortage of using and maintaining natural resources cost but also overexploitation of natural resources. Price support for exploring and usage of fossil energy and other forms of resource and farming exploitation will further alter production and usage decisions from its best pathway.

Based on the above situation, green growth advocates say that a series of other environmental measurements and policies may create development and sustainable growth. In developing countries, much attention is focused on preserving and enhancing natural capital such as the value of land, fisheries and forests. Much controversy and arguments has arisen that economies depending on these resources must consider the net reduction of natural resources and the use of natural capital as an investment. The dropping usage is needed but this has not been fully implemented in practice. The
United Nations Environment Program has collected a wealth of evidence on positive impacts of the relationship between protection and sustainable control of natural resources (UNEP 2011) and economic growth. In some circumstances, the reason is that the better labor efficiency than that in natural resource oriented production; others are derived from the development of added value of processed goods rather than of raw materials (in other words, processed goods bring higher added value than primary commodities), and from the development of products that conserve resources allow; in other cases, it was the growth of related industries such as tourism and services. UNEP reports indicate that many natural resources are being supervised by the poor; therefore plans to preserve and increase their investment efficiency and productivity not only help eliminate hunger, reduce poverty but also help the economy growing and developing.

Some obvious growth benefits are reflected in higher incomes, so they are often referred to in GDP. Yet many benefits and costs do not seem to be measurable. For example, it is difficult to determine the value of preserving a mangrove swamp for coastal protection, or a forest to supply air, humidity, groundwater source for a large area. For this reason, a number of environmental policies focus on the measurement and quantification of environmental activities, such as expenditures for forest conservation activities (e.g. Reducing emissions from deforestation and forest degradation program (REDD)). Those living around rainforests must create values in protecting forests and contribute to economic growth in order to receive international financial support.

Back to reality, opinions for green growth have not yet been widely accepted in many countries around the world. Many argue that strict supervision of natural assets can result in difficulties in the accumulation of capital for growth. In initial stages requiring the gathering of capital for development, capital can be raised through resources exploitation (in other words, growth first, then environment will be later protected). Most developed countries have undergone through industrialization process. They have exploited resources for growth and the consequences are harsh environmental deprivation and human healthiness in the of industrialization process to create the wealth with many advanced technology industries and a complete service economy. Gradually, the process of resource utilization becomes more efficient, natural capital is replaced by material capital (man-made), which leads to a higher total social capital and better growth. Many developing countries also imitate the path of developed countries in the past and debate that way is their correct approach: quick utilization of natural assets can create rapid development presently than what protection can bring, which forms the basis for achieving a modern industrialization. Such exploitation can’t last unendingly, but it will definitely keep on currently and in the future. The question is which argument is correct? Growth first,
then environmental protection; or growth and environmental protection are achieved at the same time? The former view has been historically proved by developed countries, while the latter exists in current conditions. Current industrialized countries have exploited resources for a long time since natural resources were still abundant, at that time opportunity cost of resource exhaustion was low, the object of environmental agreement had not yet appeared. Today, natural resources are scarce, and the depletion of resources has become true to us. The larger ecological damage, forest and marshes coverage is smaller, coral reef is damaged and obviously environmental degradation occurs. Hence green growth is the optimum choice in the present context, we cannot follow the way developed countries did in the past. We have attained the spot where over-exploitation must discontinue. Otherwise, it weakens itself: the failure of natural resources will not be equalize by discovery of new material resources. The damage of environment will result in more costs than benefits it creates. In contrast, proponents of brown growth (growth by use of resources) stress that the time has not come. Depending on the time period in which the growth rate is forecasted, and resources and countries in question, empirical evidence can be given to both parties. Developing countries are struggling to find the foundation of green growth arguments which is a harmonization between conservation and natural capital enhancement. Meanwhile, emerging debates in developed economies are environmental protection policy, environmental remediation, as well as other environmental problem settlements. The failure of market leads to development slowing down. Growth theories confess that present economic systems are far from finest. There are four types of market failures having connections with policies of environment.

Firstly, natural resources are not effectively utilized. The causes are households and corporate behaviors which do not use a multitude of means to improve energy efficiency in their favor - that is, they save more money than costs (Gillingham 2009). At the same time, the use of energy also causes extraneous impacts - especially emissions to the environment when we use fossil fuels causing climate change which is not fully taken into account in evaluating efficiency of using energy. Hence, in correcting market failures, habitat and environmental policies also need to be revised, refined and updated with behaviors and structures. These policies include waste trading programs, emission reduction license, taxes, fees and other emissions; issuing regulations requiring minimum energy saving standards for buildings, facilities and equipment; setting budgets for public expenditure to promote innovation, applied research of energy saving equipment, energy. When these policies are taken to effect, businesses and consumers may react because initial investment increases, but the authorities must provide information for people to understand that the initial investment is high but it is
more economical overall. Reducing emissions, cost-saving economies, and improving efficiency of a significant element of production are all outcome in green development. Similar effects can also be attained if environmental policies are applied to other resources including water, raw materials and waste (Dobbs et al. 2011).

Secondly, the market itself invests in important improvement actions such as research and development (R & D) as well as the formation of the link between companies and actions to develop productivity and innovation. These activities have "overflowing" profits that might not be taken entirely by investors. Since many environmental policies aim to promote innovation, including specific efforts to support R & D and the creation of innovative enterprise networks or infrastructures (such as industrial clusters or scattered energy systems), they can stimulate innovation and bring better benefits to the economy and affect overall growth concurrently.

Thirdly, environmental policies can have many co-benefits addressing other externalities concomitantly. Improving energy efficiency and using non-fossil fuels to reduce air pollution can have a huge impact on medical costs and labor productivity (Graff Zivin and Neidell 2011). They can both improve energy security and reduce costs causing by fluctuations in energy prices (Rozenborg 2010). Reducing transmission emissions can simultaneously reduce urban congestion with significant benefits on overall productivity.

Fourthly, the environmental tax policy system may have the effect of improving economic efficiency. Where environmental taxes are used to achieve environmental objectives, policy makers may choose to offset by reducing other taxes to adjust businesses and households’ behaviors. Among these approaches, growth theory allows for an active role of environmental policies to move social resources on the optimal "path of growth". However, application in reality bases on the amount of costs that policies of environment need for the economy. The development history of economies around the world has proven from many countries that energy saving measures can generate growth and employment; Reducing energy costs, investment and expenditures and savings from these sources will be ploughed back to the economy as a growing component of the aggregate demand of the economy, stimulate growth in demand. This reverse effect reflects higher energy efficiency yet produce a smaller than expected amount of emissions, that is, growth is generated. Campaigners believe that at least the planet is greener (Jenkins 2011). In general, renewable energy is significantly more costly than fossil fuels and requires a large subsidy for people to use renewable energy instead of using energy from fossil materials consequently. Although in many economies these costs have been declined thanks to technological advances, investment efficiency and growth may remain negative overall. In the future -
but it has already occurred in some countries - the cost of renewable energy sources equates to the cost of fossil fuels, then past costs of generating renewable energy can be considered as an investment that creates future growth. Again, evaluating the balance between cost and benefit for growth of environmental policy depends very much on the time period in which it is considered.

The idea of an economy in which production quantity depends on natural resources dates back to the birth of the Malthusian doctrine (Malthus 1798) and continues to grow in the early 70's (Nordhaus 1972; Dasgupta and Heal 1974; Solow 1974). The development of theories that highly appreciate the role of natural resources (environment is the replacement for the resources’ role approach) is described as follows: Classical growth theory focuses on the constraints created by non-renewable resources (which are depleting). The neoclassical stage has a more positive view of resources – the better the environment, the more fertile land, the more productive the agriculture system. With improved air and water quality, the population is getting better and more efficient and operating more efficiently. Land usage is proficient and disasters can be prevented by well-forecasted to avoid losses for people and property. This approach emphasizes the benefits which provided by ecosystems to humans apart from utility functions. The environment becomes "natural capital," directly needed for growth.

However, external factors, market failures, and technical and ethical issues in calculating the "cost" of environmental assets which make it difficult for the calculation of green GDP. One question is whether investment in the environment increases production capacity or growth. The answer depends on specific contexts.

2.2 Human resource Development

"Human resources" is the concept formed in the researching process considering human beings as a resource, the driving force of development: Recent international and national studies refer to the concept of human resources with different perspectives.

According to the United Nations "Human resources are skill level, knowledge and competence of the whole life of an actual or potential human being for socio-economic development in a public".

The management and use of human resources is more complex than other resources because humans are a social-biological entity sensitive to the interactions of all natural, economic and social relationships taking place in their environment.

According to David Begg, "Human resources are the whole process of expertise that people accumulate, and appreciated for the potential of future income. Like physical resources, human resources are the result of past investments with the goal of generating future income."
Human resources are the total of the working potentials of an organization, a local, a nation in an organically and socially unified capacity (physical, intellectual, personality) and social dynamics of people in those groups. It is the unity that human resources turn into human capital meeting the development requirements.

Human resources, in a new approach, have broad implications including the constituent elements of quantity, knowledge, cognitive and receptive knowledge, social dynamics, creativity, transmission, history and culture.

Thus, the above concepts show that human resources are not merely the forces of labor that are and will be, but also the physical, intellectual and spiritual power of Individuals in a community, a country brought out or are able to utilize in social development.

Human Resources is understood as the term "man resources". When used as an instrument for managing and implementing the socio-economic development strategy, human resources include the working-age population that is capable of labor, population outside working age who participate in labor - also known as labor force. The part of the labor force consists of population within working age and older who have the capacity and demand for labor is the labor force.

Thus, under different perspectives, there may be different concepts of human resources. But these concepts are consistent in the basic content: human resources are the source of workforce. Human beings, in the capacity of the leading element of productions, and a basic and endless source of development, can not be considered purely in terms of quantity or quality, but a combination of both; It is not only the working-age population but also the human generation with potentials, and strength in natural and social rehabilitation.

In the capacity as the labor potential of each region or country, human resources are the most basic resource.

From the perspective of economic development, attention should be paid to the following issues:

*Firstly*, the quantity of human resources is the labor force, and the supply of labor force is determined on the basis of population scale, age and gender structure, distribution of population by region and territory. It also represents the annual growth rate of human resources.

The quality of human resources reflects the relationship between the components that make up the intrinsic nature of human resources, expressed in terms of health, professional qualifications, educational attainment and social psychology characteristics. Human resource quality is a comprehensive concept that includes the mental, physical, moral, lifestyle and spiritual characteristics
of human resources. The quality of human resources is determined by the level of socio-economic development and government investment in human resources development.

Secondly, factors that affect human resource development are a combination of mental, physical and mental factors.

Intellectual capability is the ability of intellect, which determines most of human's creative work. Intellect is considered to be the most important element of human resources because what motivates people to act must of course be through their mind. Exploiting and promoting intellectual potential is the most important requirement of human resources development, including culture, professional, technical, labor skills. The level of education, with a certain educational background, is the basis for the development of technical expertise. Technical and professional qualifications are the conditions to ensure that human resources operate in a professional manner. Labor skills by occupations and fields are an especially important requirement in the development of human resources in industrial society.

Physical ability is the state of health of a person, a condition that guarantees normal development of a person, or meeting energy, nerve, or muscle needs in labor. Physical ability is increasingly playing a decisive role in the development of human resources, as human’s intellectual power can only be utilized on the basis of strong physical ability.

Health care is a basic task to improve the quality of human resources to promote human potentials effectively.

Specific criteria of physical ability includes endurance to meet the continuous and prolonged production process, anthropological parameters meeting technology equipment systems are widely produced and exchanged in the regional and world markets; being alert and high spirited.

Mental strength, also known as the psycho-social quality, includes behavior, spirit, and consciousness in labor such as industrial style (urgent, punctual), being high self-conscious, professional passion, creativeness, being active in work, and highly capable of adapting to changes in the field of technology and management.

Nowadays, apart from physical and mental power, moral and personal quality must also be taken into account. Developing personal and moral quality helps people perform well their social functions, enhance their creativity in social practice. Therefore, in developing human resources development, in addition to raising human background knowledge and improving health of each individual and the social community, it is important to develop moral and personal quality for human beings.

Thirdly, the decisive role of human resources in relation to other resources in socio-economic development is reflected in the following points:
Other resources (capital, natural resources, etc.) themselves exist in the form of potentials; they only become the engine of development when combined with human resources, and become objects of improvement, exploitation and utilization of people.

Other resources are finite, can be exhaustively exploited, only human resources, with the core of intellectual, are the infinite potential resource, as human intellectual is not only biologically produced, but also continuously renewed and developed in quality with proper care, compensation and rational exploitation.

The experience of many countries has shown that the socio-economic development achievements depend mainly on the capacity of human perception and performance.

Human resource development has been discussed by many authors. Nadler & Nadler argue that human resource development and education are the same terms. These two authors defined: "Human resource development is to increase the learning experience for a specified period of time to increase capacity for improving work performance."

The International Labor Organization (ILO) argues that: "Human resource development covers a broader scope, not just skilled occupation or general training, but also capacity development and the use of that capacity for effective work, as well as personal and professional life satisfaction"

Based on the perspective that considers "human capital is the capital - human capital", Yoshihara Kunio said: "Human resource development is investment activities to create human resources in quantity and quality meeting the demand to develop the country's socio-economic development while ensuring the development of each individual".

In short, human resource development is the process of creating a change in the quantity and quality of human resources to improve efficiency to better meet the needs of socio-economic development of country, or region. Human resource development is about enhancing the role of human resources in socio-economic development, thereby increasing the value of human resources.

Hence, developing human resources requires government's attention and intervention through methods, policies and measures aimed at improving and enhancing social labor in order to meet the demand for human resources for socio-economic development in each stage of development.

Thus, despite different expressions, one common point is that human resource development is the process of enhancing human capacity in all aspects to participate effectively in national development. Human resources development, therefore, has always been the driving force for advancement and impacted on all aspects of social life. Experiences of many industrialized countries in the past proved that much of development was not the results of capital, but human capacity, expertise, know-how and
management. Unlike investing in non-human capital, investing in human development is an interdisciplinary, multidisciplinary and impacting issue on the lives of individuals, their families, communities and the entire community in general.

The importance of human resources for growth and development tends to decrease over time. There was a stage that human emphasized human resources as the input cost of physical capital accumulation. The basis for that view is theories promoting the accumulation of physical capital as the main engine of economic growth. Investment in physical capital (or capital) was once widely accepted as a key element of economic growth.

Since 1960s, many economists began to pay much attention to the contribution of human capital. In initial contributions, human capital was initially considered as a component of the aggregate demand for society, the relationship between per capita income and growth, and then as a cost factor for production. Then, the focus shifted to the role of human resources as an input to the production process, contributing to aggregate economic growth. The pioneering works of Schultz (1960) and Becker (1962, 1964) contributed greatly to the rotation of the axis, emphasizing the accumulation of material capital and set the direction for a systematic study on the role of human resources. Schultz (1960) proposed that "the increase in national income is a consequence of the addition of human resources." He continued to point out that investing in education can explain for a large portion of the increase in per capita income in the United States. Becker (1964) extended the concept of human resources to that of predecessors in that human resources can be enriched from capacity building through training, working processes, collecting information, and other investments to improve mental and physical abilities of workers.

In other models (Arrow 1962, Lucas 1988, Romer 1990 and 1994, Mankiw et al. 1992, Aghion and Howitt 1998), productivity development is endogenous and relying on investment, education, research and development. Economic policies can affect the agglomeration of physical capital, social capital, and human resources to maximize output or to maximize output growth (ie, GDP growth).

By 1990s, Weil (1992) provided evidence of central role theory of human resources in growth. Accordingly, he proposed models of production functions including human capital.

The Mankiw-Romer-Weil model treated human capital as an input to an entire production function, assuming the profitability of reproductive factors of production (physical and human capital). Lucas (1988) focused on the reproductive properties of human resources and the ability of exogenous factors. According to this approach, human cumulative knowledge will affect productivity of not only of the individual who accumulates knowledge, but also co-workers, and others. As a result, researchers have
begun to look for factors outside human capital, a research topic that has so far yielded mixed evidence, an approach to evaluate the contribution of human capital to overall growth. Their method, after calculating growth in a traditional way, the residual of the output growth is determined by the accumulation of inputs and the total factor productivity (TFP). The starting point and novelty of their approach is to show that physical and labor capital are inputs (traditional) and TFP contributes to development rather than a production input.

The contribution of synthetic human capital to growth has two parts: (i) it determines the rate of growth of a country; (ii) human capital determines the rate at which a country can adapt and undertake the importation, absorption, assimilation of foreign technology, homogenization of the endogenous variable of growth.

At experimental level, many studies focus on the impact of human resources on development. Human resource means the scale and quality of resources (education level, sense, attitude, management organization) of each national employee member. This stems from the fact that previous studies have focused on the average years of schooling the analysis and ignored the quality of education. As research capacity increased, researchers were able to collect data on the quality of human resources, some studies not only looked at the role of quantity (years of schooling), but also the role of quality education. Hanushek and Kimko (2000) used data from six international surveys and surveys on math and science achievement of students from different countries to measure labor quality in 31 countries. They recognized that the quality of education had a huge and significant impact on the per capita GDP growth rate of most countries around the world.

2.3 Public policy and public policy evaluation

There have been many different concepts of public policy, such as: public policy is what the government chooses to do or not to do (Dye 1992); (Fischer 1995); public policy is a political agreement on whether or not to act designed to solve, or mitigate problems in the political agenda (Fischer 1995); public policy decides when and where goals and measures should be chosen to solve a problem, or to innovate (Dimock et al. 1993); Public policy refers to what the government does, why, and with what results (Fenna 2004). It is a power statement about government intentions, which is based on cause and effect theories, and is designed, structured toward goals (Althaus, Bridgman & Davis 2007). It reflects the fact that policies are made by public authorities, generally understood as the state, whose actions are subject to law. Public policy, therefore, is the exercise of sovereignty, state power through the use of public resources and legal constraints that private sectors are unable to implement (Maddison & Denniss 2009).
Based on existing definitions, public policies can be seen as the way politicians, direct policy makers, make a difference. Public policy is a government tool. It is the result of an agreement, negotiation, competition between ideas, benefits, ideologies that drive the political system (Althaus, Bridgman & Davis 2013).

Although it is difficult to have a general definition, researchers have attempted to address the core issues of public policy, for example, according to Anderson (1994), that is: actions of state power, enforced by state agencies; goal-oriented actions to achieve specific goals, or to address specific issues in the community; group of actions with specific strategies and approaches; decisions to do or not to do. This may be called a "no policy" policy. This is explained as the state must not always intervene to solve all the problems that arise in society. And with careful considerations and analysis, the decision to "not to do" is based on a belief that the problem will be resolved within the framework of current policy, and therefore no action is needed; an excuse for actions, it includes statements about the reasons behind each policy; a decision that has been made or promulgated, not just a plan, or a promise. For instant, in Action plan of green growth policy of MOIT (Minister of Industry and Trade of Vietnam is the decision maker to sign the decree No.13443 dated 8th December, 2015 basing on 02 decisions of the prime minister on green growth, implemented by units of the Ministry of Industry and Trade of Vietnam. The Department of Science and Technology of MOIT is the lead agency, the General Department of Energy, the Department of Safety Techniques and Industrial Environments, and a number of related departments and agencies in cooperation and coordination. The main goal is Vietnam's goal of green growth. Moreover, the specific goal of reducing greenhouse gas emissions throughout the sector, reducing greenhouse gas emissions in a number of areas ...). Human resources and Department of Science and Technology coordinate with the General Department of Energy as the focal point is assigned to train human resources for this activity).

