



MINNA KALJONEN

Caught between
Standardisation and Complexity

Study on the institutional ambiguities of
agri-environmental policy implementation
in Finland



ACADEMIC DISSERTATION

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Acknowledgements

I am sitting on a train while I write this. I am coming from Tampere, where I checked out the places for my *karonkka*. I got nicely surprised during this trip. As I do not live in Tampere, I know fairly little about the kind of places the city has to offer for parties like a *karonkka*. In order to fill this gap in my knowledge, I asked for some suggestions from friends and colleagues who know the city better than I do. During my trip I visited couple of these places, but for various reasons they did not get my party spirit moving. Luckily, however, I passed by the old Frenckell building. Its red brick walls inspired me, and I noticed that the city of Tampere uses most of the building for public services nowadays. I ran around the house and stumbled across a lady, who saw my curiosity and caught my anxious gaze. She approached me and said: “You are in the right place; we have the perfect place for your party in the inner garden.” As I peeped through a window, I knew I had found it. I could already see the band playing in the corner.

The most important thing in travelling is to be open to surprises – and to make the best out of them. The plans you have made beforehand rarely come to pass, or they simply turn out dull and inappropriate when the time comes to test them. The same principle, as you might guess, holds true for research as well. This piece of work is the result of a long journey. During that journey I came across many surprises, but I also carried too many balls and chains with me. For the surprises I have many people to thank, for the balls and chains I can only look in the mirror.

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pila: keep on going! And last, but not least, thank you Lea Kauppi for letting us build our social scientific capabilities in SYKE.

I have also been privileged to be a part of another community of environmental policy researchers. The Umbrella group in Tampere has offered a much-needed counterbalance to the realities of a research institution. The umbrella seminar room always provided a free zone for thinking. I always felt I could find soul mates in that room. Thank you all for the discussions we have had in and outside that room. In particular, thank you Maria Åkerman, Taru Peltola (well, you left for SYKE) and Ari Jokinen for your works and thoughts. They have been very meaningful to my work.

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I have worked together with all of these people in the projects which form the backbone of this thesis. I started the empirical research in the project “*Future alternatives for future agriculture: dimensions and scales of sustainability*”, which was funded by the Academy of Finland, and continued the research in the project “*Development of Finnish agri-environmental policy after EU-membership*”, funded by the Ministry of Agriculture and Forestry. Personal grants from the Academy of Finland and from the Maj & Tor Nessling foundation, together with the resources offered from SYKE, made it possible to compile the synthesis. I also wish to acknowledge Tampere University Press for publishing this thesis as part of their series. Ritva Koskinen deserves special thanks for doing the lay-out for the synthesis and standing up for me in the very late stages of the publication process. I would also like to thank Paul Andersson (Done Information) and Don McCracken for proof-reading my English.

In the midst of the research brought to this thesis I also met my man, and we had two children. Becoming a mother gave me a totally new perspective on food and its production. Thank you Perttu and Ansa for this, and for so much more. Mikko, you surprise me everyday with your love. My mother and father, I can detect both of you in this work. The commitment to learning and do-it-yourself evidently stem from our home. And my grandma Kerttu you are the other lady, who awoke my interest in agriculture. Thank you for this and for the precious moments we once shared.

In a train, somewhere between Tampere and Helsinki, 18.2.2011

Minna Kaljonen

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Summary

Finnish agri-environmental policy has not met the environmental goals it has set for itself. The agri-environmental schemes, which came into force in 1995 upon Finland's accession to the European Union, introduced a major shift in Finnish agri-environmental policy. They promised a new approach to agri-environmental governance, suggesting that farmers should be paid for providing environmental goods and practicing environmentally sound farming. They also introduced a new form of cross-sectoral and multi-level practice to policy implementation. However, despite the changes in cultivation practices, the nutrient loads have not decreased as was hoped for.

The resolution of agri-environmental problems seems to have run aground on institutional ambiguity. Currently established political institutions lack the power to deliver the required policy results on their own; new institutions, practices and systems of meaning are needed. Maarten Hajer has stressed that "where policy making and politics takes place in an institutional ambiguity, we should pay attention to a double dynamic: actors not only deliberate to get to favourable solution for particular problems, but while deliberating they also negotiate new institutional rules, develop new norms of appropriate behaviour and devise new conceptions of legitimate political intervention".

If we are to understand the failures experienced within agri-environmental policy, we need a careful analysis of how doing politics as well as governing environment, are being (re)negotiated and experimented alongside policy deliberation. In this study, I take up this challenge by examining the following empirical questions 1) how actors in charge of implementation translate the agri-environmental policy objectives into practice, how these practices depend on one another and co-evolve as they interact; 2) how farmers translate agri-environmental schemes into farming practices and how commitment to agri-environmental management emerges; and 3) how various actors are brought together during implementation, to deliberate upon agri-environmental management. In order to analyse the confronted institutional ambiguities, I bring together discussions from environmental policy analysis and Science and Technology Studies (STS). The empirical studies brought to bear on this synthesis are based on case studies carried out in South Ostrobothnia and Southwest Finland during the years 2000–2006.

The empirical results of this study highlight that the implementation of the schemes has become a central site of politics. By emphasising standardised management procedures and income support, the agri-environmental schemes have questioned the values of good farming, livelihood bases, farmers' experiential knowledge and care for the land. These values have become endangered attachments, which require active commitment. Something new has arisen as a result of the implementation of the agri-environmental schemes: political action, which deliberates on commitments. These commitments treat environmental management as something which builds upon the potentials available at a particular farm in a given socio-material environment.

During implementation, I detected several moments and practices which were responsive to commitments. The results stress the role of local rural officials and advisors as buffers between policy and practice, and the importance of local plans and projects in bringing the various actors together to deliberate on agri-environmental management. These practices have become important to building trust among multiple actors and linking individual actions to environmentally effective collective action. Furthermore, they propose rather different scales and institutional rules of action for effective agri-environmental management, compared to existing policy measures. They suggest that the more flexibly policy measures and technologies can move across various policy levels, and become part of various actors' commitments, the more powerful they can evolve.

Empirical results gained from the implementation practice highlight that if we are to understand the institutional ambiguities posed by the resolution of agri-environmental problems, we should not only analyse how new institutional rules and commitments are deliberated upon, but also how new policy requirements become routines, and how these routines relate to past policies, practices

and actor positions. The results gained from the implementation of Finnish agri-environmental policy are interesting in this respect. The results highlight how, in practice, the agricultural sector has taken ownership of the General Protection Scheme (GPS), which stresses the welfare effects on a national scale; whereas the actions of the environmental sector focus on the Special Protection Scheme implemented on a plot scale. During routinised implementation tasks, the tight association between vertical policy measures and the horizontal implementation network enacts the division between agricultural and environmental concerns in agri-environmental policy, whilst maintaining continuums with past policies, practices and actor positions. In agri-environmental policy, many policy tools and technologies are explicitly developed to maintain their form and stability as they travel from the ministry to the farms. This is seen as affirming the justness and equity of the policy instruments. The results of this study have shown how such standardisations may enact strong rigidities within the policy system as they are implemented in practice, and consequently restrain the policy from renewal.

An open and active examination of various policy phases is needed if we are to understand the institutional ambiguities posed by the resolution of agri-environmental problems. Implementation practices may enact both rigidities and novelties within the system of governing. A constant (re)evaluation of these should be an integral part of an attentive environmental policy. I hope the methodological tools developed in this study can help social sciences in taking more active role in this major endeavour.

Tiivistelmä

Suomen maatalouden ympäristöpolitiikka ei ole saavuttanut sille asetettuja ympäristötavoitteita. Maatalouden ympäristötuki, joka tuli voimaan vuonna 1995 Suomen liittyessä Euroopan Unioniin (EU), on merkittävin maatalouden ympäristöpolitiikan keino Suomessa. Voimaan tullessaan se tarjosi uudenlaisen lähestymistavan maatalouden ympäristöongelmien ratkaisuun: viljelijöille tulisi maksaa ympäristöhyötyjen tuotannosta ja ympäristöystävällisen maatalouden harjoittamisesta aiheutuvat kulut. Se kutsui myös ympäristö- ja maatalousviranomaiset sekä neuvijat aktiivisempaan yhteistyöhön politiikan toimeenpanossa. Vaikka ympäristötuki on muuttanut merkittävästi viljelymenetelmiä, ravinnekuormitus ei ole vähentynyt toivotussa määrin.

Maatalouden ympäristöongelmien ratkaisu on joutunut vastakkain institutionaalisen tyhjiön tai enneminkin epämääräisyyden kanssa. Nykyiset, vallalla olevat poliittiset instituutiot ja käytännöt eivät kykene tuottamaan lupaamia tuloksia; tarvitaan uudenlaisia instituutioita, käytäntöjä ja merkitysjärjestelmiä. Maarten Hajer on painottanut, että “kun politiikkaa tehdään institutionaalisen epämääräisyyden tilassa, meidän on kiinnitettävä huomiota kahdenlaiseen dynamiikkaan: toimijat eivät ainoastaan neuvottele löytääkseen parhaimman mahdollisen ratkaisun ongelmiinsa; samanaikaisesti he myös neuvottelevat uusista toimintamalleista, kehittävät uusia normeja sopivasta käytöksestä sekä uudistavat käsityksiä oikeudenmukaisesta poliittisesta interventiosta”.

Jos haluamme ymmärtää haasteita, joita maatalouden ympäristöongelmien ratkaisu asettaa ympäristöpolitiikalle, meidän on tarkasteltava lähemmin miten ympäristöhallinnan tapoja koetellaan osana politiikan toimeenpanoa. Tämä edellyttää politiikkaprosessien altistamista empiiriselle analyysille. Tässä tutkimuksessa tartun tähän haasteeseen tarkastelemalla 1) miten toimeenpanosta vastaavat toimijat kääntävät maatalouden ympäristöpolitiikan tavoitteet käytäntöön ja miten heidän käytäntönsä riippuvat ja muovautuvat suhteessa toisiinsa; 2) miten viljelijät kääntävät ympäristötuen keinot viljelykäytännöiksi ja miten sitoutuminen ympäristönhoitoon syntyy; sekä 3) miten eri toimijat tuodaan yhteen neuvottelemaan maatalouden ympäristönhoidosta toimeenpanon aikana. Empiirisen aineiston tulkinnassa tuon yhteen käsitteistöä ympäristöpolitiikan sekä tieteen ja teknologian tutkimuksen piiristä. Tutkimuksen empiirinen aineisto perustuu tapaustutkimuksiin, jotka toteutin Etelä-Pohjanmaalla ja Varsinais-Suomessa vuosina 2000-2006.

Tutkimuksen tulokset osoittavat, että ympäristötuen toimeenpanosta on tullut merkittävä poliittisen toiminnan paikka. Korostamalla standardisoituja ympäristönhoitomenetelmiä sekä tulotuelisia elementtejä, ympäristötuet ovat kyseenalaistaneet perinteiset arvot hyvästä maataloudesta, tulonmuodostuksesta, viljelyyn tarvittavasta tiedosta ja “maan hengestä”. Näistä arvoista on tullut uhanalaisia asioita, jotka vaativat viljelijöiltä aktiivista sitoutumista ja uudelleen tulkintaa. Ympäristötukien toimeenpano on synnyttänyt poliittisen tilan, jossa keskustellaan siitä mitä sitoutuminen ympäristönhoitoon merkitsee. Tämä keskustelu ei tyhjene dikotomisiin ympäristönhoidon ja tuotannon välisiin kategorioihin; se korostaa ennemminkin ympäristönhoidon tilanteista luonnetta. Sitoumukset rakentuvat niiden mahdollisuuksien päälle, joita kullakin tilalla on tiettyjen sosio-materiaalisten edellytysten vallitessa.

Nostan tutkimuksessa esiin eräitä käytäntöjä, jotka ovat mahdollistaneet herkistymisen sitoumuksille toimeenpanon aikana. Tulokset korostavat kunnallisten maaseutusihteerien ja neuvojien merkitystä politiikan ja käytännön välisinä tulkkeina sekä paikallisten suunnitelmien ja projektien merkitystä eri toimijat yhteen tuovina käytäntöinä. Nämä käytännöt ovat osoittautuneet merkityksellisiksi rakennettaessa luottamusta eri toimijoiden välillä sekä yhdistettäessä maatilatason toimet kollektiiviseen, ympäristön kannalta vaikuttavaan, toimintaan. Nämä käytännöt tarjoavat varsin erilaisen näkökulman ympäristönhoidon mittakaavoihin verrattuna nykyisiin ympäristötuen keinoihin. Tämän näkökulman mukaan mitä joustavammin politiikan keinot pystyvät liikkumaan eri politiikan tasojen ja sitoumusten välillä, sitä vaikuttavimmiksi ne voivat muovautua.

Tutkimustulokset korostavat myös rutiinien merkitystä politiikan toimeenpanossa. Jos haluamme ymmärtää niitä haasteita, joita maatalouden ympäristöongelmien ratkaisu asettaa ympäristöpolitiikalle, meidän on tarkasteltava myös miten politiikkakeinot ja käytännöt muuntuvat rutiineiksi – ja miten nämä rutiinit linkittyvät aiempiin poliitikoihin, toimintamalleihin ja toimijoiden välisiin suhteisiin. Suomen maatalouden ympäristötuen toimeenpanosta saadut tulokset ovat mielenkiintoisia tässä mielessä. Tulosten mukaan toimeenpannessaan perustukea maataloushallinto vahvistaa ympäristötuen maatalouden tulonjakoon ja kansalliseen tasavertaisuuteen liittyviä elementtejä, kun taas erityistukien toimeenpano keskittää ympäristöhallinnon toimet irrallisten peltolohkojen tasolle. Rutinoituessaan toimeenpanotehtävät tuottavat tämän tuotannollisia ja ympäristöhoidollisia intressejä koskevan dikotomian aina uudelleen ja uudelleen – samalla vahvistaen maatalouden ympäristöpolitiikassa vallalla olleita toimintamalleja ja toimijoiden välisiä suhteita. Maatalouden ympäristötuesta politiikkatoimet on kehitetty sellaisiksi, että ne säilyttävät muotonsa siirtyessään paikasta toiseen. Tämä on nähty edellytyksenä politiikan oikeudenmukaisuudelle. Tässä tutkimuksessa sovellettu metodologia on osoittanut, että käytäntöön vietäessä tämänkaltaiset standardit helposti tuottavat jähmeyttä politiikan sisäiseen kehitykseen ja voivat jopa estää politiikkaa uudistumista.

Maatalouden ympäristötuesta saadut tutkimustulokset osoittavat, että politiikan toimeenpano voi käytännöllään sekä uusintaa vallalla olevia toimintamalleja ja toimijoiden välisiä suhteita että myös aktiivisesti kyseenalaistaa ja uudistaa niitä. Näiden käytäntöjen välisten jännitteiden kriittinen arviointi on herkän ja refleksiivisen ympäristöpolitiikan edellytys. Toivon, että tässä tutkimuksessa kehitetyt metodologiset välineet voivat auttaa myös yhteiskuntatieteitä ottamaan aktiivisemman roolin tässä vaativassa tehtävässä.

Articles

This dissertation consists of a summary and the following articles, reprinted with the kind permission of the publishers.