Public policy is currently being reviewed and approached in three different perspectives (Althaus, Bridgman, & Davis, 2013):

Firstly, public policy is the government's choice of power. Public policy appears in political activities, in which ideas, policy proposals are bound and governed by political intentions, interests of government agencies, explanations of civil servants, interventions of pressure groups, the media and citizens.

Public policy, therefore, can be seen as a response of power for public affairs. Public policy is intentional actions pursuing certain government goals on decision making and checking results, whose
components and steps are clearly defined and structured and implemented sequentially. The nature of public policy is political.

Secondly, public policy is a hypothesis, an explanation of some theories of cause and effect. Policies are designed based on cause and effect theories, models. The policy must set a behavioral hypothesis, including incentives, to encourage the conduct of one act against others or vice versa, to limit an act. However, it is not an experiment, and requires careful analysis during the policy process.

Thirdly, public policy is considered as the goal of public actions. Public policy is enacted to achieve certain goals. It is the instruments to achieve the purpose, and government actions designed to achieve certain results.

Also based on this approach, (Kraft & Furlong 2009) defined public policy as ‘a set of government actions or inactions that address public issues’. Accordingly, public policy needs to be adopted based on public policy objectives, instruments, regulations and practices of public agencies to implement policy agenda. The authors argued that policies in this context emphasize specific behaviors in the implementation of public policy, not merely formal statements on policy objectives, and instruments identified in the law, as well as expressions of public policy. Simply put, it is the comparison between say and do.

Evaluation of public policy is the process of examining the appropriateness, effectiveness and impact of policies with specific criteria in order to improve the formulation and implementation of policies to address socio-economic issues (citation). Public policy evaluation can be summarized as rules and practices that a group or organization uses to implement decisions and actions related to policy reviews.

As the research of Appleton-Dyer and partners in 2012: “assessment research can be classified in the line with the way that it is used to expand or support public policies and programs. Firstly, it is tool using for guiding the policies and practice: Secondly, it is symbol or policy justifying actions as well as pre existence preference. Thirdly, it is a concept using for providing alternative ideas for rationalizing the policy view. Assessment studies are barely used for decisions directly. Representative usage of evaluations gives legal way to decision makers. In this case, assessment provides support for policies base on instinct, skilled knowledge, interest of organization and individual. Assessment researchers present concept that help to build public policy and program if their results of policy and programming evaluation can provide evidences addressing environmental issues for policy markers or
managers” with resource from (Appleton-Dyer et al., 2012; Johnson et al., 2009; Weiss, 2005). According to (Evaluation of public policy in Brasil and the United State: “a research analysis over the period of 10 years quoted (Cotta 2001)): evaluation may be categorized by: timing beginning and finishing the implementing of policies or programs; the place of assessment concerning the policy being evaluated - interior, exterior or self-regulating; and the character of the elements of evaluation such as circumstance, input, progression, result.

Assessment of public policy divides into 3 types (Catherin, Althaus and Peter, Bridgman & Glyn, David 2007). Firstly, policy impact evaluation: evaluates the impact of policy on policy beneficiaries and stakeholders in policy implementation. Impacts can be positive or negative, predictable, or unpredictable. Secondly, policy implementation evaluation: evaluates whether solutions and policy instruments are fully implemented, and the performance of policy stakeholders? Criteria for evaluation include: political, economic, social ... It is important that resources allocated to implement the policy are adequate. Thirdly, policy management evaluation: evaluates the management of stakeholders in policy? Are policy implementation decisions implemented? Has policy implementation been well monitored?

In public policy evaluation, it is often referred to the principle of post-audit. In a narrow sense, this method seeks to test whether objectives of the implemented policy are achieved through quantitative and empirical approaches rather than normative. In deciding to implement public policy evaluation, it is significant to know the fundamental connection that exists between the intervention and its results. It is only possible to accurately evaluate cause-effect relationships if we have a "counterfactual" scenario. The evaluation should be: What will happen to policy beneficiaries if this activity does not take place? Discuss public policy evaluation is relevant to my topic because it provide me the base knowledge, the way to evaluate Action Plan of Ministry of Industry and Trade.

Purposes of public policy evaluation (Catherin, Althaus and Peter, Bridgman & Glyn, David 2013), the purpose of the public policy evaluation often depends on the legal status of stakeholders participating in the policy evaluation. Evaluating does not mean to end public policy but to revise, improve, open up new public policy evaluation.

Which impacts are expected when lots of money was spent on implementing public policy evaluation? Evaluate cost/benefit?

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‘What the government has been doing’ is a fairly common question in Public policy evaluation;

The resources of developing countries are scarce, so the evaluation of the efficiency of resource allocation is very important to see whether resources are sufficient to implement the policy;

Increased interest among public policy evaluation and social issues, such as income distribution, living standards, gender equality and the environment;

Evaluate whether public policy evaluation objectives are achieved;

Evaluate the goals that public policy evaluation has achieved, the impact of public policy, including unexpected impacts;

Evaluate whether policy beneficiaries have implemented solutions well? The capacity of policy implementation agencies;

Evaluate whether public policy has brought about social-political values as designed.

Objects of public policy evaluation are the knowledge system of viewpoints, goals and methods of evaluating public policy for the purpose of making a good public policy. Relationships among evaluation and construction, implementation of public policy are studied. Evaluation is an important part of post-audit public policy cycles in the past, thus forming the bases for making new public policy.

Based on the results of the public policy evaluation to know: (i) how has the policy been implemented? (ii) Are the policy objectives completed? (iii) Have the policy matters changed? (iv) Have principles of policy issues been changed? (v) Have policy solutions been effectively implemented? (vi) What are the economics of policy solutions? (vii) Has the policy addressed policy causes? (viii) What adjustments are needed for new policy? (ix) Is it time to finish public policy?

In addition to planning and developing completely new policies, public policy is often modified and issued from public policies that have been implemented in the past. The results of policy monitoring and evaluation are an important basis for revising public policy. The results of the public policy evaluation are also grounds to end a policy, and confirming whether the policy is successful.

Subjects participating in the public policy evaluation include: (1) State organizations (2) Political organizations (3) Social organizations (4) Businesses (5) The Press.

Policy evaluations carried out by law enforcement and policy implementing agencies or their own regulatory bodies are internal evaluations, including: (1) Evaluating the implementation of public policy; (2) Evaluating public policy performance; (3) Evaluating public policy results; (4) Evaluating public policy efficiency; (5) Evaluate the management and implementation of public policy.
The public policy evaluation conducted by the judiciary includes: (1) evaluate the legality of public policy, such as constitutionality and human rights; consistency of policy with the existing legal system? (2) Evaluate whether public policy violates the principles of democratic society.

Evaluation by the political party: the evaluation aims to show the success or failure of a policy that has been planned by the political party, thereby drawing experience to better formulate new policies, or the affirmation to the people of the promised policy results. All are aimed at improving the prestige of the political party.

The ruling party decides on making to-do or not-to-do policy and their viewpoints, directions and policy objectives, but the implementation of public policies depends largely on the decision to implement the policy and capacity of public organizations. However, the public policy evaluation also depends on institutional policy and political institutions. Sometimes public policy evaluations are more conventional than formal.

Thus, public policy evaluation depends on the political culture of each country, the political institution of the ruling party, the law and the official regulations of the state. The tendency to formalize public policy evaluation of the political system and its branches of power is a manifestation of open democracy in the relationship of the whole political system.

*According to approaches to public policy evaluation* (Catherine, Althaus and Peter, Bridgman & Glyn, Davis 2013), there are two models: (1) Technical Evaluation Model: Use econometric, sociological techniques to evaluate, analyze goals, instruments, benefits of the policy (including negative impacts); (2) The social evaluation model, also known as the "learning model": The policy evaluation process allows people to learn and change their perceptions that improve policy better from the experience drawn: Lessons on success, failure of public policy, support from the public toward policy? Policy objectives, policy instruments, and learning evaluation can only be promoted in a positive and innovative manner, such as the need to renew public policy. Some scientists argue that "learning evaluation" is a normal process in policy-making and "part of policy".

Policy formulation (pre-evaluation): This is a rule-based approach based on the potential of the policy to be implemented, usually applied to macroeconomic policies and based on macroeconomic models. At present, we have mandated the "prior" evaluation of legal policy which is regulatory impact assessment (RIA) under the Law on Promulgation of Legal Documents (2008).

The purpose of the "pre-evaluation" is to assess the potential impact of a pre-deployment policy, to compare policy options, public policy packages; the purpose of public policy post-evaluation is to assess the impact of policies that have been implemented."Post-evaluation" methods mainly used are:
(1) Randomization; (2) Difference in difference; (3) Instrumental variable; (4) Propensity score matching; (5) Regression discontinuity design. The post-evaluation draws more attention in public policy evaluation to review whether objectives of the implemented policy have been achieved through a quantifiable, positive approach rather than normative and enhance understanding of the causal relationship of public policy, in which accurate evaluation of causality requires a counterfactual scenario.

However, there are some limitations of the "post-evaluation" approach, such as the validity of internal factors (e.g. number of participants, post-programmatic loss, transmission effect, infection, long term impact). The validity of external factors does not take into account the overall equilibrium effect (macroeconomic impact), difficulty of replicating the results, instrumental ethics, main economic-political problems (benefit group). The "post-evaluation" applies to policies targeting specific subjects and does not affect macro seriously. In the event that public policy impacts all, the control group cannot be found - obviously it is not applicable to "post-evaluation".

According to approaches to public policy evaluation (Catherine, Althaus and Peter, Bridgman & Glyn, Davis, 2013), the use of public policy evaluation results is highly relevant to the policy evaluation models as follows: for the "post-evaluation" model: (1) Quantitative evaluation model tends to be used for policy impact assessment. External agencies often use this model in evaluating public policy implementation to advice policy-makers. May evidences show that the social sector can participate in this assessment? (2) Learning model: A model tends to be used in policy development and implementation agencies. These are public organizations involved in policy implementation, even civil society and businesses are also involved in public policy evaluation in the new public management model. That is, they can learn through the process of assessing and strengthening policy capacity to build and implement better public policy in the future. (See the model).

Another model is "pre-evaluation": The use of RIAs or policy proposals is mandatory for legal normative documents around the world. In the case of Vietnam, "pre-evaluation" results are mandatory for every law and decree project (Law on Promulgation of Legal Documents 2008). My research is
post-evaluation model, type (2) learning model with the purpose of learning through process of evaluation and improving skill of policy builder and implementing better in the future.

2.4 Developing managerial human resources for national growth and development.

2.4.1 The basics of human resource development for economic growth

Developing human resources for economic growth in general and green growth in particular is to improve the quality of human resources of each country and territory. In addition to the labor force, the quality of human resources also includes developing the structure of the workforce in terms of occupation, technical level, organizing and managing capacity, and coordinating ability to achieve the green economic growth target.

Thus human resource development policies include most of solutions affecting the process of strengthening the capacity of each worker and organization, management and effective utilization of resources for economic development. These are policies on population regulation, health and nutrition, education and training, employment and income, and improving living standard. From the roles of human resources to human resource development, the basic criteria to evaluate human resource development include:

- Human resource development in terms of quantity;
- Human resource development in terms of quality;
- Efficiency of human resources usage.

In particular, the thesis only focuses on the development of human resource quantity, quality which is the combination of intellectual, physical and mental strength.

About developing human resources in terms of quantity, human resources of a country, territory in terms of quantity are expressed in population scale, gender and age structure. Accordingly, human resources are considered abundant in quantity when population scale is large and the proportion of population in working age is high. Of course, in terms of development, the annual population growth rate could not be overlooked. That is, in terms of quantity, human resources are directly influenced by population size at the base period and population development policies of countries and territories. In this regard, there are now two opposite trends in the world. For developed countries, due to factors such as climate, genetics, free developmental needs of individual, economic conditions, and technical and scientific support the birth rate is very low, meanwhile life expectancy is high leading to aging human resources. The consequence is the shortage of human resources. The opposite is true in developing countries: high birth rate, limited economic conditions and health care leading to labor redundancy. The consequence is increased unemployment and pressure on employment.
Regarding to developing human resources in terms of quality, the quality of human resources is reflected in three aspects: intellectual, physical capacity and morale, labor discipline. Hence, developing human resources in terms of quality is the development of the three above mentioned aspects.

Developing intellectual capacity of workers is the process of raising the people's intellectual standards, professional qualifications, and skills in practical activities. This process is influenced by many factors in which education and training play a decisive role, as this process is primarily a product of education. Therefore, while human resources are considered as the most important resource, education and training are also ranked first in the socio-economic development strategy of the country. This is also the basis for the Government of Vietnam to put top priority on education and training policy at times when material and financial resources, science and technology are limited.

Developing physical capacity of human resources is to increase height, weight, longevity, strength and endurance of nerve and muscular system. This issue is dependent on a variety of factors: natural conditions, race, income and spending patterns, environmental and working conditions, resting regimes, community health care services (education, health, culture, and sport). In particular, apart from race, income and health care services play a particularly important role. These factors can only be improved on the basis of socio-economic development.

Developing morale and labor discipline is the development of cultural, spiritual and life perceptions such as positive, high self-consciousness, occupational passion, active creativity and ethics, industrial working style (urgency, punctuality ...), proper lifestyle, harmony, ability to adapt to new job, etc. in each employee. It is the process of raising the awareness of the values of life, the sense of responsibility, the ability to socialize with the community, the fight against social evils to build a healthy lifestyle and shape industrial working style of labor force. It is the process of upholding traditional values and cultural identity of a nation while absorbing the cultural quintessence of humanity. For developed countries and regions, this process is influenced by factors such as the culture and style of small size farmers, the residual effects of centralized economic system, especially the downside of market economy and integration process.

Mentioning to efficiency of human resources usages, human resources are assets - human assets. Hence, human resource development will not be considered comprehensive without regard to the effective use of this asset. Efficiency of human resources usage is assessed by the level of human resource availability in terms of quantity, quality and time spent. Hence, improving the efficiency of human resource use is consistent with improving the coefficient of employing human resources
quantity; enhancing human resource efficiency, or the added value created by the use of manpower; Improving coefficient of labor time utilization. This process is directly influenced by the labor market supply and demand, the quality of human resources and labor, employment and salary policies of the Government. If these policies are reasonable, they stimulate the working spirit and creativity of the workers, thereby improving the efficiency of human resource utilization

2.4.2 Sources of green growth

Source of green growth include: human resource, material resources. So that, environmental protection can contribute directly to development of the economy, as the habitat which we call nature capital as the input of production task and protection environment can result in improving investment of natural capital and increased income accordingly. Overuse of environmental belongings is often described by the failures of market such as external expenses and right of unspecified property. Corrections of the failures can boost the efficiency of supplying natural resources and therefore increase productivity; increase human welfare is also improved by improvement of water and air quality, but this is not accounted for in gross domestic product (GDP), but that still needs to be the ultimate goal of economic policy.

In fact, many of the market failures are not directly caused by environmental problems, but the environment is where the negative consequences of the economy are. Therefore, correcting market failures has benefited beyond the environment, for instance, metropolitan traffic jams, polluted air, consumed time, wear and tear, etc. It also reduces social productivity and prolonged processes will negatively affect the economy. These descriptions are not usually mentioned in analyzing of economic growth models, as they are not role model of natural capital in economic growth. It also because the original always-beautiful-world assumption and none of market failures. Moreover, in the aggregate growth model, the description of the micro-platform of the process of development is the weakest due to the rapid income growth potential of green growth policies arising from market failures.

2.4.3 Criteria for green growth

Putting the concept of green growth into the context of economic crisis, mankind is paying a high price for environment changes. That is, development of economy can happen even if there have been a considerable effect of environment on it. In this case, green growth is not just a normal ideal, but it also has a powerful economic need, both theoretic and practical.

The past proof of industrialization in each country revealing that economic growth has involved a many types of damage of environment - from resource reduction to climate variation - stated that this connection is random, unnecessary, there obviously needs to have some basic theories. At the simplest
level, as formula of John Holdren and Paul Ehrlich (1974), the proponent of identity explains $I = PCT$, where $I$ = environmental impact, $P$ = population, $C$ = consumption, and $T$ = Technology (or, more particularly, the efficiency of the technology involved in the usage of the environment). The expression shows that with growing of population and economy, the environmental impact will certainly enlarge except for the pace of technological innovation is enough to overcome, simple but worrisome mathematical operations.

However, further analyses show that such improvements cannot be achieved in principle: through various techniques including the use of renewable resources and new supplies, improved industrial efficiency, waste recycle, sustainable harvesting activities and structural changes in the economy (Jacobs 1991), few scientists discovered that the change was technically feasible even when resources are maintained and the quality of environment is better (Jacobs 1991, Ekins 2000).

These points of view give a theoretical base for statements that development can be green. The concept of "green growth" is more modern and based on experimental evidence. Two statements are made. First, the cost to overcome damaging of environment is not so big, so it slows down the natural growth rate of an economically efficient economy. Second, if damage is not solved, the cost for growing an increasingly bad environment will be greater.

These statements are arguably the most famous of the "Stern Review" on climate change economics (Stern 2007). Based on similar work performed by others, the report has set a cost model to stabilize greenhouse gas emissions (using well-designed, early implemented policies) from 4% to 2% of GDP, with an average estimate of just 1%. Conversely, if the world can’t reduce emissions, the economic costs of climate change would be much larger: between 5% and 20% of GDP per year. So the core message of the Stern report is simple: the cost of heating the earth is considerable but controllable, well-matched with economic development, and fewer than cost of no actions. It is the distinctive debate for green development. It is derived from climate change economics and is based on the comparatively uncomplicated cost-benefit study of other economic development pathways. However, that is not surprising. Critics of Stern's report focus specifically on cost estimates that allow for climate change to arise. Many argue that in near future we will not be able to compare with current costs to prevent it: human societies will be richer in the future (as development of economy) and will build up technology to become accustomed or avoid warming (Nordhaus 2007). Although they have not been able to persuade everybody, these judges still decline suing for "green growth." Although long-term control of ecological damage may be useful, it is not clear that the relative cost of GDP is complete in the future.
As the economic situation worsened after the 2008 financial crisis, a strategy that had the first impact of slowing growth did not seem attractive to policymakers.

### 2.5 Methodology and depiction of study methods

The methodology is methodological theory, which implies the system of methods, worldviews, and life-forms of the users of the methods and principles for solving the problems posed with the highest efficiency. According to “Methodology of scientific research” (Cao Vu Dam 1999), I use methods as follows:

#### 2.5.1 Method of collecting data: this thesis use 2 methods of collecting data are literature review and non-empirical data (interview), Cao Vu Dam, 1999).