- I Kaljonen, Minna & Rikkonen, Pasi (2004). Divergent images of Multifunctional Agriculture. A comparative study of images of the future between farmers and agri-food experts in Finland. *International Journal of Agricultural Sustainability*, Vol. 2, No.3, pp. 190-204, <http://www.ingentaconnect.com/content/earthscan/ijas>

- II Kaljonen, Minna (2006). Co-construction of agency and environmental management. The case of agri-environmental policy implementation at Finnish farms. *Journal of Rural Studies* Vol. 22, No. 2, pp. 205-216, <http://www.elsevier.com/locate/jrurstud>

- III Kaljonen, Minna (2009). A Matter of Scale. Study on the politics of agri-environmental policy implementation in Finland. *Finnish Journal for Rural Research and Policy/ Maaseudun Uusi Aika*, Special issue 2/2009, pp. 33-46, <http://www.mua.fi/lehti/>

- IV Kaljonen, Minna (2003). Environmental policy at the end-of-the-field. Case study on the riparian zone planning practices. *Alue & Ympäristö*: Vol. 32:2/2003, pp. 33-44. In Finnish; English abstract, <http://org.utu.fi/yhd/ays/lehti.htm>

- V Kaljonen, Minna (2008). Bringing back the lost biotopes. The practice of regional biodiversity management planning in Finland. *Journal of Environmental Policy and Planning* Vol. 10, No. 2, 113-132, <http://www.informaworld.com>

Introduction

One day a couple of years ago, I found an interesting piece of art in the back yard of a dairy farm, hidden under a bush beside a barn, next to a flowering bird-cherry. The artwork was in the shape of a heart, made of concrete with a broken manure fork erected in the middle. I could also discern the numbers 907/1999 written in the concrete, and the date of construction. When I asked the farmer what the piece of art illustrated, he answered that it was a memorial for the construction of a new manure storage facility. As he built the new facility, he had to find a use for the left-over concrete: together with his brothers he decided to build a memorial of this particular event. The particularity of the event was implicated by the new storage capacity requirements under the Nitrate Directive of the European Union (EU).

How can we make sense of this act? The brothers almost certainly enjoyed making the concrete heart; perhaps they also appreciated its shape in aesthetic terms. However, I would suggest that this act is symptomatic of the tensions caused by agri-environmental policy in Finland. These tensions can also guide us in asking meaningful questions about the ways in which we analyse agri-environmental policy and its achievements.

An interpretative policy analysis would start to explore this tension by analysing the various meanings given to the Nitrate Directive, and their mutual dynamics. The more positivist trait in political science would concentrate on the method of enforcement and evaluate the effectiveness of normative regulation within agri-environmental policy. However, in this study I would claim that if we separate form from content in our analysis of environmental policy, we lose something essential about the nature and resolution of environmental problems. If we wish to work towards environmentally friendlier agriculture, we need to address these issues in parallel. This a major challenge both for rural sociology and environmental policy analysis, which have traditionally taken care of their own share in analysing social and political.

Bruno Latour (1993; 2004) has provocatively argued that many environmental problems, such as the eutrophication of the Baltic Sea, mix social and natural elements in such a promiscuous fashion that the categories of Nature and Society become meaningless. Eutrophication has such a strong material and social characteristic that we would lose essential features of the phenomenon if we separated the material from the social when studying attempts to resolve it. In order to overcome these dichotomies, Latour suggests, we should direct our gaze to how resolutions to environmental problems are brought into being within material practices and relations. Furthermore, we should investigate how the conditions for action emerge from within these practices and relations.

This perspective compels us to take a fresh look at the brothers' action. It stipulates opening up the Nitrate Directive to empirical scrutiny and asking: how does this particular form of enforce-

ment build connections between the European Commission and this dairy farm and, whilst doing so, how does it perform nitrates as an object of control?

Viewing the brothers' action from this perspective suggests that they indeed had only little room for manoeuvre. If, for some reason, they disliked the form of the Nitrate Directive, all they could do besides the actual construction work was this small piece of art. It remained firmly on the farmyard, but had no influence whatsoever on either national or European policy making. The authorities monitoring the implementation of the Nitrate Directive would be happy that storage had been built and the goals met. However, in aligning the Nitrate Directive with farming practices and achieving the related environmental goals, additional complexities are involved.

Similar to this dairy farm, most Finnish farms have increased the capacity of their manure storage facilities. This material fact has made the spring-time spreading of manure common practice on farms (Pyykkönen *et al.* 2004: 16). Such a development should be positive in terms of reduced nutrient run-offs and environmental impacts, since it should prevent the nutrients from running off the fields in autumn or winter, when there is no vegetation to stop them. However, because fields on Finnish farms are typically rather small and often located at long distances from one another, the busy spring period has forced many farmers to spread manure or slurry onto the 'home fields' nearest to the farm. These fields already tend to have rather high nutrient contents, whereas more distant fields are again neglected, leading to problems of nutrient depletion (Turtola & Ylivainio 2009). This is not in the interests of the environment. The problem will even accentuate, if the regional concentration of livestock farms continues as envisaged by the latest structural changes (e.g. Lehtonen *et al.* 2005; Niemi & Ahlstedt 2009).

As we can see, at best farmers, barns, manure and nutrients are only partially connected to the policy to which they are subjected. Something always remains beyond control, be it the nutrients or the spirit and motivation of the humans involved. This poses a major challenge to agri-environmental policy: how to govern something which refuses to become a fixed object of governing?

In this study, I address this dilemma. I do so by opening up policy practices and asking how they create the conditions for agri-environmental management. I do not, however, study the Nitrate Directive or normative regulation. My focus is on the implementation of agri-environmental schemes. These schemes constitute an essential and interesting element of agri-environmental policy in Finland (Aakkula *et al.* 2006; Jokinen 2000; Kröger 2009). They offer farmers economic incentives to change their farming practices. In principle, they are voluntary, seeking to govern individual actors and their active interference with nature through farming practices. In such a case, the implementation phase may become of special relevance to shaping the policy outcome. In this study, I investigate the nature of that relevance and develop analytical tools for capturing its particular characteristics.

2

Research task

2.1 Challenges of agri-environmental policy – analytical gaze on institutional ambiguities

Agriculture has a direct relationship with nature: the same processes that utilize nature also produce it. This agro-ecological relationship is place-bound. The modernisation of production technology and globalisation of markets has, however, stretched the boundaries of this relationship both in terms of inputs and outputs (e.g. Goodman & Redclift 1991). In Finland (Jokinen 1995) and in Europe (e.g. Lowe *et al.* 1997) the direct relationship has become politicised as environmental outputs have increased in scale. In Finland, nutrient run-offs into water systems have attracted most political attention (e.g. MoE 1988; 2007; Council of State 2009). Also, the biodiversity effects of intensified and more homogeneous production systems have slowly raised greater interest (Kuussaari *et al.* 2004; 2008; Yliskylä-Peuralahti 2003; see also Luoto *et al.* 2003). The very processes that were designed to yield progress and welfare are now recognised as the source of severe side-effects and risks.

In order to mitigate these problems, the agricultural production system has sought to renew itself by integrating environmental concerns more prominently into agricultural policy. In this study, I analyse how agri-environmental schemes (MAF 1994; 1999; 2007), as a particular form of environmental policy, have fulfilled this aim. When introduced in 1995, they promised a somewhat novel policy approach to the mitigation of agri-environmental problems. They suggested that farmers should be *paid for* the costs of providing environmental goods and practicing environmentally sound farming. The policy also introduced a new kind of cross-sectoral and multi-level implementation practice to the governing of agri-environmental problems.

Finnish agri-environmental schemes rely on the principles agreed in the EU's Common Agricultural Policy (CAP). These principles were laid down in the so-called MacSharry reform launched in 1992. In this wide and overarching reform, a price subsidy system was converted into a direct subsidy system, which represented a major step in disentangling agricultural support from production volumes. This reform also introduced the agri-environmental programmes and schemes, which the Member States were required to translate into their national legislation (EEC 2078/92). Since then, these programmes have been coupled more tightly with rural development measures, within the so-called horizontal rural development programmes (EC 1257/99 and EC 1698/2005).

The European policy principles include a high level of subsidiarity, which has resulted in significantly differing interpretations between Member States in terms of policy content, its reach and budget expenditure (e.g. EC 2005; Buller *et al.* 2000; Brouwer & Lowe 2000; Whitby 1996;

see also Greer 2005). In Finland, the translation into concrete policy measures took place upon the country's accession to the EU. This particular moment politicised the form and content of the agri-environmental policy in interesting ways.

The Finnish interpretation of the agri-environmental programme placed special emphases on water protection, as well as the broad coverage and voluntary nature of the measures (MAF 1994; for programme revisions see MAF 1999; 2007). These emphases were in line with previous national policy approaches (MoE 1992; see also Jokinen 1995; 2002). What was new was the magnitude of monetary resources allocated to agri-environmental protection and the specific economic policy instruments introduced as farm-level contracts. Finland designed a dual model, which offers two kinds of contracts for farmers. The *General Protection Scheme* (GPS) provides a basic set of environmentally friendly farming practices; whereas the *Special Protection Scheme* (SPS) offers support for more targeted environmental actions.¹ The Finnish model is one the most extensive in Europe, both in terms of its reach and expenditure.

As a result of accession negotiations, the GPS was specifically designed to compensate for the decline in farm income caused by Finland entering the common European agricultural markets (e.g. Jokinen 2000). The GPS was designed as voluntary, but the economic imperatives built into the scheme made enrolling in the GPS a question of economic necessity to many Finnish farms.² More than 90 per cent of Finnish farms have been enrolled in the GPS from the very beginning (MAF 2004: 31-34). Such wide coverage by the programme was deemed effective in reducing the overall use of fertilisers. It was to promote an extensive attitudinal change to take place. In this translation, the more targeted SPS measures received less monetary resources; in addition, fewer farmers entered the SPS than the GPS (ibid.). The regional agricultural administration was handed the prior task of governing the schemes' implementation. The regional environmental administration was also offered new tasks: they were to give an official statement on the environmental content of the SPS and to assist in their allocation. Advisors were to take care of the general programme extension and farm-level planning.

With this translation, agri-environmental schemes became an integral part of ensuring the continuation of Finnish agricultural production within the European common markets (Jokinen 2000). The dual model allowed the Finnish State to compensate for declining agricultural incomes and to continue promoting the welfarist ideal of equality between different production sectors and regions, which had been one of the central functions of Finnish agricultural policy also in the past (Granberg 1999; Jokinen 1997; 2000). We need to remember that this tension between productional and environmental concerns is also apparent at European level. In the continuing CAP reforms, the EU has used agri-environmental programmes, the related schemes and rural development measures as tools for adjusting European farmers to the global processes of agricultural trade liberalisation (e.g. Dobbs & Pretty 2004; Evans *et al.* 2002; Potter & Tilzey 2005; Ward 1999). According to the European translation, paying agriculture for its environmental goods should simultaneously help it remain competitive. In trade liberalisation negotiations, the multifunctional role of agriculture

¹ When enrolling in the GPS, a farmer commits to following the rather detailed terms of agreement on e.g. how, when and how much to fertilise; how wide a headland must be left along ditches and watercourses; the amount of pesticides that can be used and with what kind of machines they can be spread; and how to take care of the landscape and biodiversity. After the first programming period 1995–1999, the GPS was divided into a general and additional scheme, in order to increase the variety of measures available to farmers (MAF 1999; 2007). From the additional scheme, a farmer can choose some accompanying measures, which may include e.g. nutrient balance systems or biodiversity management actions. The SPS offers more targeted support for e.g. the construction of a riparian zone or controlled drainage systems; biodiversity and landscape management; or the effective use of manure.

² In the beginning of 2000 in Southern and Western Finland, the share of agri-environmental support in farm income varied from 35 % to 53 % on cereal farms and from 15 % to 35 % on livestock farms (Koikkalainen & Lankoski 2004). In late 2000, as overall price trends in agricultural production have turned downwards, the importance of agri-environmental support to farm income has increased (Lehtonen *et al.* 2008).

and the produced environmental goods can also be used as an argument for subsidising the sector (Dobbs & Pretty 2004; Potter & Burney 2005).

Many critics have argued that this kind of policy approach is far too modest in mitigating the environmental impacts caused by the intensification of production (e.g. Evans *et al.* 2002; Kleijn *et al.* 2006; Potter & Tilzey 2005, Winter 2000). Environmental impact assessments carried out for the Finnish agri-environmental programme have neither detected any significant reductions in nutrient run-offs, nor signs of reduced impacts on water systems – despite a salient decrease in the total fertiliser use (Aakkula *et al.* 2010; Turtola & Lemola 2008). Also, according to the evaluations, the biodiversity in agricultural lands is not recovering as hoped (Kuussaari *et al.* 2008).

As we can see, it has been far from easy for agricultural policy and production system to renew its course, mitigate the environmental problems it has caused, and meet the challenge of agriculture's direct relationship with the environment. Despite all of the money, resources and time spent, the environmental goals have not been met.

Political scientist Maarten Hajer (2003a; 2006) has argued that nowadays the resolution of environmental problems is often confronted by institutional ambiguity. Currently established, conventional political institutions often lack the power to deliver the required policy results on their own; new institutions, practices and systems of meaning need to be invented. Hajer emphasises that “where policy making and politics take place in an institutional ambiguity,³ we should pay attention to a double dynamic: actors not only deliberate to get to favourable solutions for particular problems, but while deliberating they also negotiate new institutional rules, develop new norms of appropriate behaviour and devise new conceptions of legitimate political intervention” (Hajer 2003a: 175-176; see also Hajer 2003b).

Empirical studies performed on the agri-environmental policy throughout Europe have reported how the agri-environmental schemes have counter posed the cultural values of farming (e.g. Burton *et al.* 2008), systems of knowledge (e.g. Burgess *et al.* 2000; Curry & Winter 2000; Morris 2006; Riley 2008) and organisational traditions of sector administrations (Eggers *et al.* 2004; Juntti & Potter 2002; Morris 2004) in such a manner that their implementation has faced serious problems. The studies have further emphasised that the manner in which public officials find ways of working with farmers and establish trustful relationships is critical to policy outcome (Buller *et al.* 2000; Burgess *et al.* 2000; Curry & Winter 2000; Juntti & Potter 2002; Morris 2006). According to these empirical insights something seemingly political seems to be at stake here.

If we are to understand the challenges which resolving agri-environmental problems pose to our systems of governing, we need to analyse carefully how the meanings of agri-environmental management, rules of institutional action and their legitimacy are being (re)negotiated alongside policy deliberation. In this study I take up this challenge. The notion of institutional ambiguities highlights that the resolution of environmental problems may not just stipulate new policy instruments or forms of co-operation to be added to the system of governance (e.g. Kooiman 2003; Rhodes 2000); rather, it may give rise to politics in settings that are often not recognised as political but which nevertheless lead to collective deliberation of public problems and that are, as such, politically important (see also Hajer 2003b). This notion of politics compels to question the hierarchical top-down policy model, which starts with political goal definition and the design of means, and ends with implementation (e.g. Brewer & deLeon 1983). It suggests rather that what

³ I have replaced the term ‘void’ used by Hajer in this citation with the term ‘ambiguity’, which he has used in his later writings (e.g. 2006). Hajer “derived the term [void] from the art world where it referred to a generation of post-modern artists that played with the ‘modern expectations’ of the audience. Upsetting the expectations of various audiences, they effectively exposed the discursive rules with which people approached a work of art, thus creating a new, and essentially open, basis for judging what beauty or quality was” (Hajer 2006: 53). In this context, it should be noted that institutional void refers not only to institutional emptiness, but also to different systems of meaning colliding with one another. Hajer later came to the conclusion that the term institutional ambiguity is better suited to capturing the meaning he originally intended by this concept.

emerged as a response to failures in agricultural policy and markets, now constitutes a field of experimentation where actors work together to elaborate and try out new political forms (Gomart & Hajer 2003) and, I would add, new forms of co-existence with nature (Latour 2004).