*Firstly, Literature review:* I have re-established the theoretical basis related to topics such as public policy theory, green growth theory, theory of human resource development, theory of play Develop human resources for the economic development of a country. I also list Vietnam’s relevant policy related to green growth and refer to a number of research topics on green growth and human resources (from 2.1 to 2.4). This thesis also used the reports of the Ministry of Industry and Trade, statistics (secondary data), reports of departments under the Ministry of Industry and Trade: (Report of the project on adjustment of human resource development for the Industry and Trade sector in the period to 2025 with vision to 2035, Hanoi, 1-2016).

*Secondly, Non empirical data (Interview):* To collect data in this thesis, I collected data by interviewing universities and departments in charge of human resources under Ministry of Industry and Trade of Vietnam by sending those questions. Specifically, to see how they implement and prepare for human resources for green growth, period 2015-2020 and to know the gaps between real situation and policies of preparing human resources of the Ministry ( (the interview questions and answers in the attachment 1&2&3& 4). In addition, the interviews seek to collect managers’ answers, head department’s answers, lecturer’s answers about their organizations implementation on human resource for green growth of these units. Finally, the result of interview universities and colleges, departments, general departments under Ministry of Industry and Trade to classify to 3 levels, details as follows:

Firstly, I interviewed some universities and colleges under the Ministry (name and interviewees listed in table below) by sending them questions IV in Attachment 2.

<table>
<thead>
<tr>
<th>Universities</th>
<th>Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanoi university of Industry</td>
<td>Head of Training Department</td>
</tr>
<tr>
<td>Sao Đò university</td>
<td>Head of Quality Assurance Department</td>
</tr>
</tbody>
</table>
I chosen the universities from North to South, for example Northern region: I interviewed universities in Hanoi city, Son Tay town, Hai Duong city, for Southern region, I interviewed university in Ho Chi Minh City. The types of University and college for interviewing also range from multidisciplinary universities such as Sao Do University, Viet Hung University, and Nguyen Tat University City to specialized university as University of Electrical and Electronics, Textile University, Food Industry University, Hanoi University of Industry and Ho Chi Minh City University of Industry. In terms of numbers, there are 9/49 universities and colleges was sent questions to interview in 2016. Now, 7 of them sent answer and 02 of them have not answered yet, they are: University of Industry and Nguyen Tat Thanh University.

The universities and interviewees are as follows: report of the project on adjustment of human resource development for the Ministry of Industry and Trade in the period to 2025 with vision to 2035, Hanoi, 1-2016) of the Ministry. The topic of human resources analysis in the Green Growth Plan of the Ministry (the synthesis report of the Human Development Plan Industry and Trade from 2025 with a vision to 2035, Ha Noi 1-2016) to find out the quality and quantity of human resources that is reflected in these documents.

I also conducted interviews with some Departments and General Departments under the Ministry that related human resource for green growth. The content of interview is Attachment 2, question: I-III

* Departments, General Department of the Ministry, and subjects:

<table>
<thead>
<tr>
<th>Departments and General Department</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Human Resource</td>
<td>General Manager</td>
</tr>
</tbody>
</table>

36
Then I got the reports of these departments (the actual performance of Industry and Trade sector’s green growth Action Plan - attachment 1, attachment 4).

The interviewees were promised their names will not be published in this study.

2.5.2 Method of data analysis

Qualitative methods (Analysis and evaluation, comments and recommendations)

According to the Intersection of Human experience and Media technology, qualitative method is defined as “growing field of inquiry that cuts across disciplines and subject matter. It is an elaborate, and often perplexing, grouping of terms, concepts, and assumptions that include the traditions associated with positivism, post-structuralism, and many cultural, critical, and interpretive qualitative research perspectives and methods (Banister, Burman, Parker, Taylor, & Tindall 1994). Qualitative research, by definition, does not rely on numerical measurements, and depends instead on research that produces descriptive data. It subsumes a range of perspectives, paradigms and methods and within each epistemological theory, qualitative research can mean different things (Creswell 1998)”

“A case study on qualitative methods will be used throughout the research process. The qualitative method provides a way of giving separate data and qualitative assessment of theoretical issues and approach. It allows participants and projects recipients to emphasize and express what are done and how this has happened, and provided a chance to plan and gather various story of a project. This is a good, quick and successful way of collecting data for research”5.

In order to study and evaluate the human resources situation of the industry and trade sector in 5 year period from 2011 to 2015, the topic has analyzed the data on human resources based on (the synthesis enclosed in (Attachment 1). These will be analyzed and collated based on the knowledge base and the real program assessed (Ministry of Industry and Trade Green Action Program), selected values and criteria: studies, collation and reasoning will help clarify types of activities that the Ministry is in charge to develop of human resources for green growth in the period 2015 – 2020, and activities where the Ministry is assigned to coordinate in implementation of human resources development for green growth in the period 2015-2020 and activities where the Ministry stands out from the crowd.

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5: source: http://tampub.uta.fi/bitstream/handle/10024/84260/gradu06470.pdf?sequence=1
Relationships between contents and objectives of the human resources development action plan for green growth over 5 year period from 2015 to 2020 and limitations, gaps are pointed out, which is the basis for proposing solutions and recommendations:

- To be analyzed and collated based on the knowledge base and the real program assessed (Green Action Program of the Ministry) selected values and criteria.
- Studies, collation and reasoning will help clarify types of activities that Ministry is in charge to develop of human resources for green development over the course of 5 years from 2015 to 2020.
- Study activities that the Ministry is assigned to coordinate in implementation of human resources development for green development in the National Action Plan – 5 year period 2015-2020.
- Study activities that the Ministry stands out from the crowd.
- Study relationships between contents and objectives of the human resources development action plan for green development during 5 years between 2015 and 2020 to find out limitations, gaps which are the basis for proposing solutions and recommendations.

After comparing between interview results, reports and Green growth Action Plan of MOIT (2015-2020, I find the strengths and gaps between the real situation and this policy. I also compare activities that are duties of the Ministry relating human resources in National Action Plan for Green growth with activities of Action Plan of the Ministry for green growth to find out the effectiveness of their implementation systematically and study the coordination in the activities that the Ministry assigned to cooperate with other ministries and other organizations, between units and units under the Ministry to evaluate their coordination mechanism. Lastly, the suggestions were proposed for policy makers of the Ministry by the result of analysis.
Chapter 3: Industry and trade sector’s human resource for Green growth - The current situation

3.1 National strategy and action plan on green growth of Vietnam and of the Industry and Trade sector

At National level, Viet Nam has their policies: strategy and action plan on green growth with mainly details as follows:


Prioritized activities of National Green Growth Action Plan for the period 2014-2020: 23 activities are implemented: No. 01, 02, 03, 04, 06, 09, 16, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 47 (as in Annex 2: List of prioritized activities under GGAP for Period of 2014-2020)


Decision 403 / QD-TTg stated clearly: “Ministry of Industry and Trade shall implement and cooperate with related agencies with activities namely No.9, 10, 11, 13, 14, 15, 16, 26, 30, 41, 43, 46, 49 and 62.”

Directly related to human resources is Decision No. 1393 / QD-TTg dated 25 September 2012 approving the National Green Growth Strategy for 2011-2020 and Vision to 2050 outlining 17 solutions, of which solution 15 is about human resources.

Solution of National Green Growth Action Plan for the period 2014-2020 (Human resource training and development) stated clearly in Decision No.1339 QD-TTg dated 25 September 2012 approving the National Green Growth Strategy for 2011-2020 and an outlook to 2035 as follows:

- Provide training, knowledge enhancement as well as governance and management skills on green economy, green production sectors for government staff and enterprise staff, starting with leaders, policy makers and those involved in the formulation process of socio-economic development strategies, master plans and plans.

- Develop human resources for green growth based on research to identify and select the contents of green growth, green technologies, sustainable exploitation of natural resources ... and mainstream these into education and vocational training at all levels.
- Formulate guidance for enterprises to access finance and technology options to shift towards green industry and green agriculture.

The implementation schedule highlights the tasks of human resource development in 2 periods:

- From 2011 to 2020: Communication, awareness raising, training, and human resource development.(we focus on this period)
- From 2021 – 2030: Expand training and development of human resources for the development of a green economy.

At the lower lever, the Industry and Trade Ministry has issued Decision No. 13443/QD-BCT dated December 08, 2015 approving the Industry and Trade sector’s Green Growth Action Plan for 2015-2020. The briefing description as follows:

- Overall objectives


- Specific objectives
  - Reducing greenhouse gas emissions objectives for the whole sector:
    - Reduce the intensity of greenhouse gas emissions by 8-10% as compared to the 2010 level;
    - Reduce energy consumption per unit of product from 1% to 1.5% per year.
  - Reducing greenhouse gas emissions objectives in other sectors:
    - Reduce greenhouse gas emissions from coal-fired thermal power industry by 10% to 20% compared to the business as usual case. This commitment includes a voluntary reduction of approximately 10%, and an additional 10% reduction with additional international support.
    - Reduce greenhouse gas emissions from the production of chemical fertilizer by 9% to 15% compared to the business as usual case. This commitment includes a voluntary reduction of approximately 9%, and an additional 6% reduction with additional international support.
    - Reduce greenhouse gas emissions from the steel sector by 10% to 20% compared to the business as usual case. This commitment includes a voluntary reduction of approximately 10% and an additional 10% reduction with additional international support.
  - Greening production: Restructure and adjust industry development plans to be in line with the
view of green growth and sustainable development; promote the application of cleaner production and raise the efficiency of energy and resources, actively innovate technologies, use high, clean and environment-friendly technologies in industrial production; manage to achieve the major targets by 2020:

+ The value of high technology and green technology products will make up a share of 42-45% in industrial production and trade.

+ The rate of manufacturing facilities applying clean technologies will reach 50%

Proportion of production value of supporting sectors to protect the environment and enriching natural capital will reach 3-4% of gross industrial product.

**Implementation plan**

Main tasks and assignments of responsibilities, coordination in implementing the action plan of the industry and trade sector in implementing the national green growth action plan for the period of 2015-2020 are listed in the Appendix to this Decision.

**Implementation cost**

Finance for the performance of the Action Plan is raised from the following sources: central and local budgets, enterprise resources and international technical assistance. Details of implementation costs are set out in the Appendix to this Decision and in accordance with the Financial Resources Regulation approved by the Prime Minister in Decision No. 403 / QD-TTg of 20 March 2014 approving the National Green Growth Action Plan 2014-2020.

Based on the assigned tasks, agencies and departments raise the fund from the above mentioned sources and other related programs and projects such as the Climate Change Supporting Program, the Savings Energy Program, cleaner production strategies in industry and other programs to carry out the tasks of the Action Plan.

**Organization for implementation**

- **Agencies in charge**
  - The Agency for Science and Technology is in charge to coordinate with the concerned agencies in organizing the implementation of the Action Plan and coordinating with ministries, sectors and local agencies in implementing the Action Plan; to evaluate annually the progress to the Green growth Coordination Unit and the Ministry of Planning and Investment which is in charge for green growth; to periodically conduct preliminary reviews, review and evaluate the results and efficiency of the implementation of the action plan and report to the Prime Minister;
  - The Agency for Science and Technology shall assume the main responsibility for, and
coordinate with the General Department of Energy, the Safety Technique and Industrial Environment Agency and concerned agencies in continuing the study and determination of greenhouse gas emission reduction indices and target consumptions of raw materials of potential industries, trade to submit to the Minister for approval.

- Based on this Action Plan and functions, responsibilities and authorities of agencies, the heads of agencies in the Ministry of Industry and Trade organize the implementation of the tasks of the Action Plan as assigned in the Appendix to this Decision; annually report the implementation results to the agency in charge to report to the Minister (annually reports details in Attachment1)

- Departments of Industry and Trade in provinces and cities under central authority; conglomerates, corporations and enterprises in the industry prepare their own action plans and organize the implementation of related tasks and solutions in the Action Plan contributing to the successful implementation of the National Green Growth Strategy;

- In the process of implementation, if it is necessary to supplement, adjust or amend the contents of the action plan, heads of agencies and units shall report to the Ministry of Industry and Trade via the coordinating agencies to report to the Minister for consideration and decision.


3.2 Human resources in Industry and Trade sector period 2011-2015

Now we will focus in policy of Ministry of Industry and Trade for labor force they prepare for Green Growth of this sector

3.2.1 Indicators of human resource in the period 2011-2015

When considering the development of human resources, the main indicators that first need to be examined are quantitative and qualitative indicators. According to Decision No. 7040 / QĐ-BCT dated December 30, 2011 of the Ministry of Industry and Trade, the human resource development plan was implemented in 2011-2015 period and key indicators are summarized in the table. 3.1.

Table 3.1 shows that the number of people in workforce in the entire industrial sector has increased from 12.7 million in 2010 to 15.4 million. However, total number of people in workforce in 2015 accounted for only 90.4% of the budgeted figures. The variance was mainly due to the fact that the number of people in industrial sector’s workforce was only 84.0%; yet that figure in the trade sector has reached 99.7%.

3.2.3 Key indicators on quality of human resources
Data from table 3.1 shows some general characters of the quality of human resources. During the 5 year-period from 2011 to 2015, the quality of human resources has increased significantly, reflecting in the increase in the proportion of qualified workforce and the labor productivity growth rate of the sector.

Table 3.1 Indicators assessing the implementation of the human resources development plan 2011-2015.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2010</th>
<th>2015</th>
<th>Variance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budgeted</td>
<td>Actual performance</td>
<td></td>
</tr>
<tr>
<td>I. Indicators on quantity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Number of people in workforce (million)</td>
<td>12,7</td>
<td>17,0</td>
<td>15,4</td>
</tr>
<tr>
<td>- Industrial sector</td>
<td>7,2</td>
<td>10,0</td>
<td>8,4</td>
</tr>
<tr>
<td>- Trade sector</td>
<td>5,5</td>
<td>7,0</td>
<td>7,0</td>
</tr>
<tr>
<td>II. Indicators on quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Qualified workforce in Industrial sector (%)</td>
<td>78,5</td>
<td>82,0</td>
<td>81,6</td>
</tr>
<tr>
<td>- Education and training system</td>
<td>19,6</td>
<td>34,1</td>
<td>25,5</td>
</tr>
<tr>
<td>- Vocational system</td>
<td>80,4</td>
<td>65,9</td>
<td>74,5</td>
</tr>
<tr>
<td>2. Trained workforce in Trade sector (%)</td>
<td>66,5</td>
<td>80,0</td>
<td>79,2</td>
</tr>
<tr>
<td>- Education and training system</td>
<td>47,8</td>
<td>54,8</td>
<td>39,6</td>
</tr>
<tr>
<td>- Vocational training system</td>
<td>52,2</td>
<td>45,2</td>
<td>60,4</td>
</tr>
<tr>
<td>3. Overall labor productivity growth rate (%/year)</td>
<td>1,7</td>
<td>3,8</td>
<td>3,2</td>
</tr>
<tr>
<td>- Industrial sector</td>
<td>0,6</td>
<td>1,9</td>
<td>2,1</td>
</tr>
<tr>
<td>- Trade sector</td>
<td>4,0</td>
<td>4,2</td>
<td>3,5</td>
</tr>
</tbody>
</table>

(Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.)

- The rate of qualified workforce in industrial sector increased from 78.5% to 81.6%, accounting for 99.5% of the budgeted figures; the rate of qualified workforce increased in the education and training system but decreased in the vocational training system. For the trade sector, the rate of qualified workforce increased from 66.5% in 2010 to 79.2%, accounting for 99.0% of
the target; contrary to the industrial sector, the rate of qualified workforce in trade sector increased in the vocational training system but decreased in the education system.

- Labor productivity: Labor productivity of the entire sector increased significantly from 1.7% per annum in the period of 2006-2010 to 3.2% per annum in the period 2011-2015. However, compared with the projected increase in labor productivity, the productivity growth rate was only 83.1%.

About physical ability, agencies and departments in the Ministry always manage to provide health care for workers. Employees’ working conditions, hygiene, equipments have been upgraded; labor protection facilities are fully equipped for workers.

According to the Ministry, comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035, employees’ health in recent 2-3 years in the whole industry is considered to be adequate for production and business activities, especially in manufacturing and merchandising sector with high work intensity, complex, laborious and dangerous tasks. The proportion of workers suffering from chronic and occupational diseases in the entire industry and trade sector is now reduced, accounting for less than 5% per year. Annually, sick leave is taken in accordance with the current regulations of the Government in all units in the industry and trade sector.

Working conditions are assessed annually. Occupational health records in most companies, factories, and business units have been prepared. Inspection work is carried out regularly. Some industries with specific working conditions such as noise, dust, height, in the pit, are especially and regularly inspected.

Labor protection, occupational health and safety and environmental sanitation have been defined as the main tasks in manufacturing and merchandising. This is not only to comply with law but also to increase labor productivity, which brings high efficiency for business activities. Therefore, labor protection and environmental sanitation have been fully implemented by departments, and corporations in the industry and trade sector.

Food hygiene and safety is of concern to department leaders in the industry and trade sector, human resource and funds for the inspection and control of these are also provided.

In industries such as oil and gas, mining coal, mineral exploration whose working conditions are dangerous and laborious, the State management agencies in the industry and trade sector require and instruct enterprises to pay attention to health care for laborers, to ensure that 100% of laborers can
participate in health insurance, medical clinics, medical human resources, labor hygiene and environment sanitation, labor protection are adequately provided for laborers.

*Regarding to qualifications and skills*, qualifications of workforce in the industry and trade sector range from secondary vocational school to college, university and postgraduate. Labor force are mainly recruited from universities and colleges under the Ministry and vocational schools and overseas training sources of which high quality human resources are mainly trained abroad.

Currently, several corporations in the industry and trade sector are deploying cooperating projects to explore and exploit oil and minerals in foreign countries, such as Oil and Gas Corporations, having projects on oil and gas exploration and exploitation in Russia, Kazakhstan, Venezuela, Middle East, the Coal and Mineral Corporation having projects in Laos and Cambodia. On average, there are currently 100 employees working overseas. It is expected that in coming years, when projects of oil and mineral exploitation are in production stage, the number of employees working abroad will increase. Most of the labor forces working abroad are highly qualified engineers.

The comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 concluded that there is a shortage of highly qualified and skilled employees, both in quantity and quality. This is also a major problem on the training plan of the industry in particular and the labor market in general.

This does not mean that human resources in the Industry and Trade sector have recently improved in terms of intellectual and labor skills. The number of trained workforce is relatively high, knowledge and skills are clearly improved due to the fact that the number of people trained rapidly increases every year. Although the major part of labor force in the Industry and Trade sector generally meets the requirements of manufacturing and merchandising activities, part of them has a lower professional level than required for international economic integration, part of them is still inadequate and do not meet the development needs. Therefore, there is a need of training and professional development.

Due to the diverse business characteristics, labor force in the Industry and Trade sector are trained from elementary, intermediate, professional and collegial and higher education institutions. The percentage of trained workers differs by fields, sectors, regions and enterprises.

The age distribution between sectors also differs markedly. However, the majority of the labor force in the industry and trade sector is young. This is an important advantage, but it is necessary to focus on training and retraining for different target groups in the departments of the Industry and Trade sector.