The latter point is not extensively developed in Hajer's treatment of institutional ambiguities. He stresses the institutional and political challenges the resolution of environmental problems may pose to our systems of governing, but does not really tackle the ways in which the material world partakes in the policy process, or how the material aspect might be treated in the analysis of policy processes. The agri-environmental schemes govern farmers' active interference with nature through farming practices. Indeed, the way in which agri-environmental schemes are integrated with the production processes practiced on individual farms, and how they are co-ordinated at regional level, will evidently have an impact on how local agro-ecologies are realised. Hence, if we wish to study the institutional and political challenges posed by the resolution of agri-environmental problems, we need analytical tools that also allow the consideration of the materiality of environmental problems.

In this study, I claim that approaches and analytical tools developed within Science and Technology Studies (STS) can offer environmental policy analysis much help in this respect. STS have a long and vivid tradition of analysing how science is performed in practice (e.g. Callon 1986; Latour 2004; Latour & Woolgar 1979; Law 1994; Mol 2002). Their tactic of turning 'scientific facts' into empirical question can also help environmental policy analysis to open up policy processes and policies to empirical scrutiny (Gomart & Hajer 2003; Latour 2007; deVries 2007). In the analysis of agri-environmental policy, we need a stronger focus on how doing politics as well as governing the environment, are being experimented alongside policy deliberation.

In this study, I examine how agri-environmental policy takes shape in practice. I analyse how resolutions to agri-environmental problems are brought into being within material practices and relations, and how conditions for action emerge from within these practices and relations. I focus on the implementation phase and ask the following empirical questions:

- How do actors in charge of implementation translate agri-environmental policy objectives into practice, how do these practices depend upon one another and how do they co-evolve as they interact?
- How do farmers translate agri-environmental schemes into farming practices and how does commitment to agri-environmental management emerge?
- How are various actors brought together during implementation, to deliberate upon agri-environmental management?

I hope that a grounded empirical examination of agri-environmental policy implementation practices will increase our understanding of the challenges the resolution of agri-environmental problems pose to our systems of governing. This understanding also contributes to our knowledge of how we understand politics in a situation of institutional ambiguity. Such knowledge is needed to understand the failures experienced in agri-environmental policies throughout Europe and to develop a more attentive environmental policy. In the next section, I operationalise my research questions into an analytical framework, which brings together discussions from environmental policy analysis and Science and Technology Studies (STS).

2.2 Turning institutional ambiguities into an empirical question

Analysing how resolutions to agri-environmental problems are brought into being implies a relational view. A relational view suggests that objects cannot be separated from the material practices and relations in which they are created (e.g. Callon 1986; Latour 2004; Latour & Woolgar 1979; Law 1994; Mol 2002). Practical solutions to agri-environmental problems are gatherings, whose quality and durability depend on the form of the process in which they are created. Mol has stated: "...if an object is real this is because it is part of a practice. It is reality enacted" (Mol 2002: 44). This also implies that, in practice, objects become something capable of concerning the practitioner and eventually also transforming him or her (see also Gomart & Hajer 2003; Latour 2004; 2007). In policy practice, participants – be they human or non-human – gain capacities they did not have before.

The relational view offers a radical take on policy practices and emerging institutional ambiguities. It suggests that the success or failure of agri-environmental policy should not be viewed as explicable in terms of some social structure or force; on the contrary, the form of the process may explain some of the features that make the resolutions to agri-environmental problems hang together, extend wider or fail. The relational view suggests, furthermore, that it is the practical arrangements of socio-material relations wherefrom we should start the analysis of institutional ambiguities as well.

The many studies carried out within STS provide us with examples of how these material practices and relations can be opened up and examined.⁴ One such classic study is Latour's (1988) study on Pasteur and Pasteurism. In this study, he shows how it was not some coherent episteme or logic that produced a change in the French countryside, but the hard practical work of demonstrating the advantages of the method on farms, of enrolling farmers onto the programme, of solving problems in the field – and making the world outside one in which the world inside the laboratory could work. In his empirical analysis, Latour turns each and everyone involved in this change into an active entity, arguing that "science" has no power to impose itself. If it succeeds in spreading, this is a practical and material effect of association, dependent on the actors outside the laboratory associating themselves with it. In this study, Latour shows how maintaining a stable configuration requires effort.

Correspondingly, in his analysis of a novel scallop fishing technique, Callon (1986) shows how a scientific experiment can fail. He uses the concept of *intressement* to describe how scientists gradually enlist participants from a range of locations, re-interpret their concerns to fit their own programmatic goals and establish them as gatekeepers. Callon's study powerfully shows that *intressement* is a precarious process. At St. Brieuc Bay it was both betrayals by fishermen (who fished the scallops prematurely) and scallops (which refused to enter the collectors in a sufficient and regular way), which caused the scientific network to fail. The notion of *intressement* stresses that a clear separation between subject and object does not hold in scientific practice; they are mutually constituted.

These two classic studies concern scientific practice. At first sight it appears that the notions of *intressement* and of stable configuration could help to capture how agri-environmental policy is given shape in practice. These analytical notions would allow a detailed analysis of how policy is enforced and how the concerns of farmers are translated into those of policy-makers. As I

⁴ It should be noted at this point that STS is a lively line of research. After the path breaking study of laboratory practice by Bruno Latour and Steven Woolgar (1979), many ethnographic studies on scientific innovations (e.g. Callon 1986; deLaet & Mol 2000; Latour 1988); organisational management (Law 1994) and medical practice (Mol 2002) have been carried out. Lately, their essay on crossing the modernist distinctions between society and nature, as well as actor and structure, has also attracted researchers interested in environmental and rural questions (e.g. Ellis & Waterton 2005; Gomart & Hajer 2003; Higgins 2006; Hinchliffe 2008; Lockie & Higgins 2007; Morris 2004; 2006; Murdoch 1998; 2001; Peltola 2007a; Valve & Kauppila 2008; Åkerman 2006).

embarked on my research, these notions provided me with great inspiration. Empirical analysis, however, soon made it clear that these analytical tools raise the questions of control and stability to too central a position in the analysis. They are not plastic enough to capture the confronted institutional ambiguities; they are better equipped to capture the mere wishes of the policy maker (see also Fujimura 1992; Star 1991; Wynne 1992).

We need more dynamic analytical tools, in order to recognise the institutional ambiguities raised by the resolution of agri-environmental problems. I have investigated and developed such tools in Articles II, III, IV and V. The concepts elaborated in these articles draw special attention to the complexities confronted as agri-environmental policies are enacted in practice. I present the premises of these concepts below, and discuss their usage and usability further in Chapter 4, as I present the empirical results of the study.

First of all, for analysing how resolutions to agri-environmental problems are brought into being, we need analytical tools that can capture how multiple accounts of agri-environmental problems hang and evolve together as part of situated action. In Finland, agri-environmental schemes were introduced into the Finnish policy system during a moment when strong national agricultural policies were being adapted to the European Common Agricultural Policy. This moment was marked by a long legacy of voluntary environmental policies and a powerful agricultural policy community (Jokinen 1995; 1997). In many respects, agri-environmental schemes challenged these legacies by proposing that environmental concerns be integrated more vigorously with agricultural policies. The implementation of the schemes brought together agricultural and environmental administrations and advisors (Aakkula *et al.* 2006; Niemi-Iilahti *et al.* 1997; Soini & Tuuri 2000), which traditionally had rather different ideas of how the environmental impacts of agriculture should be managed (e.g. Jokinen 1995; 1997; Juntti 1996; Niemi-Iilahti & Vilkki 1995), not to mention farmers' experiential knowledge of this issue (Silvasti 2003). Implementation of the schemes compelled these actors to apply voluntary, long-term contracts and economic incentives for the protection of the environment and to develop co-operative methods whilst ensuring that the policy's environmental goals are met. These are precisely the circumstances in which the classical-modernist hierarchical institutions of agricultural policy had failed (see also Hajer & Wagenaar 2003; Rhodes 2000), thus posing a major challenge to implementation.

In Article III, I introduce the concept of *mode of ordering* in analysing how actors in charge of the implementation have taken up the challenge and translated policy objectives into practice. This concept was developed by John Law (1994) in his study of managerial practices within a particular laboratory in Great Britain. In this study, Law describes how managerial practices include multiple modes of ordering, rather than a single idea of management. Furthermore, he shows how these modes of ordering are interrelated and evolve together, as they are recursively told and performed in various materials. This kind of dynamic understanding of managerial practices proposed by Law can be of great help in understanding the practice of implementation, as well. Based on such a view, the practice of implementation is not to be evaluated against the question of how to maintain a stable configuration, but that of how multiple modes of ordering hang together in tension. The analysis of how multiple modes of orderings evolve to co-exist brings into focus the actions of various actors in relation to one another, as well as the passing of time. It allows the treatment of implementation practices as an evolving form, wherein different enactments of agri-environmental schemes co-evolve as they interact. This kind of approach presupposes that implementation is not a unitary, linear act. On the contrary, it continuously evolves as new issues are confronted and problems resolved.

Such a dynamic evolutionary perspective on implementation is important if we wish to capture the institutional ambiguities confronted during the implementation of agri-environmental policy. It not only highlights how various modes of ordering hang together and meanings of agri-environmental management are deliberated today, but also how they build upon past relations and

their co-evolutions. In his analysis of ontological complexities, Law emphasises the first point in particular (see also Mol 2002). He argues that the complexities of today are often given too little attention in relation to historical struggles over ideas. In a policy context, however, we cannot dismiss the institutional settings that precede the policies of today. Modes of ordering do not exist in a temporal or institutional vacuum.

In this respect, the implementation phase may, in fact, hold a specific place in the policy process. Many studies of policy implementation have emphasised that while implementation consists of many routine-like actions and cleaves close to policy 'objects', it easily re-enacts and hardens conventional categories (e.g. Singleton 2005; see also Pressman & Wildawsky 1973). Hence, if we are to understand the challenges posed to our system of governing by the resolution of environmental problems, we need to analyse not only how the various meanings of agri-environmental management and the rules of institutional action are deliberated upon, but also how new policy requirements turn into routines and how these routines relate to past practices and policies. Hajer's (2003a; 2006) treatment of institutional ambiguities does not give a full account of this dynamic relationship. When developing such an account, we need to carefully analyse what contribution different phases of the policy process make to the interplay between new and old meanings and practices of agri-environmental management.

Recent theorising on socio-spatial relations can help us in this. Jessop *et al.* (2008) have proposed that we should approach policies as mosaic processes enacted in practice (see also Brenner 2001; Law & Mol 2001). This implies that we cannot take policy levels or phases as pre-given entities. Their existence is an empirical matter of concern. In the many studies of agri-environmental policy, the vertical structuring of different policy levels or phases (Kröger 2009; Lowe *et al.* 2002; Wilson 2009; Winter 2006) and horizontal cooperation between sectors (e.g. Burgess *et al.* 2000; Curry & Winter 2000; Juntti & Potter 2002; Morris 2006; Niemi-Iilahti *et al.* 1997; Soini & Tuuri 2000) have usually been analysed as pre-given entities and separate processes. In this study, I try to approach policy levels and cooperation as empirically open processes. I do this by analysing the concrete ways in which different actors build relations between heterogeneous actors and levels (or phases) of policy, how they are tied together or loosened. I place special emphasis on the concrete ways in which relations to past policies and practices of agri-environmental management are maintained or new ones emerge. This is enabled as I direct my analytical gaze towards the active materiality of policy measures and technologies in the policy process.

Work carried out within STS has significantly increased our understanding of how technologies, or policy tools and measures, partake in building our worlds. Technologies carry along particular scripts, which create certain conditions for action (Akrich & Latour 1992; Latour & Woolgar 1979). They may carry along scripts that allow certain practices of agri-environmental management to materialise and gain strength; whilst restricting others to emerge. We, however, need to remember that technologies do not merely convey a cause; they also have the capacity to transform the world in which they partake (Latour 2004). On a farm, agri-environmental schemes comprise an actively developing infrastructure (Bowker & Star 1999): they are fed into the farm system, direct farmers on which activities to perform and, while doing so, become part of the farm's operations. As an actively developing infrastructure, the schemes have the potential to guide farming practices as well as allowing new and unpredictable practices of agri-environmental management to emerge (see also Gomart & Hajer 2003; Latour 2007; Mol 2002). During policy practice, participants – be they human or non-human – gain capacities they did not have before. This point is crucial in considering the institutional ambiguities posed by the resolution of agri-environmental problems.

Technologies may also enable multiple actors to come together to deliberate upon agri-environmental management. As I pointed out earlier, in this respect, implementation practices may hold a special function (e.g. Buller *et al.* 2000; Burgess *et al.* 2000; Juntti & Potter 2002). Star and Griesemer (1989; see also Bowker & Star 1999: 296-298) have drawn attention to certain *bound-*

ary objects which arise when divergent views need to converge. Boundary objects have different meanings in different social worlds, but their structure is common enough to more than one world to make them recognisable. They are both plastic enough to adapt to local needs and yet robust enough to maintain a common identity across sites. They enable the maximal autonomy of different social worlds, as well as communication between them. In the case of agri-environmental policy implementation, it is also important to ask how such practices allow the conditions for agri-environmental management to come about. Do they harden conventional categories or challenge them with new ones? What capacities do participants gain while engaging in deliberation?

Finally and importantly, we need to remember that those enrolled in a policy will be at best partially connected, lending their worlds in ways that may well be far from complete and which will therefore continue to surprise (Strathern 2004). The example of the concrete heart I gave at the beginning vividly demonstrated this. Law (1994) has also emphasised that modes of ordering should be treated as a set of patterns that might be imputed to networks of social. They are always limited and have loose ends. Something is held in reserve or something always overflows (see also Bowker & Star 1999; Law 2004; Law & Mol 2002; Mol 2002; Star 1991; Wynne 1992). This question is recognised as being of ever greater importance to the performance of agri-environmental policies (Burton *et al.* 2008; Morris 2004) and the legitimacy of environmental policies (e.g. Hajer & Wagenaar 2003; Yanow 2003).

In my analysis, I pay special attention to those accounts of agri-environmental management which tend to escape or challenge the ones proposed by the schemes. This question is of special importance when analysing how farmers translate the agri-environmental schemes into farming practices. In a situation of institutional ambiguity, we need to ask how, precisely, these overflows or partial connections might challenge our systems of governing and what new accounts of agri-environmental management they might embody.

STS is accustomed to working in the world of science. As we apply STS' empirical tactics to the sphere of policy and politics, new concerns arise. I have identified some critical tensions above. There is an evident need to follow policy practices in the making, in order to bring the vocabulary of STS from the world of science into the world of policy and politics. There is also an evident need to gather more empirical experience of how institutional ambiguities manifest themselves during the policy process. In this study, my aim is to bring these two seemingly different analytical traditions together, in order to better understand the challenges the resolution of environmental problems may pose to our systems of governing. I hope that a grounded empirical understanding of agri-environmental policy in-the-making can contribute some lessons to these analytical efforts as well.

3

The case of the Finnish agri-environmental policy implementation

3.1 The contributions of the articles

I have scrutinised the implementation of the Finnish agri-environmental policy in five articles, all of which analyse institutional ambiguities from somewhat different angles. I present the contributions and empirical material of these articles below. After the overview, I present a brief discussion of the case study methodology used in this study.

3.1.1 Divergent future images of agriculture

The first article considers various future images of agriculture held by farmers and experts (close to agricultural policy making). It provides a background for the changes taking place within agricultural and environmental policies. In Article I, together with Pasi Rikkonen, I analyse expectations concerning the future of agriculture in Finland and relate this to debates on multifunctionality (e.g. Dobbs & Pretty 2004). The notion of multifunctionality encompasses the various functions accorded to agriculture, in a given society at a given time. We assess this notion critically and reveal its political character by comparing the various expectations of farmers and experts (close to agricultural policy making) on the matter. In this synthesis, I will not go into detail on future studies or the scenario-building methodology. Article I provides empirical evidence based on which the various meanings accorded to Finnish agriculture at the beginning of 21st century can be assessed.

In Article I we pay special attention to the dialectics between desirable and probable futures, as well as to (dis)continuities between the views of farmers and experts. We base our analysis on the results of a survey conducted in the autumn of 2001. This survey was sent to farmers and various experts from the agricultural, environmental and rural sectors. I was in charge of the farmer part. The questionnaire was sent to 755 active farms in South-Ostrobothnia (Western Finland) and the response rate was 53 per cent (see Article I for details).

The results of the questionnaire reveal a conflict between farmers and experts on the direction in which Finnish agriculture should be developed. Furthermore, the results highlight, that in 2001, farmers viewed the probable future of farming as undesirable. According to our analysis, there is an evident lack of trust between different parties, which can also be reflected in the implementation of the agri-environmental schemes.

3.1.2 Farmers' position within agri-environmental policy

The second article elaborates on how farmers translate agri-environmental schemes into farming practices and how commitment to agri-environmental management emerges. Article II provides a detailed elaboration of farmers' agency and, in particular, of its contextual character.

The analysis is based on interviews held with farmers from a total of 31 farms, who cultivate their land either on the Lappajärvi or Kyrönjoki watersheds in South Ostrobothnia. I carried out these interviews during the years 2000–2002, selecting farms which represented different production modes, sizes, ages and environmental actions (for details, see Article II; Kaljonen 2002). In my interviews with the farmers, I encouraged them to talk about farming using concrete examples.⁵ The farmers told me in a rather detailed manner about their fertilising practices, usage of cultivation planning and their difficulties in interpreting the agri-environmental schemes in practice. I also took some of the farmers on a walk, during which they showed me where and how their management actions had taken shape. For this article, I also used the material from the survey mentioned above (see 3.1.1). In addition to questions regarding the future of agriculture, the survey included questions on the uptake of the agri-environmental schemes.

As I analysed the interview material, I discovered that the farmers criticised the agri-environmental schemes in rather similar tones. They criticised these schemes for neglecting the local social and ecological conditions of farming. In this article, I focus my analysis on this very critique, which binds this otherwise heterogeneous group of farmers together. I examine the cognitive and social basis of their criticism and highlight how the boundaries between local and universal categories of knowledge and management are contextually drawn. In Article II, I use the notion of co-construction of agency to capture the material basis of the criticism and how it relates to farmers' capacities to act. Use of this notion reveals how the agency of farmers is simultaneously characterised by both standardisation behaviour *and* an attempt to partially offset agri-environmental schemes, in order to retain decisions regarding the use and management of nature at farm-level.

The results stress that this duality in agency will frequently be in mutual tension, as formal policy networks attempt to simplify the actions of farmers. How this duality is resolved at each farm has a direct effect on the practice of environmental management. The results of this article contribute to our understanding of how something, which at first sight simply seemed to escape the categories of agri-environmental management suggested by the schemes, might, in fact, hold potential for the creation of new categories of agri-environmental management.

3.1.3 Dynamic evolution of implementation practices

The third article introduces the practices of various public officials and advisors during the implementation of agri-environmental policy. In this article, I examine how the actors in charge of the implementation translate the schemes into practice, and how these practices have come to depend upon one another and have evolved to co-exist. The article examines how the vertical scales of the policy and the horizontal division of work between sectoral administrations hang together in tension.

In this article, I bring together all of the empirical material I had gathered during the years 2000–2006 from South-Ostrobothnia (West Finland) and Southwest Finland. In these two regions, I visited offices and interviewed the key persons in charge of policy implementation at regional and municipal level, including the agricultural and environmental administrations, the advisory

⁵ In the interviews, I asked farmers for their views on the following issues: i) own farm and values in farming, ii) environmental problems of agriculture and their relation to agricultural change, ii) agri-environmental management and changes in farming practices, use of knowledge, iii) local environmental problems and their solutions; cooperation between different parties, iv) legitimacy of the policy model, its capability to address agri-environmental problems and development needs, and v) future of agriculture and challenges of agri-environmental policy.

organisation, the Farmers' Union and environmental NGOs (33 altogether). In the interviews, I encouraged the practitioners to tell me, through concrete examples, how they implement the policy and use various policy instruments in their daily routines.⁶ In this article, I also utilise the observation material I had gathered from the general planning meetings arranged in Lappajärvi and Vehmaa (for details, see Articles IV and V).

In order to assess the relationship between implementation practices and policy formation, I also carried out some complementary interviews with key persons, who had taken part in the policy preparation at national level (a total of 12). These interviews took place during the years 2005–2006. In the analysis, these interviews serve more as background material, enabling me to consider the dynamics between national level policy formulation and regional implementation practices. As background material, I also utilise various policy documents, evaluation reports and background memos produced by the administration and regulatory science.

In Article III, I show that the collaborative practice, which has developed out of the statutory division of work between the agricultural and environmental sectors, is critical to understanding the dynamic evolution of agri-environmental policy implementation in Finland. This collaborative practice initially contributed to policy learning, but as a consequence of repetitive cycles of practice, has become a congealing force. In Article III, I reveal how the vertical scales of the policy are enacted by tools, tasks, expertise and knowledge, as divided within the horizontal implementation network. This tight association between the vertical scales and the horizontal networks of the policy has led to a hardening of conventional categories and fixed actor positions. Such a rigid practice has a tendency to demarcate the problems and solutions within the system, producing a rather technocratic understanding of agri-environmental management. Alternatives are demarcated outside the policy system, and conditions for action created for farmers become limited. Nature is allowed only a quiet, standardised voice.

3.1.4 Potential introduced by general planning – critical role of boundary objects in policy implementation

The fourth article discusses the potential for renewal introduced by a distinct planning practice, termed general riparian zone planning. This planning practice came to my attention when puzzling how – and where – the conventional categories and dualistic actor positions characteristic of agri-environmental policy could be broken down and locally specific actions determined. The general planning practice is developed by regional environmental officials together with agricultural officials and advisors. Since the first pilot rounds, the practice has had broad success throughout Finland. It was originally developed to introduce the possibilities offered by agri-environmental schemes to farmers, to allocate the schemes to environmentally critical areas and to develop co-operation between different actors.

In Article IV, I follow the planning of the riparian zone plan in the River Kurejoki basin in South-Ostrobothnia. This plan was implemented in 2000–2001, as part of a Lappajärvi restoration project (for details, see Rautio 2003). In my analysis of the implementation practices, the relevance of riparian zone planning arose data-based. Hence, the empirical material, which Article IV builds on, is the same as in Articles II and III. In Article IV, I simply zoom spatially into farmers cultivating their fields in the Kurejoki River basin and operationally into those actors who took part in planning. In this respect, my visits to village meetings and observations on the encounters

⁶ My interview questions elaborated the following themes: i) personal duties and the organisation's role in the implementation of agri-environmental policy, ii) environmental problems of agriculture and their relation to agricultural change, iii) implementation of agri-environmental policy – practices, use of knowledge and learning, iv) cooperation in addressing local and regional problems, specific modes of action, v) legitimacy of the policy model, its capability to address agri-environmental problems and development needs, and vi) future challenges of agri-environmental policy.

between the farmers and the Lappajärvi project people were also essential to understanding the planning practice.

In this article, I examine how, during planning, the various social, administrative, ecological and economical uncertainties related to agri-environmental policy implementation are brought together for resolution. I discuss how riparian zones, as an end-of-field technology, have served as a boundary object linking together multiple actors and their concerns. The notion of the boundary object enables me to draw attention to those critical material devices in the policy implementation, which allow both autonomy of different social worlds and communication between them (Star & Griesemer 1989). In Article IV, I argue that general riparian zone planning has succeeded in reducing friction between general and local accounts of agri-environmental management (as discussed in Article II) and offered farmers a route for using their experiential knowledge. The results stress that the scale and specificity of the policy actions are essential in bringing the various actors together to experiment with agri-environmental management.

3.1.5 Potential of general planning revisited – caught between complexity and standardisation

Article V continues directly from where the results presented in Article IV left off. It also concentrates on general planning, but takes the notion of uncertainties one step further. This time, the empirical issue concerns biodiversity management. In this article, I reveal how, in practice, general biodiversity planning tackles the institutional ambiguities confronted during implementation and builds connections from individual farm-level contracts to environmentally effective collective action.

In the fifth article, I also revisit my research methods and test what the study of policy practices would mean if we were to take sincere account of it. In this article, I follow the making of the general biodiversity plan in Vehmaa and Taivassalo in Southwest Finland. When collecting the empirical material, I systematically followed the planners to the various locations to which their practices took them during the planning period, from the spring to the autumn of 2005. I interviewed all of the actors involved in the planning (altogether 8). These actors worked for the agricultural and the environmental administration (municipal and regional), the regional Rural Advisory Centre, the regional Farmers' Union and the regional cultural landscape organisation. I interviewed people in their working environments: offices and meeting rooms. In addition to interviews, I spent one day in the field with the surveyors and participated in meetings organised within the municipality council chambers. I also interviewed the farmers, who attended the meetings and visited five farms which held an SPS contract for biodiversity management. In order to broaden the scope of the farm-level analysis, I used data from a survey on management actions gathered by Janne Heliölä and Mari Mäki-Kahma (Heliölä *et al.* 2004). Furthermore, I utilised published results by Anna Schulman *et al.* (2006), examining the quality of management practices at circa 250 farms around Finland and by Marjo Heikkilä (2001) on management experiences from nine farms around Finland.

In Article V, I follow the actors and examine how they create relations between heterogeneous elements and, while doing so, enact the biodiversity management plan. I re-describe the planning process in narrative form. This methodological approach allows me to show in detail how general planning is capable of moving flexibly across various scales of agri-environmental management. Such an approach reveals the potential held by general planning in a new light. It shows that the strength and novelty of such planning lies in its mutability. It enlarges and complexifies matters to be taken into account by agri-environmental management. However, at the same time, these new inclusions are streamlined and disciplined into the existing institutional framework of the situated action. In Article V, I conclude that the way in which this tension between complexity

and standardisation is unravelled during the policy implementation is crucial for the possibilities of biodiversity to emerge.

3.2 Critical cases of South Ostrobothnia and Vehmaa

The empirical studies brought to bear on this synthesis are based on a case study methodology (Stake 1995; Yin 2003). The empirical cases studied in Articles I, II and IV are located in South Ostrobothnia, while in Article V the empirical focus is moved to the Vehmaa and Taivassalo municipalities⁷ in Southwest Finland. In Article III, I bring all of this empirical material together and broaden the scope further to national level. (Figure 1)

The case study provides an appropriate methodology for studying novel, often unpredictable, complex and ambiguous environmental governance (Flyvberg 2001; Haila & Dyke 2006; Hajer & Wagenaar 2003; Laine *et al.* 2007). In a situation where the form and shape of governing cannot be regarded as given, a rich and dense understanding of the phenomenon is crucial (Gomart & Hajer 2003). The case study provides dense empirical material, which helps us to remain alert to the surprising circumstances and complexities involved (Law 2004). Most importantly, it offers a route to studying practices in their real life context and to following actors wherever their practices take them (Latour & Woolgar 1979; Law 1994; Mol 2002). This is an important methodological premise for studying agri-environmental policy in-the-making (Burgess *et al.* 2000; Morris 2004).

Regional agricultural and environmental administrations are in charge of the implementation of the agri-environmental schemes. Thus, a region is a meaningful unit in terms of studying how agri-environmental policy implementation finds its forms. The empirical studies brought to this synthesis represent critical cases of regional implementation practice (Flyvberg 2001:77-81). Several issues drew my attention to events in South Ostrobothnia and Southwest Finland in particular. Both of these regions represent core countryside, with a thriving agricultural production basis and strong farming culture (MAF 2006b; Niemi & Ahlstedt 2010). In both regions, agricultural pollution has also caused conflicts. High regional stakes render visible, and clarify, the various complexities involved in agri-environmental policy implementation. In both regions, the regional environmental centre has followed an active implementation strategy in promoting agri-environmental schemes to farmers. They have developed various collaborative and cooperative methods in order to proceed with implementation. General planning practices in Kurejoki (Article IV) and in Vehmaa (Article V) are examples of the methods developed.

Taru Peltola (2007b) has neatly – and realistically – described a case study as being the result of a researcher’s learning process. When the contextual understanding is enriched by certain analytical concepts or analogies (Haila 2007) the case under scrutiny evolves and alters. The relations built produce the case. My analyses of dense empirical material have followed several paths simultaneously and the articles make these paths explicit (see Chapter 3.1). The various methods and concepts used during the analysis have allowed certain conclusions to be drawn. For example, in Article II, I decided to focus my analysis on the critique that binds together the otherwise heterogeneous group of farmers. With this analytical decision, I was able to capture one complex phenomenon, but silenced many others. Also, the methodological approach used in Article V reveals quite different features of general planning to those I was able to detect in the Kurejoki case scrutinised in Article IV. The more sincere take on practices in Article V revealed a whole new array of issues worthy of consideration.

In the synthesis, I bring all of these individual case studies together by asking how conditions for agri-environmental management emerge as agri-environmental policies are enacted in practice. This question has been an underlying theme in all of the articles. However, when these issues are brought together, a new layer of interpretation is inserted into the analysis. This question enables

⁷ Later, I refer to the Vehmaa case or Vehmaa plan.

a problem-oriented way of discussing the results of the articles. It facilitates addressing what institutional ambiguities arise when agri-environmental policies are enacted in practice and how they may challenge our systems of governing. As a methodological perspective, it provides a dynamic and complex take on the empirical material in hand.

Agri-environmental policy is an evolving phenomenon. The empirical material underlying this study was mainly gathered at the beginning of the first decade of the new millennium; while the synthesis was created towards the end of the decade. A great deal has happened in between. The empirical material was gathered during a period when some of the routines and practices involved in the implementation of agri-environmental schemes had already begun to stabilise. The results should be assessed against this certain point in time. This moment offers a fruitful route towards analysing how institutional ambiguities emerge, how they are reacted to and what trajectories they may take in the future.