* Mentioning to attitude of law obedience, comments in the adjusting plan show that, in general, the labor force in enterprises in the industry and trade sector always maintains high spirit of cooperation,
ensures good performance of assigned tasks, meets the requirements of business activities as well as raises attitude of law obedience, and discipline. The propaganda and dissemination of the Party's policies and the State law to employees are regularly implemented by authorities and enterprises in the industry and trade sector. Employees in enterprises are trained to exercise manufacturing and merchandising tasks and internal working regulations, labor protection laws, technical safety procedures. Therefore, employees have good discipline and attitude of law obedience.

About spirit of cooperation, Enterprises in the Industry and Trade sector always take evaluating the morale, work style and quality of labor seriously as products are the combined effort of the whole team or production shift with tens to hundreds of employees. Each member has their own duties, but collaboration and teamwork are compulsory to operate in most enterprises. As production results of separate processes must be incorporated effectively, the labor force must have the spirit of cooperation in working and group work. Therefore, training sessions on how to communicate, to behave politely, to live in harmony and solidarity in most enterprises are well delivered.

About the training system of the industry and trade sector, The entire industry and trade sector have 49 training institutions, including 10 universities, 27 colleges, 08 vocational colleges, 02 professional high schools, 01 vocational high school and 01 training centre. The above training institutions are divided into two categories:

Schools under the purview of the Ministry include 09 universities, 01 training centre; 22 colleges and 03 vocational colleges.

Schools belonging to enterprises under the Ministry include 01 university, 05 colleges, 05 vocational colleges, 01 professional secondary school, 01 vocational secondary school and 01 training centre. There are 11 schools located in the Northern Midlands and Mountainous areas, 23 in the Red River Delta, 05 in the North Central Coast, and 10 in the Southeast. The distribution of schools by regions is shown in Table 3.2. The regional distribution in table 3.2 shows that the industry and trade sector has a good training system to serve for human resources development of the industry and trade sector.

Table 3.2 Regional distribution of schools under the purview of Ministry of industry and trade

<table>
<thead>
<tr>
<th>TT</th>
<th>Region/Province, city</th>
<th>University</th>
<th>College</th>
<th>Vocational high school</th>
<th>Vocational college</th>
<th>Vocational secondary school</th>
<th>Training centre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

46
<table>
<thead>
<tr>
<th>Region</th>
<th>District</th>
<th>1</th>
<th>8</th>
<th>0</th>
<th>2</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Northern Midlands and Mountainous areas</td>
<td>1 Thai Nguyen</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>II Red River Delta</td>
<td>6 Ha Noi</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>III North Central Coast</td>
<td>10 Thanh Hoa</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>IV Southeast</td>
<td>3 Ho Chi Minh city</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>10</td>
<td>27</td>
<td>2</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

(Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.))
Speaking of structures of training majors, according to data in 2014, universities under the purview of the Ministry had more than 400 majors in the fields of technology, economics, commercial services, etc. The percentage of university students attending technology, technical industry and commercial and economics major accounted for 44.2%, 2.6% and 40.2% respectively.

Table 3.3 University training scale under the purview of the Ministry

Unit: student

<table>
<thead>
<tr>
<th>Majors</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
<th>Total</th>
<th>Percentage of total scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Graduate in 2018</td>
<td>Graduate in 2017</td>
<td>Graduate in 2016</td>
<td>Graduate in 2015</td>
<td>June 2018</td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>19,356</td>
<td>16,355</td>
<td>9,905</td>
<td>8,941</td>
<td>54,557</td>
<td>44,2</td>
</tr>
<tr>
<td>Engineering</td>
<td>930</td>
<td>977</td>
<td>638</td>
<td>703</td>
<td>3,248</td>
<td>2,6</td>
</tr>
<tr>
<td>Commerce</td>
<td>14,843</td>
<td>12,768</td>
<td>10,752</td>
<td>11,197</td>
<td>49,809</td>
<td>40,3</td>
</tr>
<tr>
<td>Others</td>
<td>4,729</td>
<td>3,802</td>
<td>2,750</td>
<td>2,638</td>
<td>14,047</td>
<td>11,4</td>
</tr>
<tr>
<td>Total</td>
<td>39,858</td>
<td>33,902</td>
<td>24,045</td>
<td>23,479</td>
<td>123,494</td>
<td>100,0</td>
</tr>
</tbody>
</table>

(Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.))

Data in table 3.3 show that the number of students enrolled in the technology and commercial majors tends to increase sharply in the period 2015-2018. The number of undergraduates in 10 universities and colleges accounted for 8.38% of total university students nationwide (Table 3.4).

Table 3.4 University training scale under the purview of Ministry of Industry and Trade and nationwide

<table>
<thead>
<tr>
<th>Majors</th>
<th>Nationwide (221 universities) (Students)</th>
<th>10 universities under the purview of Ministry of Industry and Trade (Students)</th>
<th>Percentage (2): (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Technology</td>
<td>140,485</td>
<td>54,557</td>
<td>38,88</td>
</tr>
<tr>
<td>Engineering</td>
<td>141,449</td>
<td>3,248</td>
<td>2,29</td>
</tr>
<tr>
<td>Commerce</td>
<td>411,284</td>
<td>49,809</td>
<td>12,12</td>
</tr>
<tr>
<td>Total</td>
<td>1,473,326</td>
<td>123,494</td>
<td>8,38</td>
</tr>
</tbody>
</table>

(Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.))
The table 3.4 shows that percentage of training for Industry and trade sector in universities under Ministry of Industry and trade is small.

### 3.3 Forecasting human resource needs of the Industry and Trade sector for green growth period 2015-2020 (table 3.5 to table 3.13), analyzing and commenting

#### 3.3.1 Key indicators on quantity of human resources 2015-2020

Total employment in the industry and trade in 2020 is expected to be over 19 million people, accounting for 27.8% of total employment in the economy. The number of employment in industrial and commercial sector is 10.8 and 8.2 million respectively. Proportion of employment in industry and commerce accounted for 15.2% and 12.6%, respectively, of total employment.

The total of skilled labor force in the industrial sector in 2015 is over 6.8 million persons, accounting for 81.6% of the total labor demand in industrial sector. In 2020, the figure will reach 9.9 million, accounting for 91.7% of labor demand in industrial sector.

Total skilled labor force in the Trading sector in 2015 is over 5.5 million persons, accounting for 79.2% of the total labor demand in trading sector. In 2020, the figure will reach 7.2 million, accounting for 87.9% of labor demand in trading sector.

Forecast of labor demand by industries to 2020 in table 3.7 is increasing mostly

Table 3.7 Forecast of labor demand by industries to 2020 (Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.).)

Unit: 1000 persons

<table>
<thead>
<tr>
<th>Labor demand</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Labor demand</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1. Total demand for Industrial sector</strong></td>
<td>7.169</td>
<td>8.399</td>
<td>10.777</td>
</tr>
<tr>
<td><strong>2. Labor demand by industries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mining industry</td>
<td>276</td>
<td>276</td>
<td>301</td>
</tr>
<tr>
<td>Manufacturing and processing industry</td>
<td>6.646</td>
<td>7.874</td>
<td>10.230</td>
</tr>
<tr>
<td>Food, beverage and tobacco product manufacturing</td>
<td>816</td>
<td>929</td>
<td>1.188</td>
</tr>
<tr>
<td>Textiles, clothing, leather and footwear manufacturing</td>
<td>695</td>
<td>867</td>
<td>1.182</td>
</tr>
<tr>
<td>Manufacture of paper and paper products</td>
<td>809</td>
<td>925</td>
<td>1.336</td>
</tr>
<tr>
<td>Chemical, pharmaceutical and chemical product</td>
<td>2.050</td>
<td>2.363</td>
<td>2.838</td>
</tr>
<tr>
<td>Industry</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Mechanical engineering, metallurgy and transport</td>
<td>1.065</td>
<td>1.189</td>
<td>1.467</td>
</tr>
<tr>
<td>Electrical, electronic and information technology equipment</td>
<td>742</td>
<td>930</td>
<td>1.131</td>
</tr>
<tr>
<td>Other manufacturing and processing industries</td>
<td>468</td>
<td>671</td>
<td>1.087</td>
</tr>
<tr>
<td>Electricity, gas and water supply</td>
<td>256</td>
<td>249</td>
<td>245</td>
</tr>
</tbody>
</table>

### II. Demand of skilled labor force

#### 1. Skilled labor force in industrial sector

<table>
<thead>
<tr>
<th>Industry</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of total labor in Industrial sector</td>
<td>78.5</td>
<td>81.6</td>
<td>91.7</td>
</tr>
</tbody>
</table>

#### 2. Education and training system

<table>
<thead>
<tr>
<th>Industry</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining industry</td>
<td>92</td>
<td>118</td>
<td>130</td>
</tr>
<tr>
<td>Manufacturing and processing industry</td>
<td>891</td>
<td>1.486</td>
<td>2.077</td>
</tr>
<tr>
<td>Food, beverage and tobacco product manufacturing</td>
<td>109</td>
<td>175</td>
<td>241</td>
</tr>
<tr>
<td>Textiles, clothing, leather and footwear manufacturing</td>
<td>93</td>
<td>164</td>
<td>240</td>
</tr>
<tr>
<td>Manufacture of paper and paper products</td>
<td>108</td>
<td>175</td>
<td>271</td>
</tr>
<tr>
<td>Chemical, pharmaceutical and chemical product</td>
<td>275</td>
<td>446</td>
<td>576</td>
</tr>
<tr>
<td>Mechanical engineering, metallurgy and transport</td>
<td>143</td>
<td>224</td>
<td>298</td>
</tr>
<tr>
<td>Electrical, electronic and information technology equipment</td>
<td>99</td>
<td>175</td>
<td>230</td>
</tr>
<tr>
<td>Other manufacturing and processing industries</td>
<td>63</td>
<td>127</td>
<td>221</td>
</tr>
<tr>
<td>Electricity, gas and water supply</td>
<td>122</td>
<td>144</td>
<td>146</td>
</tr>
</tbody>
</table>

#### 3. Vocational training system

<table>
<thead>
<tr>
<th>Industry</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining industry</td>
<td>130</td>
<td>113</td>
<td>152</td>
</tr>
<tr>
<td>Manufacturing and processing industry</td>
<td>4.277</td>
<td>4.897</td>
<td>7.285</td>
</tr>
<tr>
<td>Food, beverage and tobacco product manufacturing</td>
<td>525</td>
<td>578</td>
<td>846</td>
</tr>
<tr>
<td>Textiles, clothing, leather and footwear manufacturing</td>
<td>447</td>
<td>539</td>
<td>842</td>
</tr>
<tr>
<td>Manufacture of paper and paper products</td>
<td>521</td>
<td>575</td>
<td>952</td>
</tr>
<tr>
<td>Chemical, pharmaceutical and chemical product</td>
<td>1.319</td>
<td>1.470</td>
<td>2.021</td>
</tr>
<tr>
<td>Mechanical engineering, metallurgy and transport</td>
<td>686</td>
<td>739</td>
<td>1.045</td>
</tr>
<tr>
<td>Electrical, electronic and information technology equipment</td>
<td>477</td>
<td>578</td>
<td>806</td>
</tr>
<tr>
<td>Other manufacturing and processing industries</td>
<td>301</td>
<td>417</td>
<td>774</td>
</tr>
<tr>
<td>Electricity, gas and water supply</td>
<td>116</td>
<td>95</td>
<td>92</td>
</tr>
</tbody>
</table>
Based on the training scale data of universities and labor demand forecasts for both industrial and trade sectors, the following trends can be observed:

- **Technology and engineering industries:** The current number of university-level labor force in 2015 is 664,000. It is expected that each year the sector needs an additional 75,000 university graduates, of which 67,500 in the processing and manufacturing industries. Meanwhile, according to training scale statistics from the current school system, each year on average there are about 71,200 graduates in technology and engineering majors, but only a minor proportion majors in technology industries for production. Thus, there is an abundant quantity of industrial labor force but a shortage in fundamental industrial sectors. The reason is that there are a relatively large number of universities training information technology and general engineering majors, but a limited number of colleges training production and processing technology which is the cornerstone for industrial development.

- **Trading industry:** The overall labor force demand of the trade sector in the future is higher than the current training capacity. The force in 2015 was 1.15 million persons; the forecasted labor demand for 2020 is 1.87 million, requiring an additional 119,500 persons yearly. However, according to training scale statistics, training institutions provide only 93,424 graduates each year. The reason is that for the trade sector, the college-level labor proportion (25%) is higher than other sectors, meanwhile that of industrial sector only accounts for about 10%.

3.3.2 **Key quality indicators of labor force in the period 2015-2020**

About labor demand forecasts by training levels in the Industry and Trade sector, the table 3.8 shows the skill labour demand forecast by training level in the Industrial sector:

**Table 3.8 Skilled labor demand forecasts by training levels in the Industrial sector**

<table>
<thead>
<tr>
<th></th>
<th>Skilled labor demand (1,000 persons)</th>
<th>Training structure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total skilled labor in industrial sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.628</td>
<td>6.854</td>
</tr>
<tr>
<td><strong>Percentage of total Industrial Labor</strong></td>
<td>78.5</td>
<td>81.6</td>
</tr>
<tr>
<td><strong>1. Education and training system</strong></td>
<td>1.104</td>
<td>1.748</td>
</tr>
<tr>
<td>Vocational high school</td>
<td>538</td>
<td>797</td>
</tr>
</tbody>
</table>
Thus, skilled labor demand forecasted by training levels in the industrial sector by 2020 will increase by 10% in the education and training system while it will decrease about 5, 6% in the vocational training system in the period.

Table 3.9 shows us the forecast of skilled labor demand by training levels in trade sector:

### Table 3.9 Forecasts of skilled labor demand by training levels in Trade sector

<table>
<thead>
<tr>
<th>Training level</th>
<th>Skilled labor demand (1,000 persons)</th>
<th>Training structure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total skilled labor in industrial sector</strong></td>
<td>3.689</td>
<td>5.527</td>
</tr>
<tr>
<td>Percentage of total Industrial Labor</td>
<td>66.5</td>
<td>79.2</td>
</tr>
<tr>
<td><strong>1. Education and training system</strong></td>
<td>1.763</td>
<td>2.191</td>
</tr>
<tr>
<td>Vocational high school</td>
<td>593</td>
<td>693</td>
</tr>
<tr>
<td>College</td>
<td>233</td>
<td>268</td>
</tr>
<tr>
<td>University</td>
<td>890</td>
<td>1.155</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>47</td>
<td>75</td>
</tr>
<tr>
<td><strong>2. Vocational training system</strong></td>
<td>1.926</td>
<td>3.336</td>
</tr>
</tbody>
</table>
Elementary vocational and non-degree | 1.567 | 2.495 | 2.720 | 42,5 | 45,1 | 37,6
Intermediate vocational | 330 | 693 | 850 | 9,0 | 12,5 | 11,7
Vocational colleges | 28 | 148 | 459 | 0,8 | 2,7 | 6,3

**Total secondary and collegiate**

Secondary | 924 | 1.386 | 1.664
Collegiate | 261 | 416 | 867

*Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.)*

Thus, skilled labor demand forecasted by training levels in the Trade sector by 2020 will increase 8.7% in the education and training system and decrease about 12% in the vocational training system in the period.

Regarding to forecast of human resource demand for administrative agencies under the Ministry of Industry and Trade, table 3.10 depicts the forecasting the quantity and quality of cadres, civil servant of Ministry of Industry and trade. The number is increased in number of person in this period but kept unchange in % labour structure.

**Table 3.10 Forecasting the quantity and quality of cadres, civil servants of the Ministry of Industry and Trade**

<table>
<thead>
<tr>
<th></th>
<th>Number of persons</th>
<th>Labor structure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
<td>2020</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23.820</td>
<td>26.955</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>930</td>
<td>1.541</td>
</tr>
<tr>
<td>Master degree</td>
<td>10.906</td>
<td>16.662</td>
</tr>
<tr>
<td>University degree</td>
<td>9.308</td>
<td>6.549</td>
</tr>
<tr>
<td>Others</td>
<td>2.675</td>
<td>2.203</td>
</tr>
<tr>
<td><strong>1. 1. State administrative cadres, civil servants</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>68</td>
<td>78</td>
</tr>
<tr>
<td>Master degree</td>
<td>421</td>
<td>520</td>
</tr>
<tr>
<td>University degree</td>
<td>685</td>
<td>637</td>
</tr>
<tr>
<td>Others</td>
<td>97</td>
<td>65</td>
</tr>
<tr>
<td>2. Cadres, civil servants of non-profit units</td>
<td>22.549</td>
<td>25.654</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>862</td>
<td>1.463</td>
</tr>
<tr>
<td>Master degree</td>
<td>10.485</td>
<td>16.141</td>
</tr>
<tr>
<td>University degree</td>
<td>8.623</td>
<td>5.912</td>
</tr>
<tr>
<td>Others</td>
<td>2.578</td>
<td>2.138</td>
</tr>
<tr>
<td>2.1 Scientific sector</td>
<td>1.421</td>
<td>1.535</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>51</td>
<td>74</td>
</tr>
<tr>
<td>Master degree</td>
<td>294</td>
<td>418</td>
</tr>
<tr>
<td>University degree</td>
<td>794</td>
<td>791</td>
</tr>
<tr>
<td>Others</td>
<td>282</td>
<td>253</td>
</tr>
<tr>
<td>2.2. Training sector</td>
<td>20.176</td>
<td>23.000</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>807</td>
<td>1.380</td>
</tr>
<tr>
<td>Master degree</td>
<td>10.128</td>
<td>15.640</td>
</tr>
<tr>
<td>University degree</td>
<td>7.142</td>
<td>4.255</td>
</tr>
<tr>
<td>Others</td>
<td>2.098</td>
<td>1.725</td>
</tr>
<tr>
<td>2.3. Other sectors</td>
<td>952</td>
<td>1.119</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Master degree</td>
<td>63</td>
<td>84</td>
</tr>
<tr>
<td>University degree</td>
<td>687</td>
<td>866</td>
</tr>
<tr>
<td>Others</td>
<td>198</td>
<td>160</td>
</tr>
</tbody>
</table>

Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.)

With reference to forecast of labour demand of state management agencies of industry and trade at provincial and district levels. Table 3.11 shows the expectation of quantity and quality of cadres, civil servants of the Ministry of Industry and Trade.

Table 3.11. Forecasting the quantity and quality of cadres, civil servants of the Ministry of Industry and Trade
<table>
<thead>
<tr>
<th>Number of persons</th>
<th>Labor structure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2020</td>
</tr>
<tr>
<td>Cadres and civil servants at provincial and district levels</td>
<td>17,002</td>
</tr>
<tr>
<td>Doctoral, master</td>
<td>449</td>
</tr>
<tr>
<td>University</td>
<td>12,954</td>
</tr>
<tr>
<td>Others</td>
<td>3,599</td>
</tr>
</tbody>
</table>

Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.)

It is expected that the quantity and quality of cadres and civil servants of state management agencies of Industry and Trade at provincial and district levels; from 2015 to 2020 will increase at doctoral, master and university levels, and other levels will decrease.