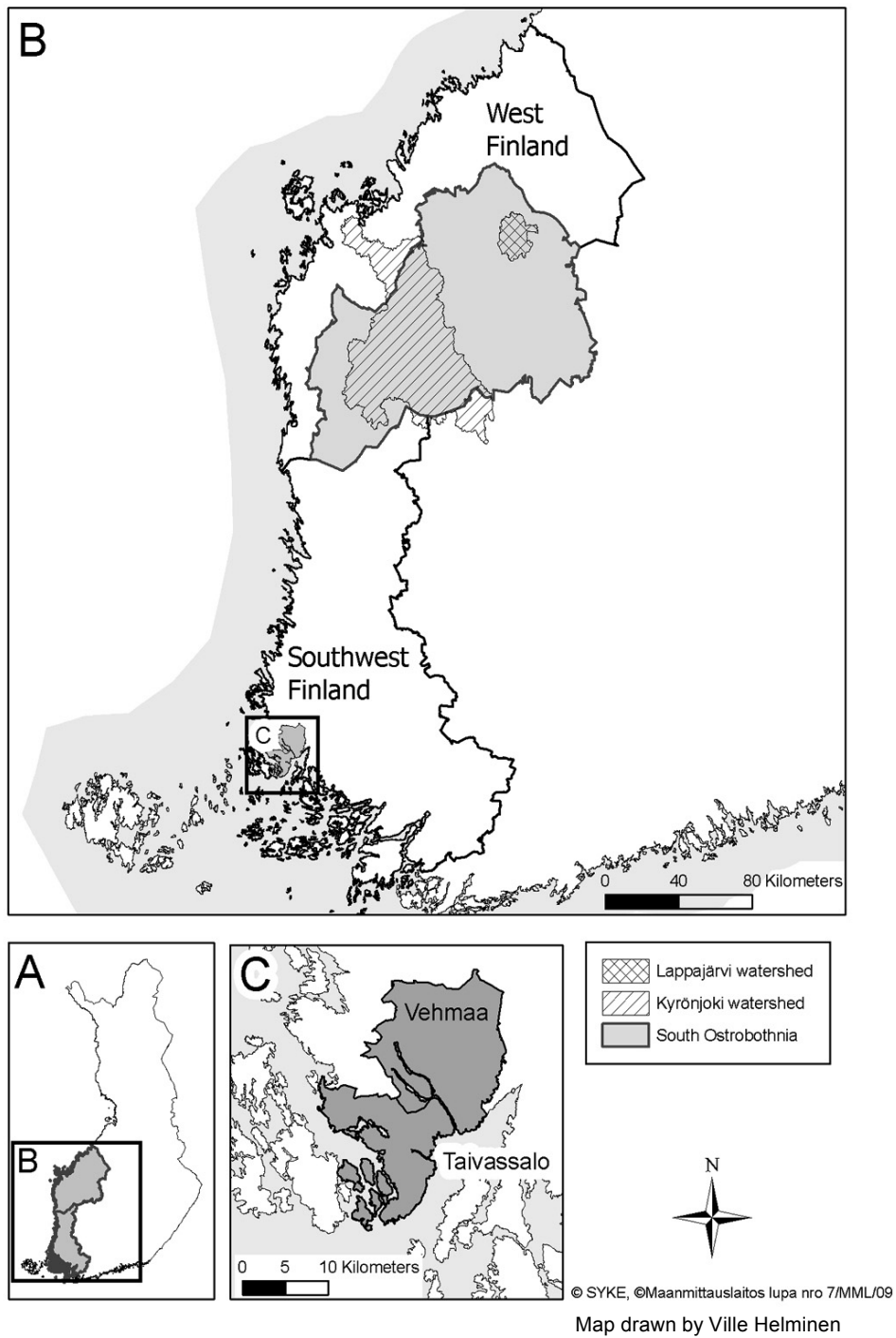


Figure 1. Case study areas

4

Emerging institutional ambiguities – conditions created for agri-environmental management

4.1 Repetitive cycles of collaborative implementation practice – how the potential for learning transforms into rigidity?

According to the results of this study, the collaborative practice that has developed out of a statutory division of work between the regional agricultural and environmental administration is critical to our understanding of how conditions for agri-environmental management emerge, as agri-environmental policy is enacted in practice. It is critical in terms of both its learning effects and the accompanying rigidities.

When agri-environmental schemes came to force, they introduced a novel multi-sectoral division of work to the implementation of the schemes.⁸ Decision-making and control with respect to the schemes are handled by the regional agricultural administrations (Regional Work and Employment Centre, RWEC). Farmers also receive assistance from them on contractual matters. The regional environmental administration (Regional Environmental Centre, REC) is in charge of the environmental content of SPS contracts and comments on the SPS to the RWEC.⁹ They also support the allocation of SPS schemes and advise farmers on their practical implementation. Pro Agria Rural Advisory Centres (RAC) mainly take care of extension. Through courses organised by these centres, farmers have become acquainted with the scheme's requirements and have received help in drawing up various environmental management plans. Municipal rural officials receive all scheme applications submitted by farmers and forward them to the RWEC. Municipal environmental officials play no direct role in governing the schemes, but may occasionally participate in planning or marketing them. Their duties within agri-environmental governance relate more to the administration of the Nitrate Directive and the environmental permit system. Locally, other actors may also take part in the planning and marketing of the schemes on a voluntary basis.

The implementation of the agri-environmental schemes has brought, in particular, regional agricultural and environmental administrations work more closely together (see also Juntti & Potter 2002; Kröger 2009; Soini & Tuuri 2000). The premises for this cooperation were already created during the implementation of the rural environment programme at the beginning of the 1990s (MoE 1992; see also Jokinen 1995; Juntti 1996; Niemi-Iilahti & Vilkki 1995). The policy of that time promoted cooperation on a voluntary basis, while an unclear division of responsibilities

⁸ See footnote 1 for the details on the content of the various schemes.

⁹ In 2010, the RWEC and REC went through a major organisational reform, through which these two sectoral administrations were merged. At the time of this study, these sectoral administrations functioned as separate organisations.

and formal power hampered collaboration in practice (Juntti 1996; Niemi-Iilahti & Vilkkii 1995). In this respect, the statutory division of work introduced by the implementation of the schemes changed the premises for cooperation significantly.

In the implementation of the agri-environmental schemes, each administration needs the help of the other to accomplish its part in decision-making. For example, when deciding upon the SPS, the regional agricultural administration requires the comments of the regional environmental administration. These two sectors have actively harmonised their decision-making procedures, organised cross-sectoral courses and developed collaborative methods in order to smoothen decision-making.

The results presented in Articles III, IV and V highlight how in South-Ostrobothnia and in Southwest Finland both sectors are highly appreciative of the increased cooperation. Working together and becoming familiar with each other's competencies and personalities has created a trustworthy relationship between the two sectors. Practice has also provided the lesson that agri-environmental management requires the actions, expertise and knowledge of both sectors. In this respect, the new division of work established by the implementation of the agri-environmental schemes has supported the conditions for learning.

In Article III, I elaborate further on these conditions by analysing how the implementation practices of the agricultural and the environmental administration have evolved to co-exist. In analysing their mutual dynamics and material bases, I use the concept mode of ordering as developed by Law (1994).¹⁰ This analysis reveals how close collaboration between the two sectors contributed significantly to policy learning at first, but has since stagnated into repetitive cycles of practice. Treating policy tools as active elements in implementation makes these repetitive cycles visible.

In Article III, I show how the activities of the regional agricultural administration have concentrated on the implementation of the GPS. For the agricultural administration, paying agriculture for its environmental services reasserts the claims that Finnish farmers are stewards of nature and countryside. For them, the national scope of the GPS ensures the best results both in terms of welfare and environmental effects. Everybody, including nature, would benefit the most if as many actors as possible participate. In Article III, I demonstrate how the regional agricultural officials build this linkage from the individual GPS contract to national level, using various bureaucratic technologies. These technologies allow the welfare effects to occur. Specific environmental questions they have left for the environmental administration to tackle.

In Articles III, IV and V, respectively, I analyse how commenting on the SPS has opened up new avenues of action for environmental officials; previously all they had was advice and cooperation (MoE 1992; Juntti 1996; Niemi-Iilahti & Vilkkii 1995). The results of the articles show that the environmental administration has also actively used these new possibilities to increase the environmental effectiveness of the policy. Environmental officials have become the spokesmen of nature in the implementation of the schemes – and many of them are very committed as such. However, the centrality of the SPS in the practice of environmental officials restricts their actions to plot scale, leaving the wider relations with farm management untouched. In trying to overcome this dilemma, the environmental administration has engaged in numerous projects and plans, which extend their scale of action from plot to watershed or region (esp. Articles IV and V).

The results reveal how the vertical scales of the policy measures are enacted through tools and expertise, as divided within the horizontal implementation network (Figure 2). During implementation – and its decision-making routines – this linkage is continuously repeated. Such a repetitive cycle of practice has transformed learning potential into a congealing force. During routinised implementation tasks, this tight association between vertical policy measures and the horizontal implementation network tends to harden the dualistic accounts of agri-environmental management and fixed actor positions.

¹⁰ I describe the analytical background and my usage of this concept in more detail in chapter 2.2.

This result adds important aspects to the one offered by Laura Kröger (2009). She has studied Finnish agri-environmental policy making at both national and regional level. According to her results, the advocacy coalitions (Sabatier & Jenkins-Smith 1999) differ greatly from national to regional level. In her study, Kröger detected a novel advocacy coalition at national level, which was a result of close collaboration between the agricultural and the environmental sectors during the preparation of the agri-environmental programmes. This advocacy coalition does not acknowledge the intrinsic value of environmental protection, but regards it as necessary to maintaining the legitimacy of agricultural production in Finland. Active committee work during the preparation of the policy and the shared worry about the continuation of Finnish agriculture in European markets has rendered the various actors ready to compromise. Kröger did not, however, detect any strong evidence of shared policy goals in the implementation networks of the Uusimaa region (Southern Finland). For her, this deviation presents a major obstacle to policy learning and the realisation of the policy's goals.

The results presented in Article III highlight that the relations between various policy levels are dynamic and complex. This study's results stress that the modes of ordering of the regional environmental and agricultural administration are not separate; on the contrary, they very much depend on one another. It is the tight association between the vertical scales of policy measures and horizontal implementation networks that has turned the potential for collaborative learning into a congealing force. This study has highlighted that the duality built into the policy measures of the GPS and SPS maintains this association. These policy measures are designed at national level, but as they are implemented by the regional administration, they have a tendency to harden conventional categories and fixed actor positions.

Singleton (2005) has reminded us that during routine-like implementation tasks, practices easily begin to repeat the conventional, bringing a strongly rigid element to the policy dynamic. During implementation, a great deal of extra effort is required to push the categories and question their boundaries (see also Verran 1998). This study has vividly shown that policy tools are an active ingredient in this process. This notion also links various policy levels and phases together in a dynamic manner. If we are to understand the dynamic interplay between policy levels, we need to follow how policy tools are enacted during the various phases of the policy process.

In Article III, I also show how the rigidities of implementation practice maintain relations with past policies and practices of agri-environmental management. Both the principle of stewardship (Jokinen 1997; 2000), as well as the welfare state's idea of equality between production sectors and regions (Granberg 1999), have borne great weight in the Finnish agri-environmental policy throughout its lifetime. The results make visible how the strict division of labour between the agricultural and environmental sector, in the implementation of the GPS and the SPS, upholds this relation. While implementing the GPS, the agricultural sector strengthens the welfare effects of the policy; whereas the SPS measures restrict the actions of the environmental sector to plot scale.¹¹

This kind of rigid dynamic tends to demarcate problems and solutions within the system, producing a technocratic understanding of agri-environmental management. During the three revisions of the agri-environmental programme (MAF 1994; 1999, 2007), the programme's basic principles

¹¹ Through its practices, research also actively contributes to this dynamic. This became explicitly clear to me during the AgriBMPwater project, in which I participated during the research process. The project gathered together agricultural economists and environmental researchers to seek common ground in modelling the impacts of farming practices on water quality and develop integrative tools for mitigating diffuse agricultural pollution (Turpin et al. 2005). During the project, the researchers became painfully aware of the relevance of scale to agri-environmental management. In this project the economists began their analysis from the functioning of the farm economy and then – depending on the model – scaled up to the regional or national economy. The environmental scientists, respectively, started their examinations from plot scale. They evaluated the water economy, the inputs and outputs of one particular plot, scaled up to watershed level, and estimated the total nutrient load caused by agricultural practices within that water system. The farm to which the plot belonged was of no concern to them. Evidently, the modellers also had various interpretations of the relevant temporal scales. This division between the scales is very similar to that of the implementation practice.

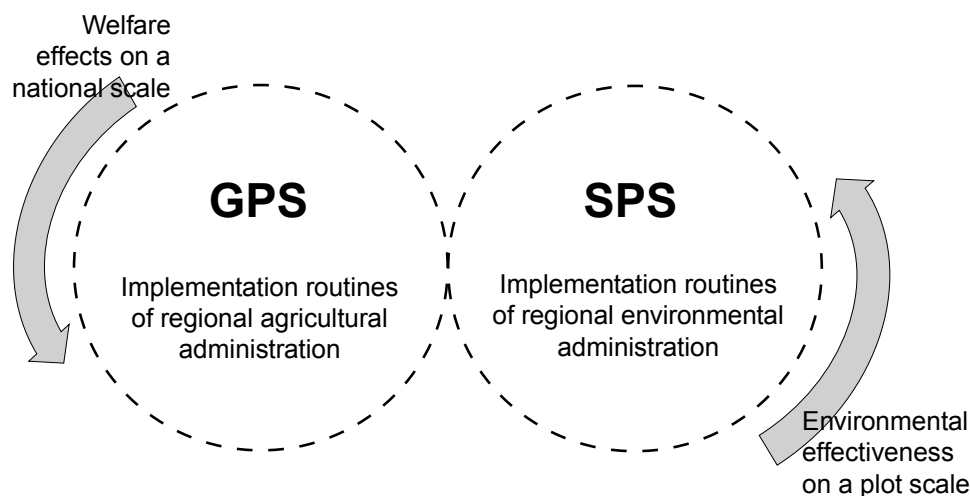


Figure 2. Repetitive cycles of collaborative practice

have remained the same; only the detailed scheme conditions have altered. Also, despite several attempts to reduce the bureaucracy of the schemes, the outcome has been the opposite. Policy learning has taken place on the level of detailed scheme conditions, and as these new scheme conditions are implemented in practice, the boundaries between the dualistic accounts of agri-environmental management are sharpened further.

In my analysis, I detected many occasions on which the actors tried to question or overcome these boundaries. In many instances, the environmental sector has, for example, tried to strengthen the environmental requirements set by the GPS. However, such attempts have met with little success.¹² In addition, the pivotal role of the GPS in the practices of regional agricultural officials has held back their motivation to link entrepreneurship more strongly with environmental management (see esp. Articles I and III). The policy does not offer any tools for supporting this linkage.

The relationship between the vertical scales of policy measures and horizontal implementation networks seems so tight that it is very difficult to break or even loosen it. The active materiality of the policy measures continuously re-enacts the boundary, while doing so strengthens the continuums with past policies, practices and actor positions.

¹² For example, during the drafting of the 3rd agri-environmental programme, a group of environmental researchers left a note on the draft programme, where they insisted on more stringent GPS rule in the use of phosphorous. They based their arguments on the results of the environmental impact assessments of the previous programme. Their appeal, however, had no effect on the fertilisation levels agreed upon in the final programme. The translation of cross compliance requirements (EC 1782/2003; MAF 2006b) and the Nitrate Directive (931/2000) into Finnish legislation provides examples of the strength of the GPS as well. The cross compliance requirements are aimed at integrating environmental concerns more prominently into the direct support system of the CAP. These requirements define the good farming practices which farmers claiming direct agricultural support should follow. The Nitrate Directive, respectively, sets norms for the use of nitrates in farming. However, the translation of these policies into Finnish legislation has had only a minimal concrete impact on how good farming practices are defined. The GPS still sets out the baseline; its broad uptake is not to be put at risk. Normative environmental control must not endanger the livelihood conditions of agriculture.

4.2 Multiple memberships of farmers – how commitment to agri-environmental management emerges?

In order to study the institutional ambiguities posed by the resolution of agri-environmental problems, we must carefully examine the relations which escape or challenge those suggested by the policy. As I analysed how farmers translate the agri-environmental schemes into farming practices, I came across several such relations. A detailed examination of these is essential to understanding how farmers' commitment to agri-environmental management emerges.

According to the results of this study and various impact assessments (Aakkula *et al.* 2010; Kuussaari *et al.* 2004; 2008; Mattila *et al.* 2007; Palva *et al.* 2001; Pyykkönen *et al.* 2004; Turtola & Lemola 2008), the GPS has become a powerful policy measure, which largely controls and constitutes agri-environmental management as practiced on Finnish farms. The GPS has standardised several basic environmental actions as routines on the farms. Cultivation planning and taking soil samples have become common practice. Tillage methods have been exchanged for more subtle ones; buffer strips have appeared on ditch-sides and plant coverage has been left in fields over the winter period. The use of nitrogen has decreased by 10–20 % and the use of phosphorous by 20–50%, depending on the farm. Perhaps the biggest investments have been made in the enlargement of manure storage facilities.

However, what seems uniform from the outset is highly variable in practice. The ways in which farmers have translated environmental management into their farming practices varies greatly. I have elaborated on these variations in detail in my research reports (Käljonen 2002; see also my earlier study from 2000 and Article I). Some farmers have taken the easiest path by simply following the basic rules set out by the GPS. Many farmers actively explore and test the room for manoeuvre available in the schemes – and invent new applications suited to the circumstances *at their farm*. It is at this point that they may also begin considering the more targeted environmental actions offered by the SPS (see esp. Articles IV and V). For some farmers, the schemes have acted as a motivation to begin evaluating the parts of their farming practice from a novel perspective. (For comparative results, see e.g. Burton & Wilson 2006; Morris & Potter 1995; Wilson & Hart 2001.)

It is not that farmers take the schemes as given; on the contrary, they test and adjust them to differing circumstances on farms. Farmers also actively criticise the scheme conditions. As I conducted my interviews with the farmers, I was struck by the similar tone in which this criticism was given. Nearly all of the farmers I interviewed griped about the scheme's conditions and the peculiarities of applying them in practice. The following quotation by one dairy farmer from South Ostrobothnia summarises this tension so well, that, once again, I want to quote her here:

...It is a good thing, I don't argue against it. It is good that the environment is being looked after. I think the purpose is good, but I don't quite know how it should happen. Some things in the agri-environmental schemes are so irksome. They really make me laugh sometimes, how fiddly they have to be. [...] These nature issues, I think they have gradually grown in the thoughts of farmers, while living and working on the farm. They have usually inherited the farm from their parents. Hence, before they start with their own farming, they have already worked together many years with their fathers and done all sorts of things together... And then somebody comes and talks about it. Somehow it feels... How could I say... a farm is assumed to be a place where you can control everything. It is not understood that there is no way you can control everything on the farm. It is just impossible to get everything onto paper, and in every case. That's just how life is.

This dairy farmer views the agri-environmental schemes as important, but criticises them for their standardisations and neglect of the local social and ecological conditions of farming. This criticism questions the very premises of the agri-environmental schemes. In Article II, I analyse this tension in detail and argue that it is this very critique that binds together the otherwise heterogeneous group of farmers.

We can interpret this critique as a cultural response to another cultural form of intervention – that is, one embodying particular normative models of the relationship of human activities with nature (Wynne 1996). Farmers tend to have rather different ideas about what agri-environmental management concerns and what skills and knowledge it requires compared to those suggested by the agri-environmental schemes.

Although the farmers interviewed for this study acknowledge the environmental impacts of the intensification of production, they simultaneously tend to cling to the ideal of a respectful relationship between agriculture and nature, that of *stewardship* (see also Kumpulainen 1999; Silvasti 2003; Soini 2007). This principle has borne great weight in the past agricultural policies (Jokinen 1997; 2000). For farmers, the principle is associated with the *care* of land and farms. Farmers emphasise that, in order to have the family farm handed down to the next generation, and for the land to remain productive, it must be tended properly and not exploited. Moreover, farmers take the view that the relevant skills for environmental management are gained in the fields through trial and error, working with nature and following the seasonal and generational cycle on the farm.

In Article II, I use the concept of living one's field to describe the craftsmanship involved in farming. This concept was used by one older farmer, who practiced arable farming in South Ostrobothnia. Based on this concept, he described to me how his fields are in active agricultural use and how his cultivation practices and care for the land have made them what they are now. The concept is historical, including both past and present activities, emphasising the various uncertainties related to farming. It also takes the form of a hybrid connecting both human activities and natural elements of the field.

Farmers' critiques challenge the standardisation and dualistic accounts of environmental and production concerns as suggested by the agri-environmental schemes. The agri-environmental schemes tend to handle nutrients on a universal standardised field, where all of the actions can be controlled. Such quantitative and universal elements of the agri-environmental schemes contradict farmers' practically orientated knowledge of living one's field, which emphasises variation and uncertainty in soil conditions, weather, cultivated plants, family labour, production prices and subsidies, for instance. This variability is a reflection of building diversity into practice, adaptively coping with the multiple dimensions to be taken into account in farming (see also van der Ploeg 1993). Multidimensionality is taken for granted; furthermore, it cannot be codified. It is just life.

Similar disputes about valid knowledge have occurred frequently within natural resource management in Finland (e.g. Jokinen 2004; Oksanen 2003; Peuhkuri 2004; Valve & Kauppila 2008) and elsewhere in Europe (e.g. Burgess *et al.* 2000; Burton *et al.* 2008; Clark & Murdoch 1997; Harrison *et al.* 1998; Lundqvist 2001; McEachern 1992; Pinton 2001; Riley 2008). However, local and universal knowledge should not be regarded as different a priori. Knowledge of farming as well as of its environmental impacts draws upon both knowledge categories, and in practice they get blurred (see also Carr & Wilkinson 2005; Morris 2006). Furthermore, our knowledge of farming and its environmental impacts is constantly changing as new information and experiences are encountered from various sources and disciplines. For example, the re-evaluation of fertilisation practices requires long-term experimental knowledge of the nutrient contents of the soil, as well as more generalised knowledge of the interrelations between soil, nutrients, plant growth and run-off – in addition to knowledge on the technological applications.

Knowledge is dynamic by nature: it is an ever changing outcome of complex social processes. What counts as legitimate and useful knowledge is constantly negotiated within these processes

(Clark & Murdoch 1997; Ellis & Waterton 2005; Morris 2006; Wynne 1996). The ways in which the boundaries between universal and local knowledge categories are defined depend upon a specific context (Harraway 1988). According to the results presented in Articles II and III, the implementation of the agri-environmental schemes has sharpened the boundaries between local and universal accounts of agri-environmental management and knowledge. Different forms of knowledge have become relevant stakes in the politics of agri-environmental policy implementation. While appealing to the experiential knowledge of farming and local environmental conditions, farmers co-construct their agency as environmental stewards. In Article II, I use the term co-construction to capture both the material and social bases of agency (Callon & Law 1995; Higgins 2006; Murdoch 2001).

The farms are economically dependent on agri-environmental support and, since many of their farming activities are being scrutinised, the farmers easily feel that the administration no longer trusts the farmers' own abilities to evaluate what constitutes good or bad farming. For example, the cultivation plan makes farming practices controllable both for the farmer her/himself and for the inspector. The tightening of environmental policy alongside structural changes due to Finland's EU membership has increased the feeling that decisions are being made top-down on an ever more remote basis. This result became explicitly clear in our analysis of the farmers' images of the future (Article I). In this study, we witnessed an evident gap between how the farmers and experts (close to agricultural policy making) saw the future of Finnish farming developing. In particular, the farmers viewed the probable future of farming as undesirable. In addition, the implementation of the European-wide Natura nature conservation 2000 network should be mentioned here. Implementation of Natura has had significant repercussions on the lack of trust between farmers and the environmental administration (Hiedanpää 2002; Oksanen 2003).

As decision-making on agricultural and the environmental policy becomes ever more remote, basing their arguments on local experiential knowledge offers farmers an alternative route to claiming their rights to agri-environmental management. The implementation of the agri-environmental schemes has given rise to a new form of political action. By emphasising standardised environmental management procedures and their importance to farming income, the policy has questioned the values of good farming, livelihood bases, stewardship and care for land. They have become endangered attachments which require *active commitment* (Gomart & Hennion 1999). This commitment regards environmental management as something which builds on the potentials available at a particular farm in a given environment.

The results presented in Article II show how farmers can draw upon various social relations and forms of local knowledge in order to resist or mediate the terms of enrolment offered by agri-environmental schemes. They hold *multiple memberships* (Bowker & Star 1999:227-284; Star 1991) in relation to the schemes. At the same time, the agency of farmers is characterised by standardisation behaviour *and* an attempt to partially offset the classification scheme in order to retain the decisions regarding the agri-environmental management at farm-level. It is important to note that these two elements are not in dualistic opposition, but form a duality (Bowker & Star 1999). A farm should not be characterised simply as a "site of resistance"; rather, it comprises a site of "alternate ordering" wherein the classificatory scheme becomes embedded in the heterogeneous relations existing at farm level, and the two combined give rise to a new form of (dis)order (see also Murdoch 1998:366; Riley 2008).

Something novel has been created as a result of the implementation of the agri-environmental schemes. It is also important to note that the dualities involved in agency are frequently in tension with one another, as formal policy networks attempt to simplify the actions of farmers. How this duality is played out at each farm has a direct effect on the way in which agri-environmental management manifests itself.

4.3 Emergent need for local translations and deliberations – how multiple actors are brought together to deliberate upon agri-environmental management?

According to the results of this study, various moments exist in the policy process where the alternate ordering of farmers is taken seriously and moved forward. The results presented in Articles III and V suggest that local encounters between municipal rural officials and advisors have proven decisive in this respect. Also, the specific general planning practice, analysed in Articles IV and V, has showed potential in bringing the different actors together to deliberate upon agri-environmental management.

According to the results, there is an emergent need for *buffers* or *mediators*¹³ in the implementation of the agri-environmental schemes. They are needed not only to translate the scheme conditions for farmers; but also to bring experiences gained from the field back to the administration. Under the current practices of the Finnish agri-environmental policy, the actions of municipal rural officials and advisors have proven most powerful in this respect (Figure 3).

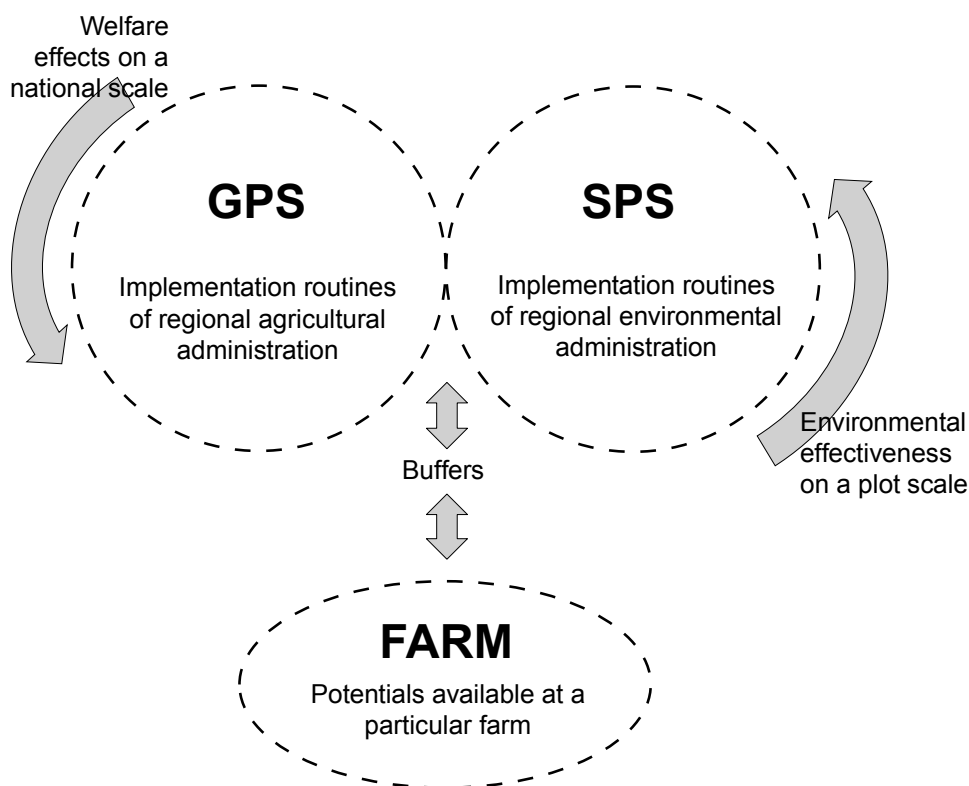


Figure 3. Emergent need for buffers in the implementation of the schemes

¹³ The term buffer was used by many of the local officials and advisors I interviewed. On the other hand, the concept of mediator is commonly used in the policy literature. In the latter context it refers to certain actors or institutions, whose task is to interpret policy goals or scientific results to the public or affected parties. For Latour (2004), the term mediator refers to the capacity of material devices to transport and transform (!) a meaning.

According to the results presented in Articles III and V, farmers have developed a close relationship with municipal rural officials, based on both trust and dependency (see also Michael 1992). Farmers take all of their support applications to the municipal rural office. They are dependent on the information these officials possess, but their relationship has also become flexible enough to accommodate farmers' commitments. At best, this can soften the ambivalence which might arise when participating in environmental protection. For their part, the advisors have helped farmers to fill in their scheme applications and in drawing up environmental management plans. Advisors have also organised obligatory farmer courses on agri-environmental schemes.

However, as buffers, local officials and advisors have found themselves in a double alliance (see also Rose & Miller 1998). On the one hand, local officials and advisors seek to form alliances with the farmers, translating their daily worries, investment decisions, economic burdens and practical agricultural work. On the other, they have allied themselves with the administration, focussing on their problems and translating concerns about environmental or economic performance. This double alliance makes their position in policy implementation challenging and complex. Such a position provides them with the possibility to support farmers' commitments. However, at the same time, in these local encounters standardised accounts of the agri-environmental schemes as well as the potential for inspection and surveillance are always present. This creates specific conditions for the given extension and advice (see also Ljunggren-Bergeå 2007; Seppänen & Helenius 2004). Many local rural officials have, in fact, felt that the bureaucracy of the subsidy system is so overwhelming that, in practice, they have lacked the resources for or interest in anything else. For advisors, the biggest challenges arise from their role as consultants. They either sell their services to individual farmers or work on a project basis. This gives them more freedom of manoeuvre with respect to the administration, but also compels them to justify their position and the prices of their services over and over again.

Since local rural officials and advisors do not play a strict statutory role in implementation, the way in which they translate schemes into practice depends on the motivation of individuals and the resources invested by their host municipality or organisation. If both of these are regarded as high, this can be directly seen in the number of SPS contracts in that particular municipality or region (e.g. Härjämäki & Kaljonen 2007).

According to the results presented in Articles IV and V, specific general planning also holds potential in supporting localised accounts of agri-environmental management. General planning has evolved over time from a need to allocate SPS measures to environmentally critical areas, to increase the interest of farmers in the SPS and to find collaborative ways of working. The first general riparian zone¹⁴ plans, which aimed to reduce the nutrient loads from cultivated fields, were drawn up in the late 1990s in Southwest Finland. Following the initial positive results, the practice has spread throughout the country, and into new areas such as biodiversity management and wetlands. The Ministries of Agriculture & Forestry and of Environment fund the planning. They have also published guidelines in order to promote and harmonise planning practices. The regional environmental centres have chiefly been in charge of planning, together with regional agricultural officials and advisors. In practice, planning consists of field and map work, as well as participatory meetings.

According to the results presented in Article IV, the general riparian zone planning has provided a stage on which divergent actors can come together and deliberate upon agri-environmental management. The results highlight the fact that pulling the various concerns of actors together requires particular kinds of material devices. In Article IV, I show how the riparian zone has acted as a boundary object in linking together the concerns of multiple actors (Bowker & Star 1999:

¹⁴ A riparian zone is a 15-metre wide area, which is left uncultivated, between a field and a water course. The purpose of the zone is to prevent nutrients running off into the water system. Hence no tillage, fertilising or spraying are allowed in the zone. In order to obtain SPS support, the zone must be sowed with permanent grass and mowed accordingly.