With regard to forecast of labour demand of Industry and Trade by economic regions, it is expected that the quantity and quality of cadres and civil servants of state management agencies of Industry and Trade at provincial and district levels; from 2015 to 2020 will increase at doctoral, master and university levels, and other levels will decrease.

Table 3.12. Forecast of labour demand of Industrial sector by economic regions

<table>
<thead>
<tr>
<th>Number of persons (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
</tr>
<tr>
<td>I. Total for Industrial sector</td>
</tr>
<tr>
<td>1. The Red River Delta</td>
</tr>
<tr>
<td>2. Northern Midland and Mountainous Region</td>
</tr>
<tr>
<td>3. North Central Coastal</td>
</tr>
<tr>
<td>4. Central Highlands</td>
</tr>
<tr>
<td>5. South Eastern</td>
</tr>
<tr>
<td>6. Mekong River Delta</td>
</tr>
<tr>
<td>7. Others</td>
</tr>
<tr>
<td>II. Total skilled labor in industrial sector</td>
</tr>
<tr>
<td>1. The Red River Delta</td>
</tr>
<tr>
<td>- Education and training system</td>
</tr>
<tr>
<td>Region</td>
</tr>
<tr>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>+</td>
</tr>
<tr>
<td>- <strong>Vocational training system</strong></td>
</tr>
<tr>
<td>+ Elementary vocational and non-degree</td>
</tr>
<tr>
<td>+ Intermediate vocational</td>
</tr>
<tr>
<td>+ Vocational colleges</td>
</tr>
<tr>
<td>2. Northern Midland and Mountainous Region</td>
</tr>
<tr>
<td>- <strong>Education and training system</strong></td>
</tr>
<tr>
<td>+ Vocational high school</td>
</tr>
<tr>
<td>+ College</td>
</tr>
<tr>
<td>+ University</td>
</tr>
<tr>
<td>+ Post-graduate</td>
</tr>
<tr>
<td>- <strong>Vocational training system</strong></td>
</tr>
<tr>
<td>+ Elementary vocational and non-degree</td>
</tr>
<tr>
<td>+ Intermediate vocational</td>
</tr>
<tr>
<td>+ Vocational colleges</td>
</tr>
<tr>
<td>3. North Central Coastal</td>
</tr>
<tr>
<td>- <strong>Education and training system</strong></td>
</tr>
<tr>
<td>+ Vocational high school</td>
</tr>
<tr>
<td>+ College</td>
</tr>
<tr>
<td>+ University</td>
</tr>
<tr>
<td>+ Post-graduate</td>
</tr>
<tr>
<td>- <strong>Vocational training system</strong></td>
</tr>
<tr>
<td>+ Elementary vocational and non-degree</td>
</tr>
<tr>
<td>+ Intermediate vocational</td>
</tr>
<tr>
<td>+ Vocational colleges</td>
</tr>
<tr>
<td>4. Central Highlands</td>
</tr>
<tr>
<td>- <strong>Education and training system</strong></td>
</tr>
<tr>
<td>+ Vocational high school</td>
</tr>
<tr>
<td>Level</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>College</td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td>Post-graduate</td>
</tr>
<tr>
<td>Vocational training system</td>
</tr>
<tr>
<td>Elementary vocational and non-degree</td>
</tr>
<tr>
<td>Intermediate vocational</td>
</tr>
<tr>
<td>Vocational colleges</td>
</tr>
<tr>
<td>5. South Eastern</td>
</tr>
<tr>
<td>Education and training system</td>
</tr>
<tr>
<td>Vocational high school</td>
</tr>
<tr>
<td>College</td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td>Post-graduate</td>
</tr>
<tr>
<td>Vocational training system</td>
</tr>
<tr>
<td>Elementary vocational and non-degree</td>
</tr>
<tr>
<td>Intermediate vocational</td>
</tr>
<tr>
<td>Vocational colleges</td>
</tr>
<tr>
<td>6. Mekong River Delta</td>
</tr>
<tr>
<td>Education and training system</td>
</tr>
<tr>
<td>Vocational high school</td>
</tr>
<tr>
<td>College</td>
</tr>
<tr>
<td>University</td>
</tr>
<tr>
<td>Post-graduate</td>
</tr>
<tr>
<td>Vocational training system</td>
</tr>
<tr>
<td>Elementary vocational and non-degree</td>
</tr>
<tr>
<td>Intermediate vocational</td>
</tr>
<tr>
<td>Vocational colleges</td>
</tr>
<tr>
<td>7. Others</td>
</tr>
<tr>
<td>Education and training system</td>
</tr>
<tr>
<td>Vocational high school</td>
</tr>
<tr>
<td>College</td>
</tr>
</tbody>
</table>
+ University & 16 & 65 \\
+ Post-graduate & 0,5 & 2,1 \\
\textbf{- Vocational training system} & 179 & 131 \\
+ Elementary vocational and non-degree & 141 & 80 \\
+ Intermediate vocational & 33 & 47 \\
+ Vocational colleges & 4 & 4 \\

\textit{Source}: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016).

\textbf{Table 3.13. Forecast of labour demand of Trade sector by economic regions}

<table>
<thead>
<tr>
<th></th>
<th>Number of persons (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
</tr>
<tr>
<td>\textbf{I. Total labor in Trade sector}</td>
<td></td>
</tr>
<tr>
<td>1. The Red River Delta</td>
<td>6.977</td>
</tr>
<tr>
<td>2. Northern Midland and Mountainous Region</td>
<td>1.492</td>
</tr>
<tr>
<td>3. North Central Coastal</td>
<td>344</td>
</tr>
<tr>
<td>4. Central Highlands</td>
<td>1.090</td>
</tr>
<tr>
<td>5. South Eastern</td>
<td>326</td>
</tr>
<tr>
<td>6. Mekong River Delta</td>
<td>2.490</td>
</tr>
<tr>
<td>\textbf{II. Total skilled labor in Trade sector}</td>
<td></td>
</tr>
<tr>
<td>1. The Red River Delta</td>
<td>5.527</td>
</tr>
<tr>
<td>\textbf{- Education and training system}</td>
<td></td>
</tr>
<tr>
<td>+ Vocational high school</td>
<td>545</td>
</tr>
<tr>
<td>+ College</td>
<td>172</td>
</tr>
<tr>
<td>+ University</td>
<td>67</td>
</tr>
<tr>
<td>+ Post-graduate</td>
<td>287</td>
</tr>
<tr>
<td>\textbf{- Vocational training system}</td>
<td></td>
</tr>
<tr>
<td>+ Elementary vocational and non-degree</td>
<td>692</td>
</tr>
<tr>
<td>+ Intermediate vocational</td>
<td>518</td>
</tr>
<tr>
<td>+ Vocational colleges</td>
<td>144</td>
</tr>
<tr>
<td>2. Northern Midland and Mountainous Region</td>
<td>31</td>
</tr>
<tr>
<td>\textbf{- Education and training system}</td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>143</td>
</tr>
<tr>
<td>Region</td>
<td>Vocational high school</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>1. North West</td>
<td>32</td>
</tr>
<tr>
<td>2. North West Coastal</td>
<td>54</td>
</tr>
<tr>
<td>3. North Central Coastal</td>
<td>103</td>
</tr>
<tr>
<td>4. Central Highlands</td>
<td>28</td>
</tr>
<tr>
<td>5. South Eastern</td>
<td>274</td>
</tr>
</tbody>
</table>

**3. North Central Coastal**

- **Education and training system**
  - Vocational high school: 103
  - College: 40
  - University: 172
  - Post-graduate: 11
  - Vocational training system: 524
  - Elementary vocational and non-degree: 392
  - Intermediate vocational: 109
  - Vocational colleges: 23

**4. Central Highlands**

- **Education and training system**
  - Vocational high school: 28
  - College: 11
  - University: 46
  - Post-graduate: 3
  - Vocational training system: 158
  - Elementary vocational and non-degree: 118
  - Intermediate vocational: 33
  - Vocational colleges: 7

**5. South Eastern**

- **Education and training system**
  - Vocational high school: 274
  - College: 11
  - University: 46
  - Post-graduate: 3
  - Vocational training system: 158
  - Elementary vocational and non-degree: 118
  - Intermediate vocational: 33
  - Vocational colleges: 7
<table>
<thead>
<tr>
<th>+ College</th>
<th>106</th>
<th>159</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ University</td>
<td>457</td>
<td>730</td>
</tr>
<tr>
<td>+ Post-graduate</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td><strong>Vocational training system</strong></td>
<td>1.166</td>
<td>1.387</td>
</tr>
<tr>
<td>+ Elementary vocational and non-degree</td>
<td>872</td>
<td>936</td>
</tr>
<tr>
<td>+ Intermediate vocational</td>
<td>242</td>
<td>293</td>
</tr>
<tr>
<td>+ Vocational colleges</td>
<td>52</td>
<td>158</td>
</tr>
<tr>
<td><strong>6. Mekong River Delta</strong></td>
<td>894</td>
<td>1.166</td>
</tr>
<tr>
<td><strong>Education and training system</strong></td>
<td>264</td>
<td>400</td>
</tr>
<tr>
<td>+ Vocational high school</td>
<td>84</td>
<td>102</td>
</tr>
<tr>
<td>+ College</td>
<td>32</td>
<td>51</td>
</tr>
<tr>
<td>+ University</td>
<td>139</td>
<td>234</td>
</tr>
<tr>
<td>+ Post-graduate</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td><strong>Vocational training system</strong></td>
<td>630</td>
<td>766</td>
</tr>
<tr>
<td>+ Elementary vocational and non-degree</td>
<td>471</td>
<td>517</td>
</tr>
<tr>
<td>+ Intermediate vocational</td>
<td>131</td>
<td>162</td>
</tr>
<tr>
<td>+ Vocational colleges</td>
<td>28</td>
<td>87</td>
</tr>
</tbody>
</table>

*Source:* Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 (Hanoi 1-2016.)

3.3.3 Human resources developing Action Plan of the Industry and Trade sector for green growth in the period of 2015 – 2020, analysis

*Regarding to orientations on human resource development,* key indicators and solutions for human resources development of the Industry and Trade sector up to 2025 with a vision to 2035 are identified in the Human Resources Development Plan; orientations of the Party and the State on human resource development including policy guidelines of the Party and the State as well as of the sector are clarified in the analysis and forecast of factors affecting human development of the Ministry of Industry and Trade until 2025. However, *green growth requirements and objectives have not been mentioned throughout this section, which affects the whole process and projected results of human resource needs in the plan.* This will be analyzed below:

The evaluation of Vietnam's current situation of industrial and Trade development in the period of 2011-2014 in the above-mentioned plan does not address green growth requirements and objectives.
This fact can be understood due to the fact that Green Industry Action Plan for 2015-2020 (Decision No. 13443 / QĐ – BCT dated 08-12-15) was released 2 years after the approval of the National Strategy for Green Growth 2011-2020 and Vision to 2050 (Decision No. 1393 / QD-TTg dated 25-9-2012);

Green growth requirements and objectives are not mentioned in the orientation of the industrial sector until 2020.

The orientation of Vietnam's trade development to 2020 states that "(2) develop a growing number of domestic traders actively participating in the rapid development of domestic and foreign markets" Quickly develop import-export enterprises and large distribution enterprises with a diversified form of business organization. Yet, green growth requirements and objectives are not mentioned.

Requirements and objectives of green growth were also not included in the analysis of "Factors affecting international integration to human resource development of the industry and trade sector" In section c) the orientation of industrial development up to 2020, there has been a fairly comprehensive analysis, but there is no clear link to the green growth action plan. Section d) Priorities for industrial development is only to "Improve the quality of industrial human resources to meet market requirements".

In summary, it doesn’t address green growth requirements as well as create links to the 2015-2020 green growth action plan of the sector.

It is worth to mention human resource training institutions, the human resources of the sector are trained at the institutions under the purview of the Ministry of Industry and Trade and at other institutions.

*/ Training institutions under the purview of the Ministry of Industry and Trade

- Vocational training at elementary, secondary and college levels are being conducted at 42 out of 49 schools under the purview of the Ministry, of which vocational training are available in all universities and technical colleges.
- Professional secondary training is conducted at 37 training institutions, including 10 universities, 26 colleges and 2 professional secondary schools.
- College and university training is offered at 35 training institutions, including 7 universities and 28 colleges. Training duration and curriculums are in accordance with the regulations of the Ministry of Education and Training.

*/ Other training institutions
Apart from the training institutions under the purview of the Ministry of Industry and Trade, human resources training in related fields is also carried out at other training institutions throughout Vietnam and abroad. Of which, there are 4 higher education institutions under the Ministry of Education and Training, more than 1000 training institutions under other ministries, departments, provinces and non-public sectors offering technical and engineering majors.

Overseas training is conducted mainly in the USA, Russia, Germany, Japan, South Korea, Australia, China, Singapore and Thailand at master and doctoral levels.

About investment in human resources development, over the last three years, the State and enterprises annually invested about VND 260 billion, of which approximately VND 130 billion was for training equipment and VND 400 billion in construction expenditure for 49 institutions under the Ministry. That amount comprised of more than VND230 billion on regular expenditures from the state budget, VND30 billion from enterprises; training equipment expenditures were allocated about 30 billion from the States; over 100 billion was from enterprises and students; s the State allocates about VND 250 billion for construction expenditure; over 150 billion came from enterprises and students. (Source: Ministry of Industry and Trade Comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035)

Regarding to teaching staff, lecturers quoted in report of Ministry of Industry and Trade on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035:

- In terms of quantity: Total number of teaching staff in schools under the Ministry of Industry and Trade is 18,160, of which the number of teachers is 12,530 accounting for 69.0%.
- In terms of quality: The rate of qualified lecturers in schools is 96%, the percentage of doctorate holders in new universities accounts for 6.31%, and that for master degree accounts for 38.1%; In colleges, the proportion of teaching staff with doctoral and master degrees is 1.22% and 30.5%, respectively.

Last but not least, the facilities as describle in report of Ministry of Industry and Trade on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 203, The universities and colleges under the Ministry of Industry and Trade, there are a total of 4022 classrooms with an area of nearly 448,000 m2, 2503 labs, and workshops with a total area of over 431,000 m2, over 176,000 m2 of dormitory and over 49,000 m2 of library. Equipments meet basic requirements in training activities and universities are actively investing in new construction, upgrading equipments for classrooms, laboratories, libraries, specialized classrooms, etc. to improve
the quality and meet requirements of increasing training scale. However, the annual budget allocated to school system under the Ministry is limited (annual expenditures are VND6-8 billion per school, equivalent to VND300,000 per student per year, regardless of differences in economic or technical majors; the average cost of training equipments is approximately 800 million - 1 billion VND/school, and average capital expenditure is 1-2 billion VND/school). These amounts are not enough to meet training scales of schools as well as the need to improve the quality of training and the development of science and technology.

- Activities assigned to The Ministry in developing human resources for green growth in the period of 2015-2020. Specific content of each activity is as follows:

The Green growth Action Plan period 2015-2020 in Decision No. 13443 / QD-BCT dated 08/12/2015 specified detailed tasks of the Ministry in Decision 403 / QD-TTg dated 20/12/2015. - 03 - 2014 approving National Action Plan on Green Growth 2014-2020 and stated that "the Ministry has duties and cooperate in doing following activities 9, 10, 11, 13, 14, 15, 16 26, 30, 41, 43, 46, 49 and 62".6 There were many activities and it is necessary to have specific, clear, timely and reasonable plans to train and improve the skills for the labor and the management force of the sector to meet Vietnam’s green growth requirements in period 2015-2020.

Two groups of activities under Decision 403 / QD-TTg approving the National Green Growth Action Plan 2014-2020 were list in detail in the annex to Decision No. 13443 / QD-BCT dated 08/12/2015 under heading "Activities under the Green Growth Action Plan of the sector for over the 5 year period from 2015 to 2020", including 14 activities are main responsibility of the Ministry and 11 activities that Ministry are coordinated with other Ministries and agencies.

According to the appendix to Decision No. 13443 / QD-BCT, section I “Activities that the Ministry of Industry and Trade is in charge”,7 activity No. 3, 7, 11, 14 are directly linked to human resource development. Specific content of each activity is as follows:

*/ Activity 3: Raising awareness of the entire citizens on saving and using energy efficiently (activity 11 in Decision 403)
- Strengthening propaganda and raising awareness for the majority of citizens, enterprises, agencies and offices; create a positive attitude toward savings and using energy efficiently, environmental protection.

- Integrate knowledge of energy into education and training programs.


The Department of Human Resource Development under the Ministry of Industry and Trade is the coordinating unit of implementation, not the unit in charge. This authority was assigned to the General Department of Energy.

/* Activity 7: Building capacity for energy management in industry and construction (activity 16 in Decision 403) */
- Organize training and certification in energy management and energy audit for staff in industrial production, management of construction works.
- The Ministry of Industry and Trade is assigned to be in charge of this activity together with the Ministry of Construction, People's Committees in provinces and cities, Vietnam Energy Association, Vietnam Chamber of Commerce and Industry.
- The Department of Human Resource Development under the Ministry of Industry and Trade is the coordinating unit of implementation, not the unit in charge. This authority was assigned to the General Department of Energy.

/* Activity 11: Promote the dissemination of cleaner production practices in industry (activity 43 in Decision 403, national plan level) */
- To propagate and raise awareness on cleaner production for industrial manufacturing enterprises and related subjects; by 2020, 90% of businesses must be aware of cleaner production.
- Technically assist industrial manufacturing enterprises to implement cleaner production; by 2020, cleaner production methods will be applied by 50% of enterprises.
- Improving the implementation capacity, consulting and guiding the application of friendly-environmental production for companies, officers as well as technical consultancy groups.
- Institutional improvement to encourage friendly-environmental production in industry
The Ministry of Industry and Trade is in charge to carry out this activity with the Ministry of Science and Technology, People's Committees in provinces and cities, Vietnam Chamber of Commerce and Industry, Industry associations.

Although there is an obvious statement on “Improving the implementation capacity, consulting and guiding the application of friendly-environmental manufacture for entrepreneurs, official managers and technological consultancy organizers” The Department of Human Resource Development under the Ministry is not the coordinating unit of implementation and the unit in charge as well. The department of Science and Technology is the unit in charge.

*/ Activity 14: Carry out the campaign to build the "Using energy efficiently in each household" model (activity 62 in Decision 403, national plan level)
- Communicate and enhance knowledge of energy saving in life for citizens.
- Encourage societal participants to take part in propaganda and application of energy reducing measurements.
- The Ministry is assigned to carry out this activity with the Ministry of Natural Resources and Environment, the Ministry of Agriculture and Rural Development, the Ministry of Science and Technology, Vietnam Electricity Corporation, the People's Committees in provinces, Central and local media agencies, Vietnam Association of Science and Technology, Vietnam Communist Youth Union, the Vietnam Women's Union, the Vietnam General Confederation of Labor, and other social organizations.

The Department of Human Resource Development under the Ministry is not the coordinating unit of implementation or the unit in charge. The general department of energy is the unit in charge.