296-298; Star & Griesemer 1989). As an end-of-field-technology, the riparian zone has allowed both the autonomy of different social worlds and communication between them. Riparian zones are relatively easy to construct and vary according to the needs of different farms. They do not call prevailing farming practices into question, i.e. no one is forced to part with their own understanding of agri-environmental management to too great an extent. They are also easy to control, which is an important aspect for the administration.

In Article IV I also show that this kind of watershed-level planning has helped in taking simultaneous account of locally varying natural conditions and farmers' experiential knowledge. In this respect, planning has provided conditions for local learning. I investigate this feature further in Article V, where I show how a particular biodiversity management plan takes shape as it circulates across various locations. This method reveals that it is the inherent fluidity of the plan, and its ability to move across scales, that has made it a powerful device in agri-environmental policy implementation (see also deLaet & Mol 2000; Law & Mol 2001; Peltola 2005).

In Article V, I show how general planning enables a thorough exchange of ideas on how a particular site can be managed and funded, together with a broader perspective of what actions should be taken in a particular region or watershed. The concept of *jalkautuva yleissuunnittelu*, introduced to the method by one of the environmental officials I interviewed, perfectly captures the plan's fluidity. In Finnish, the term includes the notion of planners leaving their offices to enter the fields; while also safeguarding the general interests of the region. In English, this approach could be called *grounded general planning*. In fact, the plan has been capable of moving even further across the various policy levels. It has allowed environmental officials to develop monitoring systems and show Ministries the state of the environment in their region, how they have succeeded in implementation, and for which areas they would require more resources from the state.¹⁵ The plan has travelled as far as the European Commission, under the label of good practices identified by the evaluation studies. When assembled, the plans allow the follow-up of the SPS schemes and what has been accomplished with all the euros devoted to the agri-environmental schemes. In so doing, they contribute to the symbolic image of agriculture and the rural environment.

In practice, general planning has tried to solve the central dilemma of agri-environmental management: how to link individual farm-level actions to environmentally effective collective action. As such, agri-environmental schemes have not provided means for creating this linkage; practitioners have been compelled to use their own pragmatic imaginations.¹⁶ Regional environmental officials are accustomed to drawing up general plans. They also carry these out in several other areas, e.g. nature and water protection. In this respect, this practice is by no means a novelty. However, when an association with agri-environmental management is created, something new emerges.

By questioning the fixed scales of agri-environmental management, the grounded general planning actively stretches the conventional categories and boundaries of knowledge and moves beyond the dualistic actor positions characteristic of agri-environmental policy (Figure 4). Farmers' engagement in their local environment, as well as with long science networks, have allowed them to identify themselves as knowledgeable actors in areas where, in many respects, claims based on

¹⁵ It is important to note that monitoring systems are not only developed on national or European levels. Implementation practices can also have a significant input and creative take on this matter.

¹⁶ In addition to general plans, also many other examples of local cooperation and collaborative projects exist that have been built as an answer to this dilemma (see e.g. Aakkula et al. 2006:44-48; Palviainen 2001). In some areas, for example, the local and regional Farmer's Unions (MTK) have taken an active role in promoting environmental management through various projects. In these projects, flexibility in farm-level solutions is usually given pride of place. Examples of these include e.g. the Savijoki pilot and TEHO project, which have been ran together with the Southwestern Environmental Centre. Also, in Uusimaa, Southern Finland, the regional Farmers Union has actively participated in the marketing and planning of riparian zones. In sum, the relationship of MTK to environmental issues seems to be in an actively developing phase – and is hence also ambiguous. The evolving role of MTK would require its own treatment which, unfortunately, cannot be carried out here.

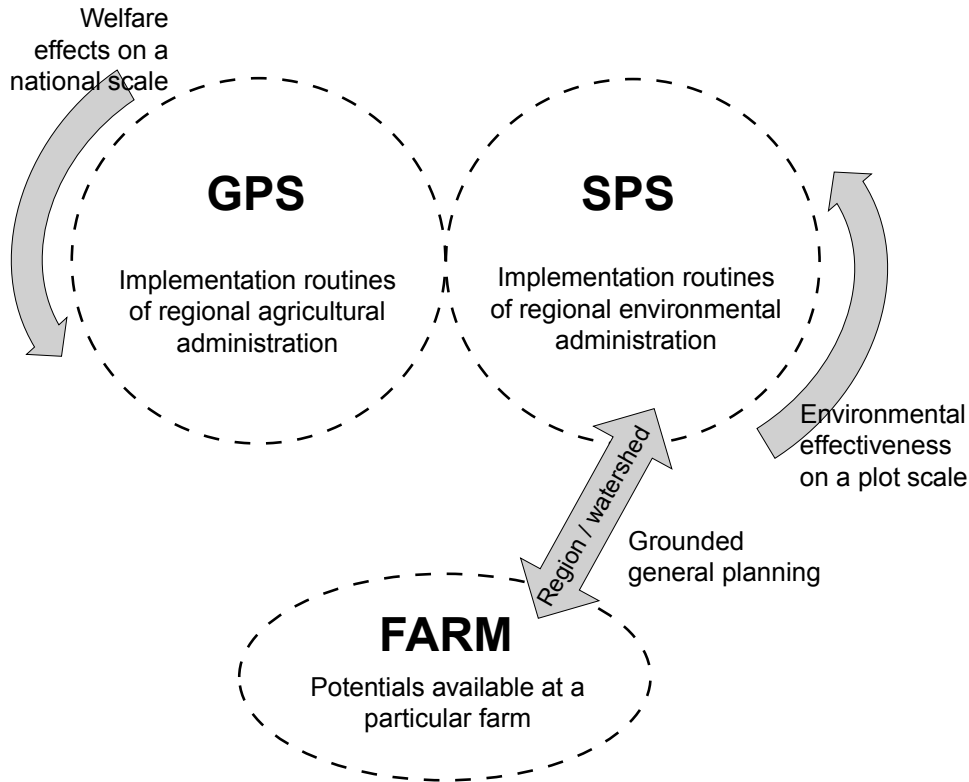


Figure 4. Fluid practice of grounded general planning

local agro-ecologies outweigh the more universal claims of other actors, such as the environmental authorities. Consecutively, planning has provided tools for environmental officials to pursue their goals. The plot scale enacted by the SPS is now accompanied by a region or watershed enacted by the general plan.

Despite this potential, the capacity to act afforded to farmers and nature remains rather limited. General planning takes place in the strict institutional setting of agri-environmental schemes and has taken the policy boundaries as given. In this respect, the conclusions drawn in Article V are somewhat more sceptical compared to those presented in Article IV. In Article IV, I conclude that the creation and management of boundary objects is a key practice in developing and maintaining coherence across intersecting social worlds. In Article V, I draw more attention to the ways in which fluid technologies have been streamlined to existing institutional structures and dualistic accounts of agri-environmental management. In the context of biodiversity protection, for example, this means that planning builds on the concept of an ecologically valuable or restorable site, as defined in the SPS (Article V). This association has a tendency to re-enforce the boundary between productive space and nature created by modern intensive agricultural systems. Grounded general planning, as such, has offered no novel solutions to this problem.

The results concerning the emergent need for buffers and fluid technologies show that conventional political institutions and administrative solutions clearly lack the power to deliver the required policy results on their own. New practices have been invented to link individual action

to environmental effective collective action. These emerging practices propose quite different scales and institutional rules of action for the agri-environmental management. However, here again, we can identify a tension between standardisation and complexity, which seems to characterise the implementation of the agri-environmental schemes from all ends. On the one hand, these practices have enlarged and complicated concerns which need to be taken into account in agri-environmental management; on the other, they have disciplined and streamlined these new concerns into the existing institutional framework of agri-environmental schemes (see also Calton 2002; Star & Griesemer 1989). The way in which this tension is unravelled in the different experiments is critical to their respective outcomes.

5

Conclusions

The results of this study highlight how the tension between complexity and standardisation characterises the implementation agri-environmental policy from all ends. Understanding the varying manifestations of this tension is critical to capturing the institutional ambiguities posed by the resolution of agri-environmental problems, and for developing a more attentive environmental policy.

The case of Finnish agri-environmental policy shows how the implementation phase can become a central site of politics. According to the results, the implementation triggered not only negotiations about the meanings or institutional rules of agri-environmental management, but about what it means *to commit to* agri-environmental management. The results of this study highlight how farmers' relationship with agri-environmental schemes is simultaneously characterised by standardising behaviour and an attempt to partially offset the schemes, in order to keep decisions regarding the agri-environmental management at farm-level. By emphasising standardised management procedures and income support, the agri-environmental schemes have questioned the values of good farming, livelihood bases, farmers' experiential knowledge and care of land. These values have become endangered attachments, which require active commitment.

Something novel is given birth as a result of the implementation of the agri-environmental schemes: political action, which deliberates upon commitments. These commitments cannot be captured by dualistic notions of environmental protection and agricultural production. They are something much more complex, meandering and not yet fixed. They regard environmental management as something which builds upon the potentials available at a particular farm in a given environment. It is also important to note that the standardisation behaviour and the potentials available at a particular farm will frequently be in tension, as the agri-environmental policy tries to control the actions taken at farms. How this tension materialises at each farm is essential for the resolution of agri-environmental problems.

Such a situated and material nature of commitments is currently given too little attention in the design and implementation of the agri-environmental policy. It is certainly one of the most crucial institutional ambiguities revealed by this study. The material bases of commitments and their evolving character have also been given insufficient attention in studies of environmental policy and respective institutional ambiguities. Commitments to agri-environmental management should not be understood as something existing within an institutional or temporal vacuum. Rather, as the results of this study emphasise, they are actively (re)built as part of a situated action. This also implies that policies, policy measures and technologies actively partake in the (re)building of commitments. In policy practice, participants – be they human or non-human – gain capacities

they did not have before. Agriculture's direct relationship with nature renders commitments even more fundamental to the practiced policies and the politics they may trigger.

During implementation, I was able to detect several occasions and practices which seemed responsive to commitments. According to the results of this study, these occasions and practices have become central to building trust amongst multiple actors and linking the individual actions to environmentally effective collective action. The results stress the role of local rural officials and advisors as buffers between policy and practice and the importance of local plans and projects in bringing the various actors together to deliberate and experiment with agri-environmental management. These practices propose rather different scales and institutional rules of action for effective agri-environmental management, as compared to the existing ones. They suggest that the more flexibly policy measures and technologies can move across the various policy levels and become part of various actors' commitments, the more powerful they can evolve.

The empirical results gained from this study, however, stress, that if we are to understand the institutional ambiguities posed by the resolution agri-environmental problems, we should not only analyse how new institutional rules and commitments are deliberated upon as policies are enacted in practice, but also how policy practices turn into routines and how these routines relate to past policies, practices and actor positions. The results gained from the implementation of Finnish agri-environmental policy are interesting in this respect. They draw attention to the specific, but often neglected, role of implementation practices in this dynamic.

The results of this study reveal how the active materiality of policy measures can build and maintain continuums with the past policies, practices and actor positions. In the implementation of the agri-environmental schemes the agricultural administration has taken ownership of the General Protection Scheme, which stresses welfare effects on a national scale; whereas the actions of environmental administration concentrate upon the Special Protection Schemes implemented on a plot scale. During implementation of the schemes this association between the vertical policy measures and horizontal implementation network is enacted ever again, as routines establish themselves. In the case of Finnish agri-environmental policy, this has resulted with a situation where something which at first offered potentials for cross-sectoral policy learning has eventually turned into a concealing force. This force is also something, which actively maintains continuums with past policies, practices and actor positions.

The agri-environmental policy has been too naïve to fully recognise this. Neither have the methodological devices for environmental policy analysis offered means of capturing how policy measures implemented in practice might dynamically contribute to the policy outcome. In agri-environmental policy, many policy tools and technologies are explicitly developed to maintain their form and stability as they travel from the ministry to the farms. This is viewed as affirming the justness and equity of policy instruments. The results of this study have shown how such standardisations may enact strong rigidities in the policy system as they are implemented in practice, and consequently restrain the policy from renewal. In the case of Finnish agri-environmental schemes, policy learning has taken place on a level of detailed scheme conditions, and as these new scheme conditions are implemented in practice, the boundaries between the dualistic accounts of agri-environmental management are sharpened further. In such a dynamic, the alternatives are demarcated outside the policy system and conditions for action become limited. Also, nature is allowed to speak only quietly, with a standardised voice.

The agri-environmental policy may either support standardisation behaviour or encourage commitment. If the latter is chosen, the commitments triggered by the schemes should be taken seriously and given a chance to extend and grow. This implies that those enrolled in policy will be at best partially connected, lending their worlds in ways that may well be far from complete and will therefore continue to surprise. Agri-environmental policy and management should not only be about control. They also concern care and realising the potentials available on various farms.

The more commitments the policy technologies can trigger and the better they are in accustoming to various circumstances, the stronger they can evolve.

In 2010, the farm on which I found the concrete heart sold its cattle and quit milk production; the barn was too old and small for today's production requirements. However, the farmer decided to plough and sow the fields himself, at least for the coming summer. At the same time, in Koski TL, another farm began an environmental impact assessment process for enlarging its pig and poultry production. At its largest, the production unit is envisioned to consist of 56,000 pigs and 500,000 chickens (Watrec 2010). The farm would process the manure into bio-gas and fertiliser products sold on the markets. Agricultural production in Finland is becoming more polarised. In this structural transformation, the commitments enacted by agri-environmental schemes may evolve into new material realities. Income support offered by the agri-environmental schemes may no longer attract the enlarging farms to the same extent as before, whereas smaller farms may find the schemes ever more attractive in terms of their own livelihood strategies. Transformations in the agricultural production structure pose an ever changing challenge to an attentive environmental policy. A constant (re)evaluation of institutional ambiguities should form an integral part of attentive environmental policy. I hope that the methodological tools developed in this study can help the social sciences in taking more active role in this major endeavour.

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Divergent Images of Multifunctional Agriculture: A Comparative Study of the Future Images between Farmers and Agri-Food Experts in Finland

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In the latest reforms of the Common Agricultural Policy (CAP) the EU has adopted a concept of multifunctional agriculture that should encourage farming to play several roles in society and contribute to the well-being of rural areas by managing the countryside and the environment. In this article we analyse the different interpretations of multifunctional agriculture by comparing the perceptions of future agriculture by the Finnish farmers and agri-food experts. For analysing different perceptions we use a concept of future image developed within future studies. The empirical material is collected with a survey. In the analysis we give special attention to the dialectics between desirable and probable futures as well as to the (dis)continuities between the views of the farmer and the expert respondents. On the basis of the descriptive analysis we identify the future challenges of agriculture both in terms of opportunities and threats and discuss their implications for the multifunctionality debate. We close the article by addressing the relevance of future studies for policy formation.

Keywords agricultural policy, multifunctional agriculture, sustainable agriculture, future images, future studies

Introduction

The Common Agricultural Policy (CAP) of the European Union (EU) has given rise to discussion on the future development of agriculture. The EU has been forced to re-evaluate its agricultural policy as a response to external pressures arising from the international agricultural and food trade negotiations in the World Trade Organisation (WTO) as well as internal pressures arising, e.g. from the enlargement of the EU and its budgetary crisis. Consumer and

environmental demands have also cast policy priorities in a new light. The challenge for the EU has been to engage in wider processes of agricultural trade liberalisation while simultaneously developing agricultural and rural policies that ensure the continuity of agricultural production and recognises the cultural embeddings of agriculture and its importance to a rural livelihood.