- Activities assigned to the Ministry coordinating with other agencies to improve human resources for green growth from the year 2015 to 2020.

According to the appendix to Decision No. 13443 / QD-BCT, activities 1, 5, 6, 9 and 10 specified in section II “Activities assigned to the Ministry of Industry and Trade” are directly linked to human resource development. The content of each activity is as follows:

*/ Activity 1: Participating in international activities to promote and share experiences in green growth (activity 5 in Decision 403, national plan level)
- Discuss and sign international agreements on cooperation in implementing green growth strategies.
- Attend important conferences, seminars and events related to green growth promotion.
- Organize events to exchange green growth knowledge with other countries.
- Establish mechanisms for international cooperation on transferring friendly environmental technology and training labor forces for green and sustainable growth. Ministry of Industry and Trade is assigned to coordinate with Ministry of Foreign Affairs, Ministry of Science and Technology, the Ministry of Industry and Trade, Ministry of Agriculture and Rural Development, People's Committees in provinces and cities, the Vietnam Chamber of Commerce and Industry, Vietnam Associations of Science and Technology, Vietnam General Confederation of Labor under the chairmanship of the Ministry of Planning and Investment.

- Under the assignment of the Ministry in Decision 13443, it is stated that "Establishing mechanisms for international cooperation on transferring friendly environmental technologies and training labor forces for green and sustainable growth" but the ministry in charge is Department of Science and Technology, not Human Resources Development Department under the Ministry of Industry and Trade.

*/ Activity 5: Support and encourage research, development and investment in green technology (activity 36 in Decision 403, national plan level)

- Concentrate on research and development investments of key green technologies such as green energy, materials and construction, transport engineering, agro-forestry-biological technology, chemistry and waste treatment.

- Make policies to encourage domestic and foreign enterprises to invest in the green economy, localization of green technology.

The Ministry of Industry and Trade is assigned to coordinate with Ministry of Transport, Ministry of Construction, Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, People's Committees in provinces and cities, Vietnam Academy of Science and Technology, Vietnam Associations of Science and Technology, relevant professional associations under the chairmanship of the Ministry of Science and Technology.

*/ Activity 6: Support human resources training in the field of green jobs (activity 38 in Decision 403)

- Support for technical training for human resources in green industries.

- Promulgating policies to encourage green jobs.

The Ministry of Industry and Trade is assigned to coordinate with Ministry of Transport, Ministry of Construction, Ministry of Education and Training, People's Committees of provinces and cities, the Vietnam General Confederation of Labor under the chairmanship of the Ministry of Labor, War Invalids and Social Affairs.
The Department of Human Resource Development under the Ministry is assigned as the focal point for coordinating the implementation of this activity.

*/ Activity 9: Widely implement the "sustainable development standard enterprises" movement (activity 51 in Decision 403)
- Incorporate "sustainable development enterprises" standards into the public and transparent assessment of business performance and corporate social responsibility.
- Promoting the formation and development of "sustainable business" culture in the business community nationwide
- Improve the capacity of corporate management and consulting firms on corporate restructuring in accordance with corporate sustainability standards.

The Ministry of Industry and Trade is assigned to coordinate with Ministry of Planning and Investment, Vietnam Union of Cooperatives and professional associations under the chairmanship of Vietnam Chamber of Commerce and Industry.

Under the assignment of the Ministry of Industry and Trade in Decision 13443, the following has been stated: "Improve the capacity of corporate management and consulting firms on corporate restructuring in accordance with corporate sustainability standards", yet Planning Department was the focal point for coordinating the implementation of this activity, not Department of Human Resource Development under the Ministry of Industry and Trade.

*/ Activity 10: Building capacity for green growth technical consult and management; Promoting consultancy, supporting companies to implement friendly environmental production, green businesses; Promoting the formation of technical service network, management and service markets for green growth (activity 52 in Decision 403)
- Promote industry associations to develop action plans for green growth and green production.
- Research and propose policies for the development of consulting firms, support the application of friendly environmental production and green standards.
- Suggest policies to increase market of technological advisory services and green development as well as management measurements

Ministry of Industry and Trade is assigned to coordinate with Ministry of Planning and Investment, Vietnam Union of Cooperatives and professional associations under the chairmanship of Vietnam Chamber of Commerce and Industry.

The results of implementation of the activities are shown in Attachment 2: Implementation Results of the Green Growth Plan from 2015 to 2020.
The above information proves that Vietnam has its own national strategy and action plan on green development for the course of 5 years from 2015 to 2020. The action plan contains quite detailed content and meticulous assignment of responsibilities to coordinate for ministries, sectors and organizations. Based on Vietnam’s National Strategy and Action Plan on Green Growth, Ministry of Industry and Trade has developed its own Green Growth Plan for the period 2015-2020. In this plan, Ministry of Industry and Trade has assigned specific tasks to focal agencies to coordinate with other ministries, branches and organizations or to be in charge of the implementation. This process proves that Vietnam is interested in green growth and has made specific efforts to bring green growth into real life. The Ministry of Industry and Trade has quickly and promptly implemented the assigned activities.

However, there are some unreasonable points in the assignment as indicated in each activity: Human Resource Development Department under the Ministry of Industry and Trade plays an unclear role in many training activities for human resources. In particular, the education and training system of the Ministry of Industry and Trade is not mentioned in Decision 13443.

Hence, the following questions have been raised:

⇒ Does Department of Human Resource Development directly deploy to educational institutions under the purview of Ministry of Industry and Trade?

⇒ Is this a sign showing the MOIT educational institution’s separation from the Ministry of Industry and Trade’s actual assignments in implementing its Green Growth Action Plan 2015-2020?

To answer these questions, an interview was arranged with Department of Human Resources Development under the Ministry. Following is the response from Department of Human Resources, Ministry of Industry and Trade: (Attachment 4)

It is impossible for a Ministry of Industry and Trade to coordinate with Ministry of Education and Training and the Ministry of Labor, Invalids and Social Affairs to support the training of technical personnel in the green economy sectors and issue policies motivating green jobs. Management agencies of ministries do not directly implement but through policies, mechanisms, orientation for subunits in human resource training (through propaganda, seminars, plan, and specific tasks assigned to subunits). Once assigned, there needs to have an allocated budget; however, it is difficult in currently strained budget. It is clear that Department of Human Resources does not directly implement, but training institutions do. The department acts as Ministry’s representative for commenting with related Ministries in developing training and job creation policies. Within the Ministry, the Department trains, propagandas and orient schools in
the formulation of training plans emphasizing technical training in fields of green economy. Based on their actual capacity and society’s demand, schools can actively implement. The Department organizes conferences between enterprises and schools to link supply and demand.

- **Activities of other Departments under the Ministry of Industry and Trade**

In addition to activities related to human resource training and the Human Resources Development Department under the Ministry, some other Departments under the Ministry are also assigned to act as coordinators or to coordinate in implementation in the Ministry's Green Growth Action plan. Details are as follows:

*/ Activity 3: **Raising awareness of the entire citizens on saving and using energy efficiently** (as activity 11 in Decision 403)

- Strengthening propaganda and raising awareness for the majority of citizens, enterprises, agencies and offices; create a positive attitude toward savings and using energy efficiently, environmental protection.
- Integrate knowledge of energy into education and training programs.

General Department of Energy is assigned as a focal point to carry out this activity. According to the General Department of Energy, the results of the interview with the General Department of Energy show that they have implemented activity 3 as follows:
- Community awareness raising activity: This activity is within the National Targeted Program on Energy Efficiency and Conservation approved by the Prime Minister and has been implemented since 2006. Up to 2015, community awareness has been implemented in 63 provinces and cities under central authority.
- Integrate knowledge of energy into education and training programs: This is also one of the contents of the National Targeted Program on Energy Efficiency and Conservation. This content is implemented by the Ministry of Education and Training.

*/ Activity 7: **Building capacity for energy management in industry and construction** (activity 16 in Decision 403):

Organize training and certification of energy management and energy audit for staff in industrial production and management of construction works.

General Department of Energy is assigned as a focal point to carry out this activity. The results of the interview with the General Department of Energy show that they have implemented activity 7 as follows:
- The activity is specified in the Law on Energy Saving and Conservation. The General
Department of Energy has been carrying out training and certification of energy management and energy auditors for key energy users and consultants on energy saving.

- Workshops and training sessions on Cleaner Production
- As soon as the Strategy was approved in late 2009, with financial support from the Cleaner Production Component in industry, at the beginning of 2010 the Ministry of Industry and Trade (MOIT) expanded the application of cleaner production in provinces and cities nationwide through Department of Industry and Trade, Industry Promotion Center and some industry associations.
- The number of workshops and training sessions organized by Departments of Industry and Trade and Industry Promotion Centers and the number of participants in 2010 and 2011 from funding sources are shown in the following table 3.14

- **Activities on universities and colleges under the Ministry**

A number of universities and college of the Ministry of Industry and Trade were interviewed to clarify whether they have been given instructions by Ministry of Industry and Trade to implement Decision 13443 (green growth action plan). How do they carry out? Have green growth issues been integrated into their curriculums?

The following table shows responses from the interviews: interview questions in Attachment 2. I received the interview results (details in Attachment 3), and it is brief summarized and analyzed as follows:

* **Implementation of Decision 13443**: There are 3 levels of result:
  - Level 1: Directed from the Ministry (required to include in the curriculum content about 30 periods): only Red Star University and University of Textiles
  - Level 2: No implementation of the universities but the Department of Science and Technology already know through the Department's website (related to some scientific and technological activities that need
  - Level 3: Not yet implemented, not yet known about this content: Other universities

* **Taking “green growth” in the program**: There are 3 levels of result:
  - Level 1: Implemented some scientific and technological activities in the field of green growth: Viet Hung University
  - Level 2: Expected for the Mechanical Engineering to implement some contents but not yet implemented: University of Textiles
  - Level 3: Not implemented yet included in the program: Other universities
In brief, the results of interviews with a number of universities show that although the Ministry of Industry and Trade has implemented the Green Growth Action Plan, the performance varies across universities. This fact shows that it is late in providing knowledge on green growth for labor force in Ministry of Industry and Trade.

- **Activities that the Ministry of Industry and Trade is not assigned to participate**

In addition to the above activities, some activities related to business and green growth are not included in the Decision 403 / QD-TTg, and the Ministry of Industry and Trade is not assigned to participate. These are activities 4 and 53, details are as follows:

*/ Activity 4 Raise awareness and encourage participation in the implementation of the Green Growth Strategy (National level Plan)

- Communicate; raise awareness on green growth to agencies, offices, social organizations representing community groups in society.
- Integrate green growth knowledge into staff development programs.
- Organize community movements on greening production and greening way of life
- Instructing and supporting the development of a network of technical advisory organizations, NGOs working in the field of green growth.

Activity 4 is hosted by the Ministry of Natural Resources and Environment, in collaboration with the Ministry of Education and Training, Ministry of Information and Communications, Central and local media agencies (newspapers, radio and television). The Vietnam Union of Science and Technology Associations, the Vietnam Communist Youth Union, the Vietnam Women's Union, the Vietnam General Confederation of Labor, the People's Committees of the provinces and cities directly under the Central Government, Vietnam Chamber of Commerce and Industry, Industry associations involved in green growth and sustainable development. The Ministry of Industry and Trade is not assigned to take part in.

*/ Activity 53 Raise awareness of business and share experiences nationally and internationally on green growth (National plan level)

- Organizing the dissemination, training, and raising awareness on green growth for target groups such as business owners, technical and management staff, employees and trade unions.
- Organize events to share technical and managerial experience in implementing green growth among enterprises of different occupational groups, sizes and economic sectors.
- Organize learning activities and share international experiences in green growth.
Chapter 4: Findings

4.1 Strengths

After carrying out literature review and interviews, using, analyzing result of interviews, reports, data, especially evaluating the Action Plan for green growth of Ministry of Industry and Trade, especially compare activities are assigned to Ministry of Industry and Trade at National level Action plan of this field in chapter 3,(3.3.3) I realized that it has strong points:

Firstly, having cooperation of other agencies at national level: Vietnam Chamber of Commerce and Industry (VCCI) and other ministries, departments and agencies also take part in the implementation with their assignments specified in Decision No. 403 / QD-TTg dated March 20, 2014 approving National Green Growth Action Plan for 5 year period from 2015 to 2020

Secondly, it has bases at national level and Ministry level. For example, on the basis of Vietnam National Green Growth Strategy and Action Plan during 5 year-period from 2015 to 2020 (Decision No. 1393 / QD-TTg dated 25 September 2012 approving the National Green Growth Strategy for the period 2011-2020 and vision to 2050), Decision 403 / QD-TTg dated March 20, 2014 approving the National Green Growth Action Plan for the period 2014-2020) and other relevant documents, the Ministry of Industry and Trade developed Green Growth Agenda and Action Plan over the course of 5 years from 2015 to 2020 for its sector (Decision No. 13443 / QD-BCT dated 08/12/2015 approving Green Growth Action Plan of Industry and Trade sector for the period 2015-2020). This plan details the scope and work assignments in implementation.

Some actions to develop human resources for green growth for the course of 5 years from 2015 to 2020 of the Industry and Trade sector have been mentioned in the above documents. Decision 403 / QD-TTg dated March 20, 2014 approving the National Green Growth Action Plan for the period has identified activities in which the Ministry of Industry and Trade is assigned to take charge of, assigned to coordinate or not involved in developing human resources for green growth in the period. Decision No. 13443 / QD-BCT dated 08/12/2015 approving the sector’s Green Growth Action Plan for 2015-2020 clearly assigns tasks of Departments, General Departments under the Ministry.

In addition, the Ministry has implemented human resource planning and compiled comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035. They have three more strong points as follows:

- The structure of training majors of the sector’s human resources in the period 2011-201: meets labor demand and basic requirements in terms of quantity and quality of human resources such
as physical strength, professional qualifications and skills, morale, attitude of law obedience, discipline and spirit of cooperation.

- The sector has a meticulous and detailed forecast on labor demand for the period 2015-2020 with some key indicators reflecting quantity and quality of human resources for the period 2015-2020.

- **Having human resource training institutions:** The Ministry has established a system of 49 schools and training institutions with the participation of the Department for Human Resource Development, many other Departments and General Departments as assigned in Decision No. 13443/QD-BCT dated 08/12/2015 approving Green Growth Action Plan of the sector for period from 2015 to 2020 to implement Green Growth Action Plan.

### 4.2 Weaknesses/gaps

#### 4.2.1 Weakness/gap No. 1: Lack of green growth objectives and requirements in the Human Resources Development Plan. Nothing was mentioned about requirements and objectives for Green Growth in the Industrial development orientation to 2020.

The above Human Development Plan does not mention green growth requirements and objectives in evaluating the current situation of Industrial and Trade development in Vietnam in the period 2011-2014. This can be understood due to the fact that Green Growth Action Plan of the sector for 2015-2020 (Decision No. 13443 / QĐ-BCT dated 08-12-15) was released nearly 2 years after the approval of the National Strategy for Green Growth 2011-2020 with vision to 2050 (Decision No. 1393 / QĐ-TTg dated 25-9-2012), and the National Green Growth Action Plan 2014-2020 (Decision 403 / QD-TTg dated 20 March, 2014).

Vietnam's Trade development orientation to 2020 states that "(2) develop a growing number of domestic traders actively participating in the rapid development of domestic and foreign markets and quickly develop import-export enterprises and large distribution enterprises with a diversified form of business organizations". *Yet, green growth requirements and objectives are not mentioned. Requirements and objectives for green growth were not mentioned when* requirements on the quality of human resources were analyzed in "Factors influencing international integration on human resources development in industry and trade sector."

Despite a comprehensive analysis and evaluation, there is no clear link to the green growth action plan under section c) “Industrial development orientation to 2020”

#### 4.2.1 Weakness/gap No. 2: There were no indicators assessing knowledge, cognition, skills and attitude relating to green growth in evaluating human resources of Industry and Trade sector in
The period 2011-2015, which serves as a basis for human resources planning period 2015-2020. Only structures of training majors, indicators on quantity and quality of human resources such as physical strength, professional qualifications and skills, morale, attitude of law obedience, discipline and spirit of cooperation were mentioned. It is the same situation as in the period 2015-2020.

4.2.3 Weakness/gap No.3: Human resource training organizations and institutions under purview of the Minister are neglected, not on the list of human resource training focal points in Green Growth Action Plan of the sector over the course of 5 years from 2015 to 2020 (Decision No. 13443/QD-BCT). The role of these institutions in preparing human resources for green growth of the sector is very blurred, they are even forgotten. Even documents of the Ministry do not list these institutions as focal points to train or to coordinate in training. Especially, the system of training institutions under the purview of the Ministry of Industry and Trade is not mentioned in the sector’s Green Growth Action Plan for the period 2015-2020 in Decision 13443.

4.2.4 Weakness/gap No. 4: A delay in human resource training institutions of the Sector

The results of interviews with universities show that though the Ministry of Industry and Trade has implemented action plan on green growth, the result of implementation of each universities/ colleges are at different levels. This fact shows the late of educational units of the Ministry on equipping knowledge on green growth for labor force. Causes leading to this delay are analyzed under two aspects: Firstly, the above analysis reveals that the MOIT’s education and training system is not taken into account at all, and is not assigned to perform any tasks in the Green Growth Action Plan of the sector for the 5 year period from 2015 to 2020 in Decision 13443. Secondly, this also shows the passive attitude and lack of interest of MOIT’s training institutions in the country’s current situation as well as the sector’s objectives and tasks.

4.2.5 Weakness/gap No. 5: The unclear role of Department of Human Resource Development under The Ministry of Industry and Trade in many activities related to human resource training

Shortcomings in assignments indicated in each activity in Chapter 3 show that the role of Department of Human Resources Development of the Ministry is unclear in many activities related to human resource training in the sector’s Green Growth Action Plan period 2015-2020 in Decision 13443. According to interview results, the Department of Human Resource Development is not the unit directly deployed to training institutions of the Ministry of Industry and Trade.
This further affirms the separation of training institutions under the Ministry of Industry and Trade with the tasks of the Ministry of Industry and Trade in implementing the Green Growth Action Plan for the period 2015-2020. The Ministry of Industry and Trade deploys only to the departmental level, but it does not specify tasks that departments and general departments need to coordinate with educational institutions as well as the system of 49 training institutions to implement the Green Growth Action Plan of the sector in period 2015-2020 in Decision 13443.

4.2.6 Weakness/gap No. 6: A loose coordination mechanism among departments, agencies, and General departments within the Ministry of Industry and Trade lead to a waste of facilities, financial and human resources. The mechanism for monitoring and evaluating the implementation of human resource training for the Ministry of Industry and Trade's Green Growth Action Plan is unclear.

Activities directly related to human resource development for green growth in 2015-2020 that Ministry of Industry and Trade is assigned to take charge of include activity No. 3, 7, 11, 14 as specified in the sector’s Green growth Action Plan for the period 2015-2020 in Decision No. 13443 / QD-BCT dated 08/12/2015

- **Activity 3: Raising awareness of the entire citizens on saving and using energy efficiently**

Human Resources Development Department under the Ministry of Industry and Trade is assigned to coordinate in implementation under the chairmanship of General Department of Energy.

- **Activity 7: Building capacity for energy management in industry and construction.** One of its aims is to “Organize training and certification of energy management and energy audit for staff in industrial production and management of construction works.”

The Ministry of Industry and Trade is assigned to be in charge of this activity together with the Ministry of Construction, People's Committees in provinces and municipals, Association of Energy Association, Vietnam Chamber of Commerce and Industry.

The Department of Human Resource Development under the Ministry of Industry and Trade is the coordinating unit of implementation, not the unit in charge. This authority was assigned to the General Department of Energy.

- **Activity 11 “Promote the dissemination of cleaner production practices in industry”**: Although there is a clear statement on "Improving the implementation capacity, consulting and guiding the application of friendly-eco production for companies, state officials and
consulting technicians of " the Department of Human Resource Development under the Ministry is not the coordinating unit and the in-charge units of implementation as well; the department of Science and Technology is the unit in charge.

- Activity 14: Carry out the campaign to build the "Using energy efficiently in each household"

The Ministry of Industry and Trade is assigned to carry out this activity in collaboration with the Ministry of Natural Resources and Environment, the Ministry of Agriculture and Rural Development, the Ministry of Science and Technology, Vietnam Electricity Corporation, the People's Committees in provinces, Central and local media agencies, Vietnam Association of Science and Technology, Vietnam Communist Youth Union, the Vietnam Women's Union, the Vietnam General Confederation of Labor, and other social organizations.

The Department of Human Resource Development under the Ministry of Industry and Trade is not the coordinating unit of implementation or the unit in charge. The general department of energy is the unit in charge.

- Activities assigned to the Ministry of Industry and Trade to coordinate with other agencies to develop human resources for green growth in the period 2015-2020

According to the appendix to Decision No. 13443/QD-BCT, activities 1, 5, 6, 9 and 10 specified in section II “Activities assigned to the Ministry of Industry and Trade" are directly related to human resource development. The content of each activity is as follows:

- Activity 1: Participating in international activities to promote and share experiences in green growth. Though it is clearly stated that "establishing mechanisms for international cooperation on transferring clean technology and training human resources for green growth and sustainable development" but under assignments stated in Decision 13443, the department in charge to coordinate is Department of Science and Technology, not Human Resources Development Department under the Ministry of Industry and Trade.

- Activity 5: Support and encourage research, development and investment in green technology

The Ministry of Industry and Trade is assigned to coordinate with Ministry of Transport, Ministry of Construction, Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, People's Committees in provinces and cities, Vietnam Academy of Science and Technology, Vietnam Associations of Science and Technology, relevant professional associations under the chairmanship of the Ministry of Science and Technology.

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The Department in charge to coordinate is Science and Technology Department, not Human Resources Development Department.

- Activity 6: Support human resources training in the field of green jobs aims to “Support for technical training for human resources in green industries and promulgate policies to encourage green jobs”.

The Ministry of Industry and Trade is assigned to coordinate with Ministry of Transport, Ministry of Construction, Ministry of Education and Training, People's Committees of provinces and cities, the Vietnam General Confederation of Labor under the chairmanship of the Ministry of Labor, War Invalids and Social Affairs.

The Department of Human Resource Development under the Ministry of Industry and Trade is assigned as the focal point for coordination in implementation.

- Activity 9: Widely implement the "sustainable development standard enterprises" movement

The Ministry of Industry and Trade is assigned to coordinate with Ministry of Planning and Investment, Vietnam Union of Cooperatives and professional associations under the chairmanship of Vietnam Chamber of Commerce and Industry.

Even though the following has been stated "Improve the capacity of corporate management and consulting firms on corporate restructuring in accordance with corporate sustainability standards", under the assignment of the Ministry of Industry and Trade in Decision 13443, Planning Department was the focal point to coordinate in implementation, not Department of Human Resource Development.

- Activity 10: Build capacity for green growth technical consulting and management; Promote consultancy, supporting enterprises to implement cleaner production, green businesses; promote the formation of technical service network, management and service markets for green growth

Ministry of Industry and Trade is assigned to coordinate with Ministry of Planning and Investment, Vietnam Union of Cooperatives and professional associations under the chairmanship of Vietnam Chamber of Commerce and Industry. The Department of Science and Technology is in charge to coordinate, not Human Resources Development Department.

The results of interviews with the Human Resources Development Department also show that the Department's financial resources are not available to be proactively allocated for MOIT educational institutions. There is not enough staff to work regularly with institutions. The Department of Human Resource Development, other Departments and General Departments of
the Ministry of Industry and Trade do not have their own facilities for training and retraining. Meanwhile, as shown in previous analysis, education and training institutions under the Ministry of Industry and Trade are spread throughout the country, with a large enrollment scale, are not included in the list of units implementing human resources training for the Ministry of Industry and Trade's Green Growth Action Plan. *This is a huge waste as resources of the Ministry of Industry and Trade, Human Resources Development Department are still limited while available facilities, financial and human resources of institutions under the Ministry are not utilized.*

The results of interviews with departments related to the Green Growth Action Plan indicate that there is not a clear, close monitoring and evaluation mechanism. Currently there are year-end reports of departments, general departments submitted to departments, general departments that have been assigned as focal points to implement or to coordinate. There are no independent reviews by superiors, experts or researchers on the implementation of the Green Growth Action Plan. These limitations mainly result from limited financial and human resources. The main cause of these weaknesses is the perception of managers of industry and trade about the role of human resources for green growth, the training and retraining of human resources for green growth is unclear.
Chapter 5: Conclusion

5.1 Thesis summary
Chapter 1, the thesis sets out the reasons for analyses and evaluations of the Human Resources Development Plan for Green Growth 2015-2020 of the Industry and Trade sector. This chapter also points out reason for research, objectives. The following part is research question and the thesis structure.

Chapter 2 depicts the general overview of the theoretical framework. The thesis reviews literature related to human resources, economic development and green growth, sustainable development, concepts, implications and criteria for evaluating human resource development for green growth of international scholars (listed in the references), then concludes that human resource development is the backbone and essential for green growth and highlights criteria for evaluating human resource development for green growth.

Literature review on public program evaluation taught by professor at Napa are also covered. This is also a theoretical basis for research in this thesis.

Base on the theoretical framework, chapter 2 end with a range of methodologies applied including method of collecting data: document review, interview, as well as method of analysing data: qualitative method (analysis and evaluation, comments and recommendations).

Chapter 3 is an overview of Vietnam's National Green Growth Strategy and Action Plan for the period 2015-2020 and Green Growth Action Plan of the Industry and Trade sector for 15-2020. In the plan, the Ministry of Industry and Trade has specifically assigned to departments, general departments and agencies to take charge of or to coordinate with other ministries, departments and organizations.

Data in the comprehensive report on adjusting project of human resource development plan in the Industry and Trade sector until 2025 and vision to 2035 have depicted the current situation of human resources in the Industry and Trade sector with appropriate structure of training majors, and meets the labor demand in the period 2011-2015 in terms of quantity. A forecast of labor demand in the Industry and Trade sector for the period 2015-2020 is also included.

The industry and Trade sector has human resource training institutions and universities including 49 universities and colleges. However, these units are not being mobilized to participate in the green growth action plan, but only the Human Resource Development Department and some departments and General Offices are mobilized to participate in the sector's green growth action plan.
The thesis details activities related to human resources training for the implementation of the Green Growth Action Plan of the Industry and Trade sector over the course of 5 years from 2015 to 2020 as well as strengths and weaknesses of the Ministry of Industry and Trade.

In chapter 4, weaknesses in human resources training for the implementation of the Green Growth Action Plan for the Sector in period 2015-2020 are found out. The findings also give out in this chapter.

Chapter 5 is about summary and conclusion of the thesis. The author would like to give some recommendations for policy makers.

5.2 Conclusion

Vietnam has released National Green Growth Strategy and Action Plan for the period 2015-2020. It is quite detailed in assigning responsibilities for ministries, departments and organizations to take charge of or to coordinate, which proves that Vietnam is very interested in green growth and has made specific efforts to bring green growth into real life. Based on the National Green Growth Strategy and Action Plan, the Ministry of Industry and Trade has developed its sector’s Green Growth Action Plan for the period 2015-2020. How has the Ministry of Industry and Trade prepared human resource action plan for green growth of its sector? What are the gaps between policies and real situations of human resource for green growth of the action plan of Industry and Trade sector? By the method collecting data and analyzing data (Hancook, 1998), using mainly the qualitative method and using secondary data, I have found strengths and weaknesses in preparing and implementing the action plan for green growth of the Ministry. About strong points, in the plan, the Ministry of Industry and Trade has assigned tasks to agencies to take charge of or to coordinate with other ministries, departments and organizations. The Ministry of Industry and Trade has quickly and promptly implemented the assigned activities.

The structure of training majors of human resources in the Industry and Trade sector in the period 2011-2015 is appropriate to meet labor demand and basic quantity requirements of human resources in the period 2011-2015.

The Industry and Trade sector has also forecasted labor demand of the sector for the period of 2015-2020.

49 training institutions under The Ministry, Department of Human Resource Development, many Departments and General Departments can be mobilized to take part in the GreenGrowth Action Plan of the Industry and Trade sector for 5 year period from 2015 to 2020.
Apart from the strengths of the published documents, there are some shortcomings: the gaps between the real situation and the policy.

a/ Requirements and objectives for green growth were not mentioned in **evaluating the current situation** of Industrial and Trade development in Vietnam and in “Industrial Development Orientation to 2020” when analyzing the requirements on the quality of human resources in "Factors influencing international integration on the development of human resources in Industry and Trade sector”.

b/ There were no indicators assessing knowledge, cognition, skills and attitude relating to green growth in **evaluating human resources** of Industry and Trade sector period 2011-2015 as well as indicators assessing knowledge, cognition, skills and attitude relating to green growth in **labor demand forecast** of the sector for period 2015-2020.

c/ Human resource training organizations and institutions under purview of the Minister are neglected, not on the list of human resource training focal points in the Green Growth Action Plan of the sector between 2015 and 2020 (Decision No. 13443/QD-BCT). There is also a delay in the human resource training institutions of the Sector. The role of Department of Human Resource Development under the Ministry of Industry and Trade in many activities related to human resource training is unclear due to the lack of general view of the policy makers.

d/ The coordination mechanism among departments, agencies, and general departments within the Ministry of Industry and Trade is unclear, each unit carries out its tasks dependently as assigned in Green Growth Action Plan of the Ministry leading a waste of resources because each unit has their own way to do their tasks.

e/ The mechanism for monitoring and evaluating the implementation of human resource training for the Ministry of Industry and Trade's Green Growth Action Plan is unclear. It should be improved in the next period by the policy makers.

### 5.3 Recommendations for policy makers in Ministry of Industry and Trade

#### 5.3.1 Recommendation No.1

Requirements and objectives, indicators reflecting knowledge, cognition, skill and attitude for green growth should be added in evaluating human resource in the current situation of Vietnam's Industrial and Trade development for 5 year period from 2015 to 2020 as well as labor demand forecast of the Human resource development plan of the Industry and Trade sector.

#### 5.3.4 Recommendation No. 2

Training institutions, Human resource Department under the Ministry Industry and Trade should be added on the list of focal points for training human resources in the Green Growth Action Plan of the
sector for period 2015-2020. There should be clear assignments for these organizations to carry out the task of training and fostering human resources for the sector’s Green growth Action plan for this period to avoid the waste of facilities, financial and human resources. 

Moreover, there should be strengthen and renovate the coordination ways among departments, agencies, general departments and educational institutions under the Ministry of Industry and Trade. This is necessary and feasible to significantly increase facilities, financial and labor resources for training and retraining it for green growth in Ministry of Industry and Trade.

5.3.7 Recommendation No. 3

There should have independent reviews and evaluations carried out by superiors, experts and researchers on the implementation of the Green Growth Action Plan of these organizations to have objective results.

5.4 Limitations and directions for future research

5.4.1 Limitations

The main limitations of the thesis include:

- Limited time: This study was carried out within only 9 months
- Limited financial resources: This is personal research without financial support; therefore fieldwork was unable to be made.

These limitations also lead to the followings:

- The use of secondary data: due to limited time and limited financial resources, data used in this study are only secondary sources, mainly extracted and processed from the human resources developing plan to identify key indicators and solutions for human resources development of Industry and Trade sector to 2025 with vision to 2035.
- Interviews are carried out in selected departments, general departments and universities. Due to time constraints and limited financial resources, interviews have been conducted through letters to some Departments, General Department and universities without reaching the local provinces

5.4.2 Future direction of the research: There should have the following research in near future:

- The coordination mechanism among departments, agencies, and general departments within the Ministry of Industry and Trade in Green Growth Action Plan of the Ministry for the following period.
- The mechanism for monitoring and evaluating the implementation of human resource training for the Ministry of Industry and Trade's Green Growth Action Plan for the following period.
ANNEX 1

FOUR MAIN THEMES OF VIETNAM’S GREEN GROWTH ACTION PLAN (GGAP)\(^9\), they are:

1. **Topic 01: Setting up institutions and formulating green growth action plans at the local level with 08 activities belonging to 02 groups as follows:**
   a) Institutional set-up with 05 activities: From Activity No. 01 to Activity 05.
   b) Formulation of local GGAPs with 03 activities: From Activity No. 06 to Activity No. 08.

2. **Topic 02: Reducing the intensity of GHG emissions and promoting the use of clean and renewable sources of energy: with 20 activities in following 04 groups:**
   a) Implementing efficient and effective use of energy and reducing GHG emission in some energy consuming industrial sectors with 08 activities: from Activity No. 09 to Activity No. 16.
   b) Implementing efficient and effective use of energy and reducing GHG emission in the transportation sector with 03 activities: from Activity No. 17 to Activity No. 19.
   c) Changing cultivation techniques and improving management to reduce GHG emission in agro-forestry and aquaculture with 06 activities: from Activity No. 20 to Activity No. 25.
   d) Developing clean and renewable sources of energy: from Activity No. 26 to Activity No. 28.

3. **Topic 03: Greening production, with 25 activities in 04 groups:**
   a) Review and suggest revision of development strategies, master plans, plans and formulate the program to restructure the economy towards green growth with activities: From Activity No. 29 to Activity No. 38.
   b) Efficient and sustainable use of natural resources and develop green economic sectors with 09 activities: From Activity No. 39 to Activity No. 47.
   c) Developing sustainable infrastructure with 03 activities: From Activity No. 48 to Activity No. 50.
   d) Promote campaign on “Enterprises for Sustainable Development”, improving capacity and market to provide green technical and management services for

4. **Topic 04: Greening lifestyle and promoting sustainable consumption: with 13 activities in 02 groups:**
   a) Develop green and sustainable urban areas with 07 activities: From Activity No.54 to Activity No. 60
   b) Promoting green life style with 06 activities: From Activity No. 61 to Activity No. 66.

ANNEX 2
LIST OF PRIORITY ACTIVITIES UNDER THE GREEN GROWTH ACTION PLAN 2014-2020
(Promulgated in conjunction with Decision No. 403 / QD-TTg dated 20 March 2014 by the Prime Minister)

<table>
<thead>
<tr>
<th>No</th>
<th>Activity Number</th>
<th>Name of activity / program / project / project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Coordination Committee to implement Green Growth Strategy.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Complete the institutional framework to promote economic restructuring in line with the Green Growth Strategy.</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Form a Green Growth Financial Framework.</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Raise awareness and mobilize the participation of all people in the implementation of the Green Growth Strategy.</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Develop green development action plans / programs in some urban and rural areas. Summary and replication.</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>Review, adjust the national green energy strategy and planning</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>Improving ability of energy control both in industry and in construction.</td>
</tr>
<tr>
<td>26</td>
<td>26</td>
<td>Develop and operating tasks to prioritize the development of clean energy sources</td>
</tr>
<tr>
<td>28</td>
<td>28</td>
<td>Institutional improvement of clean air. Inventory, monitor GHG emissions and manage activities to reduce greenhouse gas emissions.</td>
</tr>
<tr>
<td>29</td>
<td>29</td>
<td>Reviewing and proposing adjustments to socio-economic development plans from the angle of sustainable growth and create more projects to improve the economy towards green development from 2014 to 2020.</td>
</tr>
<tr>
<td>30</td>
<td>Revise and suggest adjustments to industry development plans from a sustainable development perspective and develop a policy framework and green industry action plan from 2014 to 2020.</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Reviewing and proposing adjustments to agricultural, forestry and fishery development plans from a sustainable development perspective and developing a policy proposal, green growth action plan for farming cultivation, forestry and fisheries. Production and rural development from 2014 to 2020.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Reviewing, proposing to adjust development planning, transport sector from a sustainable development perspective and developing a policy framework and green growth action plan for the transport sector from 2014 to 2020.</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Reviewing, proposing to adjust construction sector development plans from a sustainable development perspective and developing a policy proposal and green growth action plan for the construction industry between 2015 and 2020.</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Review and recommend adjustments to the development of the natural resources and environment sector from a sustainable development perspective and develop a policy framework and action plan for green growth of the natural resources and environment sector from 2014 to 2020.</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Reviewing, proposing to adjust science and technology development strategy and planning from the perspective of sustainable development and developing a proposal strategy and action plan to develop science and technology to keep up growth requirements for green economy from 2014 to 2020. Support and encourage research, development and investment in green technology.</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Institutional improvement and strengthening the financial and credit capacity of commercial banks for green growth</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Against land degradation, efficient and sustainable use of land resources. Use of water resources effectively and sustainably.</td>
<td></td>
</tr>
</tbody>
</table>
| 41 | Effective and sustainable use of mineral resources.  
Encourage and support the rapid development of the ecological industry. |
| 47 | Recovery, development of natural capital sources. |
ANNEX 3
IMPLEMENTATION SOLUTIONS OF GREEN GROWTH ACTION PLAN (2014-2020), they are:
1. The activities under GGAP should be implemented in synergy and in relevance with contents on: Improving knowledge; developing institutions; restructuring sectors, innovate companies structure as well as technology innovations.
2. Ministries, sectors, localities, People’s Committees of provinces, cities and related agencies who have responsibility to implement activities under GGAP should propose solutions to complete their tasks under the plan from 2014 to 2020.
3. Activities of capital recourses
   - Resources from state budget for supporting Climate change program (SPRCC); it is funded from oversea organizations, enterprises, and social organization as well as domestic organizations.
   - Ministries, sectors and localities according to their assignments must have duties to mobilize control the resources from state budget (both central and local sources) and other sources (private enterprises, international organization’s aids).
   - The Government gives priorities to allocate their budgets to do activities under GGAP and improve energy usage efficiency and develop green and renewable energy.
   - The Government issue legal framework to develop financial organizations and companies investing in programs under GGAP.
ATTACHMENT 1

ACTUAL PERFORMANCE OF INDUSTRY AND TRADE SECTOR’S GREEN GROWTH ACTION PLAN (ANSWER QUESTIONS OF INTERVIEWS OF SCIENCE AND TECHNOLOGY DEPARTMENT OF THE MINISTRY)

(Accompanied with Official /KHCN dated 08 June 2016 of Department of Science and Technology)

<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>Particulars</th>
<th>Department in charge</th>
<th>Status</th>
</tr>
</thead>
</table>
| 1   | Revise, adjust the strategy and national green growth oriented energy planning | - Evaluate the results implementation of "National Energy Development Strategy from 2014 to 2020 with an outlook to 2050", revise and adjust the energy plan to ensure energy security in the circumstance of global economic crisis and climate change;  
- Proposing plans for the implementation of the National Energy Strategy from 2014 to 2020 and strategies towards the synchronous development of energy sources; Exploit and use domestic energy sources economically; Reducing imported petroleum products; Cutting down the amount of fossils fuel (coal, gas); Connect to the energy systems of the neighbors | General Department of Energy       | In progress              |
| 2   | Complete the legal framework for energy efficiency and conservation       | - Continue perfecting the legal proposal for economical and efficient of energy usage in industrial manufacture, in controlling of construction works, in daily-life activities, energy-spending equipments as well.  
- Complete the legal proposals for controlling the need of electricity.  
- Develop and apply state management policies, tools and economic instruments that | General Department of Energy       | In progress              |
<p>|     |                                                                            |                                                                                                                                                                                                          | (Energy Efficiency and Conservation (EE&amp;C) Law) |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>Particulars</th>
<th>Department in charge</th>
<th>Status</th>
</tr>
</thead>
</table>
| 3   | Raise the awareness of the entire citizens about energy saving and efficiency | - Strengthen the propaganda and awareness raising to the public, enterprises, agencies and offices; Establish a sense of regular use of energy savings and efficiency, environmental protection.  
- Proposing training programs of energy efficiency usages and training to people. | General Department of Energy | In progress (Energy Efficiency and Conservation (EE&C) Law) |
| 4   | Issue minimum energy performance standards and label energy consumption for products. | - Continue developing and promulgating energy efficiency standards.  
- Accelerate the mandatory energy consumption labeling schedule for production equipments and household goods.  
- Apply early and strictly adhere to minimum energy efficiency standards for imported household appliances and goods. | General Department of Energy | In progress (Energy Efficiency and Conservation (EE&C) Law) |
| 5   | Improve energy efficiency in energy-intensive industries | - Apply advanced technical standards and norms to improve energy efficiency in production of energy-intensive industries (electricity, cement, steel, textile fibers).  
- Replace coal, gasoline with less carbonated fuels such as gas, biomass, biogas in boilers, industrial burners. | General Department of Energy | In progress (Energy Efficiency and Conservation (EE&C) Law) |
| 6   | Improve energy efficiency in manufacturing and service enterprises | - Support small and medium-sized manufacturing and service enterprises to | General Department | In progress (Energy |

promote the reduction of fossil fuel energy consumption, and encourage the shift to the use of clean and renewable forms of energy; shorten the time to remove subsidies of fossil fuel production and consumption.
<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>Particulars</th>
<th>Department in charge</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Improve energy management capacity in industry and construction</td>
<td>- Organizing education and granting certifications of energy management and energy audit for officials in the field of industrial production, and management of construction works.</td>
<td>General Department of Energy</td>
<td>In progress (Energy Efficiency and Conservation (EE&amp;C) Law)</td>
</tr>
</tbody>
</table>
| 8   | Develop and implement policies to prioritize the development of clean energy sources | - Revicing and recommenddng the readjustments of the main plan for the growth of hydropower plants.  
- Develop investment policies, tax, price and market economy instruments to encourage the exploitation and use of natural gas.  
- Promulgate and supervise the implementation of economic policies to promote the production and consumption of new forms of energy (solar, wind, tidal, geothermal, biomass, bio-gas ...).  
- Support investment to build the machinery manufacturing industry and provide domestic services for new energy. | General Department of Energy | In progress: Wind energy, geothermal, biofuels.... |
| 9   | Review and recommend adjustments to industry development plans from a sustainable | - Assess industrial development situation in the period from 2000 to 2015 according to the older growth model to adapt to sustainable growth model.  
- Reviewing and proposing the readjustment of the master plan for the development of the sector and sub-sectors, especially the sub- | Department of Planning | In progress |
<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>Particulars</th>
<th>Department in charge</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>development perspective, and develop a policy framework and green action plan for industry sector from 2015 to 2020.</td>
<td>sectors and establishments that strongly affect the environment, in order to ensure the sustainable development of the industry and natural resources conservation, controlling pollution and managing waste effectively. - Develop a Green Industry Policy Framework and basic targets for reducing energy consumption per GDP and reduce greenhouse gas emissions in major manufacturing sectors compared to 2010 levels or against normal development scenarios, in 2 scenarios: with/without international support.</td>
<td>Department of Science and Technology</td>
<td>Completed (Decision No. 13443/QD-BCT dated December 8, 2015 by the Minister of Industry and Trade approving the Green Industry Action Plan 2015-2020)</td>
</tr>
<tr>
<td>10</td>
<td>Use mineral resources effectively and sustainably</td>
<td>- Inventory and assess mineral resource use in the 2000-2015 period. - Checking and assess the suitability of the existing systems (legal and organizational systems) that in the need of green growth model. - Develop policy frameworks and action plans to utilize and develop mineral resources toward green growth until 2020 with a outlook to 2050. - Complete management system of mineral</td>
<td>Heavy Industry Department</td>
<td>In progress as scheduled.</td>
</tr>
<tr>
<td>No.</td>
<td>Activities</td>
<td>Particulars</td>
<td>Department in charge</td>
<td>Status</td>
</tr>
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<td>-----</td>
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</tr>
</tbody>
</table>
| 11  | Apply cleaner production methods in industry in large-scale               | - Propagate and raise awareness on cleaner production for industrial production enterprises and stakeholders; by 2020, 90% of businesses have knowledge of friendly environmental production.  
- Provide technical assistant to implement cleaner production in industrial production enterprises; by 2020, 50% of businesses will have applied cleaner production methods.  
- Improve implementation capacity, consult and guide the application of friendly environmental production to companies, state officials and organizations’s consulting technicians  
- Improve institutional to promote cleaner production in industry. | Department of Science and Technology | Having been progressed in line with the annual plan for the implementation of the “Cleaner Production Strategy in industry” |
<p>| 12  | Promote the production of environmental goods and services               | - Develop projects promoting production activities and services against pollution; restore and improve the environment, increase jobs both in cities and countryside. Improve Institutional to shift most of producing goods and environmental services activities from subsidized activities to market operations in a dynamic and effective manner. | Department of Science and Technology | In progress as scheduled.                                                                 |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Activities</th>
<th>Particulars</th>
<th>Department in charge</th>
<th>Status</th>
</tr>
</thead>
</table>
| 13  | Improve and develop energy infrastructure sustainably | - Develop electricity sources to ensure sufficient supply of electricity in domestic; improve the electricity supply network and use electricity efficiently.  
- Renew production technology; distribute and improve electricity consumption efficiency to reduce the rate of electricity elasticity/GDP from 2.0 to 1.0 by 2020.  
- Using modern technology solutions to increase distribution quality; reduce power loss and build smart grid. | General Department of Energy                  | In progress (Energy Efficiency and Conservation (EE&C) Law) |
| 14  | Carry out the campaign to build the model "Energy saving in each household" | - Organize communication to improve knowledge on saving energy in daily life.  
- Call for all social groups to take part in applying ways of energy saving measures. | General Department of Energy                  | In progress (Energy Efficiency and Conservation (EE&C) Law) |
ATTACHMENT 2: INTERVIEW CONTENT

Subjects:
• General Department of Energy
• Departments of Ministry of Industry and Trade: The Department of Human Resource Development, Science and Technology Department, Domestic Market Department, Planning Department
• Universities and Colleges of the Ministry of Industry and Trade

I. Questions for the General Department of Energy

Activity 3: Raise the awareness of the entire people about energy saving and efficiency (as operation 11 in Decision 403) has two group contents:
- Strengthening the propaganda and awareness raising of the majority of people, enterprises, agencies and offices; Build a sense of regular use of energy savings and efficiency, environmental protection.
- Incorporate energy knowledge into education and training programs.
Q: MOIT’s General Department of Energy is assigned as an important department to carry out this activity. If the General Department of Energy has done this activity, how they have been carried out it?

Activity 7: Capacity building in energy management in industry and construction (as operation 16 in Decision 403) has the following group contents:
- Organizing teaching and issuing certificates of management and audit of energy for officials in the field of industrial production, management and use of construction works.
Q: MOIT’s General Department of Energy is assigned as an important Department to carry out this activity, if yes, how the Department has implemented it? When they implemented? Where they implemented?

II. Questions for the Department of Human Resource Development

Activity 6: Support training of human resources in the field of green jobs (as operation 38 in Decision 403) with two group contents:
- Support the training of technicians in the sectors for the green economy.
- Recommending alternatives for government to create green jobs.
Q: The Department of Human Resource Development under the Ministry of Industry and Trade is assigned as the crucial Department for coordinating the implementation of this activity. How the Development has done it? What they have done? Will the Department of Human Resource Development be assigned directly to educational institutions of the Ministry of Industry and Trade? Has Human Resource Development Department directly assigned to Universities under the Ministry? Because of MOIT’s 49 Universities and College which are classified into 2 types:
Universities and colleges under the Ministry: There are 35 units, including 09 universities, 01 training center; 22 colleges and 03 vocational colleges.

Universities and colleges belonging to enterprises under the Ministry: There are 14 units, including 01 university, 05 colleges, 05 vocational colleges, 01 professional secondary school, 01 vocational secondary school and 01 training and fostering.

**III. Questions for Planning Department and Department of Science and Technology**

Activity 9: Widely implement the movement "Enterprises meet the standards of sustainable development" (as operation 51 in Decision 403) with two group contents:

- Incorporate "sustainable development" standards into the public and transparent assessment of business performance and corporate social responsibility.
- To promote the formation and development of a culture of "sustainable enterprise" in the business community nationwide.
- Improve the capacity of corporate management and consulting organizations to implement corporate restructuring in accordance with corporate sustainability standards.

The Ministry of Industry and Trade is duties to coordinate with the Ministry of Planning and Investment, the Vietnam Union of Cooperatives and professional associations under the chairmanship of Vietnam Chamber of Commerce and Industry.

Under the obligation of the Ministry of Industry and Trade in Decision 13443, although this activity has the content "Capacity building for corporate management team and consulting organizations to implement restructuring in enterprises according to standards of delivery Sustainable development of enterprises", the Department of Human Resource Development under is not assigned as the coordinator. In fact, the Planning Department is assigned this activity.

Q: Has the Department done it yet? How have they done?

Activity 10: Capacity building for technical advice and management of green growth; Promote consultancy, support enterprises to implement cleaner production, green businesses; To promote the formation of a network of technical service-management and service-oriented services for green growth (as operation 52 in Decision 403) with three group contents:

- Promote industry associations to develop action plans for green growth and green production.
- Researching and proposing policies for development of consultancy enterprises, supporting the application of friendly environmental production and green criteria
- Recommending policies for market development of technical advisory services and solutions for managing green development.
The Ministry of Industry and Trade is tasked to coordinate with the Ministry of Planning and Investment, the Vietnam Union of Cooperatives and professional associations under the chairmanship of the Vietnam Chamber of Commerce and Industry. What does the Ministry of Information and Education carry out in this task?

**IV. Questions for Universities and colleges under MOIT**

5/ Q: Do Universities and colleges that are directed by MOIT have to implement Decision 13443 (green growth plan)? Please describe specifically?

Q: Universities and colleges have brought green growth, QD 13443 into the curriculum? Please describe specifically? What and how?

Universities and colleges: Organizing training and retraining of knowledge, management skills in the green economy, green manufacturing for the public administration staff and enterprises, for the immediate staff leadership, policy formulation, strategy, planning and socio-economic development plan?

- To develop human resources for green growth on the basis of researching and selecting the contents of green growth, green technology, sustainable resource exploitation ... at the educational levels and grades.

- How to develop business guidelines in order to access financial and technological options for greening industry and agriculture?
## ATTACHMENT 3

### INTERVIEW RESULT OF A NUMBER OF UNIVERSITIES AND COLLEGES OF THE MINISTRY OF INDUSTRY AND TRADE (Question IV)

<table>
<thead>
<tr>
<th>No.</th>
<th>University</th>
<th>Respondent</th>
<th>Deployment of Decision</th>
<th>Integrated in curriculum (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hanoi University of Industry</td>
<td>Head of Training Department</td>
<td>Have not heard about this</td>
<td>Not implemented</td>
</tr>
<tr>
<td>2</td>
<td>Sao Do University</td>
<td>Quality Assurance Manager</td>
<td>There has been instruction from the Ministry to include about 30 periods in training program</td>
<td>Not implemented</td>
</tr>
<tr>
<td>3</td>
<td>Viet Hung University</td>
<td>Head of Human Resource Department, Head of science and technology Department</td>
<td>Not implemented on campus Science and technology Department heard about this via the Ministry’s website (Some scientific and technological activities need to refer to this regulation)</td>
<td>Not implemented</td>
</tr>
<tr>
<td>4</td>
<td>Electric Power University</td>
<td>Some Heads of department, Deans</td>
<td>Not yet implemented or heard of</td>
<td>Not implemented</td>
</tr>
<tr>
<td>5</td>
<td>Ho Chi Minh City University of Food Industry</td>
<td>Some lecturers and staffs</td>
<td>Not yet implemented, no information about effective time of the Decision</td>
<td>Not implemented</td>
</tr>
<tr>
<td>6</td>
<td>Industrial University of Ho Chi Minh</td>
<td>Not answer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>Position</td>
<td>Status</td>
<td>Details</td>
<td></td>
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<td>-----------------------------</td>
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<td>---------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>8  Hanoi Industrial Economics College</td>
<td>Vice rector</td>
<td>Not yet received.</td>
<td>Not implemented</td>
<td></td>
</tr>
<tr>
<td>9  Hanoi Industrial Textile Garment University</td>
<td>Vice rector in charge of Training</td>
<td>Received and implemented</td>
<td>Mechanics Department is to carry out some activities but does not start.</td>
<td></td>
</tr>
</tbody>
</table>
**ATTACHMENT 4**

**ANSWER QUESTIONS OF SOME DEPARTMENTS OF MINISTRY OF INDUSTRY AND TRADE**

* GENERAL DEPARTMENT OF ENERGY

/ Activity 3. Raise the awareness of the entire population about energy saving and efficiency (as activity 11 in Decision 403) has two contents:
- Strengthen the propaganda and awareness raising to the majority of people, enterprises, agencies and offices; build awareness of the regular use of energy conservation and efficiency, environmental protection.
- Incorporate energy knowledge into education and training programs.

MOIT's Energy Department is assigned as the focal point for this activity. Did the General Department of Energy have implemented, how do?
- Communication activities to raise public awareness. This is an activity within the National Targeted Program on Energy Efficiency and Conservation approved by the Prime Minister and implemented in 2006. Up to 2015, community awareness has been implemented in 63 provinces and cities under the central government.
- On the content of integrating knowledge into the education and training program. This is also one of the contents of the National Target Program on Energy Efficiency and Conservation. This content is handled by the Ministry of Education and Training.

2 / Activity 7. Capacity building in energy management in industry and construction (activity 16 in Decision 403) has the following contents:
- Organize the training and issuance of certificates of energy management and energy audit for officials in the field of industrial production, management of use of construction works.

MOIT's Energy Department is assigned as the focal point for this activity. Did the General Department of Energy have implemented, how do they do?
- This is the activity prescribed in the Law on Energy Efficiency and Conservation. The Department of Energy has been carrying out training and certification of energy management and energy auditors for key energy users and consultants on energy saving.

* DEPARTMENT OF SCIENCE AND TECHNOLOGY

Activity 10. Capacity building for technical advice and management of green growth; promote consulting activities, support enterprises to implement cleaner production, green businesses; To promote the formation of a network of technical service-management services and service markets for green growth (operation 52 in Decision 403) with three contents:
- Promote industry associations to develop action plans for green growth and green production.
- Researching and proposing policies for development of consultancy enterprises, supporting the application of friendly environmental production and green criteria.
- Propose policies for market development of technical consultancy services and solutions for green growth management.

The Ministry of Industry and Trade is tasked to coordinate with the Ministry of Planning and Investment, the Vietnam Union of Cooperatives and professional associations under the chairmanship of the Vietnam Chamber of Commerce and Industry. What has CTM implemented in this context?:

1. According to Decision No 1393 / QD-TTg dated 25 September 2012 of the Prime Minister approving the National Strategy for Green Growth up to 2020, vision to 2050; and Decision No. 403 / QD-TTg dated 20 March 2014 of the Prime Minister approving the National Green Growth Action Plan 2014-2020, the Ministry of Industry and Trade was assigned 14 actions in total No. 66 on green growth. These activities are divided into three main groups: Reducing Greenhouse Gas Emissions and Promoting Clean Energy and Renewable Energy; Greening production; Greening the lifestyle and promoting sustainable consumption.

2. Specific results of the performance of tasks in the Attachment 1 in this thesis (Accompanied with Official /KHCN dated 08 June 2016 of Department of Science and Technology)

*ANSWER QUESTIONS OF DEPARTMENT OF HUMAN RESOURCE

3 / Activity 6. Support training of human resources in the field of green jobs (activity 38 in Decision 403) with two areas:
- Support for technical human resources training in the green economy.
- Promulgating policies to create green jobs.

The Human Resources Development Department under the Ministry of Industry and Trade is assigned as the focal point for coordinating the implementation of this activity. Has the Human Resource Development Department of MOIT done yet? Will the Department of Human Resource Development be deployed directly to educational institutions of the Ministry of Industry and Trade? Human Resource Development Department directly deployed to the schools under the Ministry?

Of the 49 MOIT schools, there are 2 types:

Schools of the Ministry: There are 35 schools, including 09 universities, 01 training school; 22 colleges and 03 vocational colleges.
Schools belonging to enterprises under the Ministry: There are 14 schools, including 01 university, 05 colleges, 05 vocational colleges, 01 professional secondary school, 01 vocational secondary school and 01 training and fostering center.

The basic response would be: MOIT should not coordinate with MOET, MOLISA to support the training of technical staff in the fields of the green economy and promulgate policies to create greening. The management agencies of the ministries do not directly implement the policy implementation through the policy mechanism, through the orientation for the units in the training of human resources (through propaganda, seminars, through the plan, planning, and specific tasks assigned to the unit. Note if task allocation is budget support which is very difficult in difficult situation). It is clear that the DPA is not directly implemented by training institutions. The ministry's focal point is to provide comments to the relevant ministries on the formulation of training policies and employment policies. Within the Ministry, the Department of Training, Propaganda and Orientation of schools in the development of training plans that focus on technical personnel in the sectors of the green economy for the schools to actively base Based on their actual capacity and their social and business needs. The seminar organized between enterprises and schools to link supply and demand ... More specifically, what policy formulation, dissemination, direction, how you can search documents on the internet.
References:

I. List of references


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74. Prime Minister (2/19/2013): *Decision No339, approving the master plan for economic restructuring associated with the transformation of the growth model towards enhancement of quality, efficiency and competitiveness in the period of 2013-2020*. Hanoi, Vietnam.


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