As a result, CAP has met reforms (Council of The European Union, 2003). Perhaps the most relevant changes are the de-coupling of CAP support from production, the strengthening of the environmental and rural policies, and price cuts in some agricultural products. In terms of rural and environmental policy, as Lowe *et al.* (2002) have noted, there are three new aspects to be identified in EU agricultural policy: (1) the increasing decentralisation of the policy, (2) the emphasis on multifunctionality, and (3) the idea of territoriality. Thus, in line with the principle of subsidiarity, the strong supranational framework of CAP is challenged, and the idea of multifunctionality should encourage farming to play several roles in society and contribute to the well-being of the rural areas by managing the countryside and the environment (see also OECD, 1998, 2001). On the one hand, the principles of the agricultural policy are decided upon CAP, on the other, there seems to be a growing degree of discretion available to the Member States with regard to policy implementation.

Agriculture is multifunctional by its nature: it is a multi-output activity providing not only commodities, but also non-commodity outputs, such as environmental benefits, landscape amenities as well as cultural heritage (OECD, 2001). How these multiple functions are translated

into politics in future is, however, an open question characterised by controversy (see Dobbs & Pretty, 2004). In this article, our aim is to analyse the expectations of future agriculture in Finland and analyse critically the different interpretations of multifunctionality. We shall do this by comparing the reactions of Finnish farmers and agri-food experts to the changes in agricultural policy and their views on how agriculture should be developed in future. These groups' perceptions of the future development of agriculture have seldom been compared (for examples of futures studies on agricultural development see Aakkula *et al.*, 2002; Kola, 1998; Kröger, 2001; Lafourcade & Chapuy, 2000; Puolanne, 2002; Zanolini *et al.*, 2000).

Our analysis of the challenges of future agriculture is restricted to Finland, but we believe that, especially within the context of the Common Agricultural Policy, Finland provides an interesting case of agriculture practised in less favoured areas (LFA).¹ Finland has been classified as a whole a less favoured agricultural area (Niemi, 2003). When national or EU-level agricultural policies are redesigned, less favoured areas will face the greatest challenges in maintaining agricultural production because of their adverse production conditions. The isolated and poorer areas are also most vulnerable to agricultural abandonment and rural depopulation (MacDonald *et al.*, 2000).

This article draws both on futures studies and sociological analysis of agricultural change. For analysing the different perceptions of the two groups we use a concept of future image developed within futures studies. The overall purpose of futures studies is to examine, evaluate and propose possible, probable and preferable futures (see e.g. Bell, 1997a, 1997b; Kamppinen *et al.*, 2002; Kuusi, 1999). We understand the images of the future as mental tools that deal with possible future states and help in the process of perceiving large and complex wholes. They are composed of a mixture of conceptions, beliefs and desires and they affect human choices and steer decision-making and actions (Rubin & Linturi, 2001: 269). The future images can be seen as the causes of present behaviour, as people either try to adapt to what they see coming or try to act in ways to create the future they want (Bell, 1997a; see also Inayatullah, 1993; Polak, 1973).

We start the article with the presentation of the methodological approach and the empirical

material of the study. Then, we move on to the comparative analysis of the future images of the farmers and experts. We give special attention to the dialectics between desirable and probable futures as well as to the (dis)continuities between the views of the farmer and the expert respondents. On the basis of the descriptive analysis, we identify the future challenges of agriculture both in terms of opportunities and threats and discuss their implications for the multifunctionality debate. We close the article by addressing the relevance of future studies for policy formation.

Methodology and Material

The study consists of empirical material collected by a survey from two separate groups: (1) farmers, and (2) experts from the agri-food sector. The comparison of the perceptions of these two groups allows us to take into consideration the different decision-making levels from local to national level. The groups also have different positions in the decision-making structures, that evidently affect the way in which they assess the future of agriculture (e.g. Hokkanen, 1997; Lahdelma *et al.*, 2000). The expert respondents represent mainly stakeholders who have the legitimate responsibility to participate in the policy process. Farmers, on the contrary, rarely have a direct opportunity to participate. However, they certainly are an interest group who has something to lose or win. When analysing the results of the study, it is important to keep in mind the different positions of the respondents.

The gathering of empirical material started with an analysis of the relevant policy documents and strategies concerning the development of agricultural production or the use of natural resources.² These policy documents and strategies were chosen to represent the official vision and goals of Finnish agriculture. Subsequently, we collected the identified future trends and driving forces and converted them into a group of statements about desirable and probable development.³ These statements were then gathered into a questionnaire and the respondents were asked to give their answers on the direction of desirable and probable development on a Likert's scale of five (−2 referring to a substantial decrease, 0 to no changes, and +2 to a substantial increase from the present level). We also tested

Table 1 Institutions represented by the expert panellists

<i>Institutions</i>	<i>Respondents total (n)</i>	<i>Respondents total (%)</i>	<i>Response rate in a group (%)</i>
Research and development	40	37	80
Education and consulting	12	12	60
Administration	25	25	40
Food industry and trade	7	7	47
Agricultural media	8	8	53
Agricultural unions and NGO's	9	9	39
<i>Total</i>	<i>101</i>	<i>100</i>	<i>55</i>

and revised the questionnaire beforehand with a group of experts (18 all together) and farmers (31 all together). After the interviews, minor changes were made to the questionnaire in order to ensure the feasibility of the questionnaire and the highest possible response rate.

We used a slightly different strategy in approaching the farmer and expert respondents. The questionnaire for the expert group included a total of 102 statements, whereas an abbreviated version with 44 statements was sent to the farmers. The farmer survey was conducted in the autumn of 2001 and the expert survey at the beginning of 2002. As the surveys differ somewhat both in content and form, in this article we rely only on the comparable material of these studies.⁴ The differences in the respondent groups are presented below.

The expert group consists of experts working with agricultural, rural and agri-environmental issues in ministries, administration, industry, media, research, interest organisations and non-governmental organisations (NGOs). The selection of the respondents was carried out by the snow-balling method in order to cover the widest possible expertise within the sector (Kuusi, 1999; Meriö, 2000). The questionnaire was sent out to 167 experts and the response rate was 55% overall. The keenest respondents came from the researcher community with an 80 % response rate. All groups exceeded 39%, the lowest response rate coming from administration, agricultural unions and NGOs. It has to be noted that the boundaries between groups are indicative. (See Tables 1 and 2.)

The farmers' group consist of farmers from South Ostrobothnia in western Finland. The region represents a vital agricultural sector with fairly good future prospects.⁵ The questionnaire was sent to 755 active farms in the region and the response rate was 53%. The response rate

can be considered as fairly good, as farmers are nowadays overburdened with all kinds of paperwork and surveys.

The production lines within the farmer group correspond fairly well to the actual distribution of farms in South Ostrobothnia (see Table 3). Some remarks, however, need to be made. The proportion of dairy, pig, poultry and other live-stock farms is fairly congruent with the actual share of farms, whereas the share of arable and special plant production farms is slightly higher among the respondents. The most striking difference can be found under the category of 'other production'. This can be partly explained by the differences in the coding systems of the survey and regional statistics, but also by deliberate choices, e.g. horticulture and horse breeding were discarded from our sample. As regards farm size, the participating group is fairly representative. Most of the farmer respondents own farms ranging from 4–30 hectares. The number of large farms is also significant.

We present the survey results in Tables 4 to 7 where we compare the desirable and probable futures between the two groups. The comparisons are based on the descriptive values of mean and standard deviation. Mean describes the assumed future direction of a stated issue, whereas standard deviation describes the consensus or disagreement among the respondents.

Table 2 Policy levels represented by the expert panellists

<i>Policy level</i>	<i>Respondents total (%)</i>
Local	6
Regional	18
National	59
International	17
<i>Total</i>	<i>100</i>

Table 3 Production sectors and farm sizes represented by the farmer panellists compared to the production structure of South Ostrobothnia

<i>Production sector</i>	<i>South Ostrobothnia total¹ (%)</i>	<i>Respondents total (%)</i>	<i>Farm size</i>	<i>South Ostrobothnia total¹ (%)</i>	<i>Respondents total (%)</i>
Crop production	40 ²	48 ³			
Special plant production	6 ⁴	12 ⁵	<4 ha	4	4
Milk production	29	24	4–15 ha	32	30
Pig husbandry	6	8	15–30 ha	32	33
Poultry husbandry	2	2	30–50 ha	20	19
Other livestock	6	6	>50 ha	13	14
Other production	13	1			
Total	100	100	Total	100	100

¹The share of farms in the South Ostrobothnia in the summer of 2000. (Information Centre of MAF, 2003).

²Including farms in which the main production sector is cultivation of cereals (wheat, rye, barley, oats). Malt barley and oil plants are included in the 'special plant production' category.

³Including farms where the main production sector is cultivation of cereals (wheat, rye, barley, malt barley, oats) and oil plants.

⁴Cultivation of malt barley, peas, potatoes, sugar beet and oil plants (turnip rape, rape, sunflower).

⁵Cultivation of potatoes, sugar beet etc. Malt barley and oil plants are included in the 'crop production' category.

The consensus statements can be interpreted as commonly agreed future trends that are already evolving to the desired direction with present measures or policy. The disagreement statements, on the contrary, are questions involving potential policy conflict. In the cases of great deviation, we have analysed the distribution of responses more carefully. In these questions, we have also used the interview material in the interpretation of the results. However, the structure of the presented results and analysis is based on the survey design.

Images of Future Agriculture from Local to National Level

Polarisation of farm structure

The farmers' and experts' future images reflect ongoing structural changes in agriculture. During EU membership, agricultural production in Finland has concentrated both regionally and sector-wise. The number of farms has decreased considerably and agricultural production has moved towards the south and west. As stock-breeding is concentrated especially in larger farms, the smaller stockbreeders are changing their line of production to crop production, diversifying their income sources outside primary production or closing down production.⁶ The

need to increase the efficiency of production is also endorsed in the various policy documents, which outline strategies for the future agriculture (e.g. MAF, 2001a).

Reactions to these changes differed somewhat between the farmer and expert groups (see Table 4). Comparison of the views yields at least three different images of a future farm. The diversity in the images also poses challenges to the identity of being a farmer and the ways of farming.

The first future image has confidence in intensive and economically efficient farm enterprises, which utilise the latest technology available and which in the future may to a greater extent be co-owned. This view of future entrepreneurship gets wide support especially from the experts, and a small group of farmers also evince this view. In fact, in this question farmers' and experts' perceptions on desirable futures differ most. The experts take the view that technological innovations are needed to increase the efficiency and profitability of the agricultural production. This also requires new kinds of managerial skills among farmers: over 90% of the experts share the opinion that more efficient managerial skills should be adopted in farm management (of these over 50% argue for a marked increase). According to this point of view, farmers should obtain sufficient income directly from agricultural production.

Table 4 Farm structure – perceptions of desirable and probable futures

<i>Statement</i>	<i>Farmers mean* [Std]</i>	<i>Experts mean* [Std]</i>	<i>Difference</i>
Desirable future development			
Size of farms and number of animals per farm	0.49 [0.90]	0.87 [0.73]	–0.38
Share of additional income in income formation of a farm	0.62 [1.01]	0.41 [0.88]	0.21
Competence and managerial skills	0.24 [0.98]	1.53 [0.56]	–1.29
Amount of local agricultural contract chains and enterprises	0.89 [0.71]	1.28 [0.61]	–0.39
Amount of skilled new farmers (new generation)	0.45 [1.12]	0.81 [0.82]	–0.36
Investments in technological development	0.65 [0.80]	1.18 [0.66]	–0.53
Probable future development			
Size of farms and number of animals per farm	1.32 [0.97]	1.48 [0.65]	–0.16
Share of additional income in income formation of a farm	1.21 [0.81]	1.07 [0.78]	0.14
Competence and managerial skills	1.12 [0.81]	1.12 [0.44]	0
Amount of local agricultural contract chains and enterprises	1.15 [0.66]	1.10 [0.55]	0.05
Amount of skilled new farmers (new generation)	–1.17 [1.04]	–0.71 [1.05]	–0.46
Investments in technological development	0.98 [1.03]	1.16 [0.47]	–0.18

*–2 refers to a substantial decrease from the present level.

0 refers to no changes to the present level.

+2 refers to a substantial increase from the present level.

The second future image stresses continuity and stable development. According to this view some adjustments to the farm structure as well as to the farming practices ought to be made, but opinions differ as to the pace and scale of the development. The contradiction between the desirable and the probable development of the farm structure is particularly strong among the farmer respondents. In general, the farmers stress the importance of continuous improvement of farm management and production in order to counter the challenges of the new operating environment of the European markets. This also requires some modification of farm structure. Most of the farmers want farm size to remain the same or increase slightly, however, the probable future images stress a considerable increase in farm size. This future image is characterised by realism: at farm level the consequences of intensification may be unsustainable. As farming is still very much based on family labour, resources are limited.

The third future image concerns the situation of part-time farms whose livelihood in the future will to a greater extent depend upon income sources and job opportunities outside primary production. The farmer and expert respondents are fairly unanimous on this issue. Diversification of livelihood is seen as an important future challenge; however, the probable

development is expected to be moving on a slightly larger scale than would be desirable. The issue of part-time farming questions the one-sided picture of farm activities based solely on primary production and stresses that in future many of the farms may get their income from multiple sources. This also means adjustments to present ways of thinking, especially in terms of entrepreneurship. On many farms multiple jobs can be interpreted as a survival strategy against structural changes in agricultural production (Peltola, 2000). It can also be seen as an essential feature of agricultural entrepreneurship and, as such, closely interconnected to rural livelihood (Vesala & Peura, 2002). The success of this strategy is very much dependent on other working opportunities and, hence, it is very likely that the part-time farms will be located near the labour markets of cities.

The respondents also identified several risks linked to the structural changes. The changes in production conditions call for a new kind of entrepreneurship. The experts stressed the difficulties in finding skilful farmers in the future, which is also recognised by the Finnish national strategy for future agriculture (MAF, 2001a). The farmer respondents' future expectations are correspondingly fairly modest in terms of passing one's farm on to the next generation.

The farmers' opinions seem to be divided on this issue; the experts' consensus on the probable development of the farm structure also breaks down. Almost half of the farmer respondents want the transfer of a farm to a descendant to increase, whereas, as many as 17% want them to decrease. The probable future appears to be going, again, in the other direction: 82% of farmers consider a decrease in transfers likely.

Also, as the workload – inside or outside primary production – increases, resources for ensuring the quality of products may weaken. This notion is critical, especially if we evaluate it in the light of the quality and food safety aspects prioritised in the most recent CAP reforms. Expanding farms may especially be critical in terms of workload, whereas on the small farms their chances of investing in new production technology may be precarious. A small, but critical, proportion of farmers (11%) reported that the chances of investing in new technology or machinery might decrease considerably in the future. This argument is put forward especially by the part-time arable farmers. Aakkula *et al.* (2002) have also pointed out the possible risks linked to the knowledge-intensive technological development and polarisation of farms.

As we can see, there is no consensus as to what the most desirable farm structure would look like in the future. For the expert respondents, the tendencies towards a more efficient production structure are seen as a more positive future challenge. There exists also fairly high consensus on the importance of this goal. However, the farmer respondents are more reserved about the future development and emphasise more the farm level risks related to the intensification of production. The different future images are also reflected in the ways in which respondents estimate the chances of coming generations of farmers to take over their parents' farms. The future of agriculture in this sense seems uncertain: the current policy goals leave room for divergent estimations on the pace and scale of probable development.

Faith in domestic production

Despite the changes in the production structure and the diminishing share of agriculture of the Finnish gross domestic product (GDP), EU membership has not led to any dramatic changes in the development of production volumes during the past 10 years in Finland (MAF, 2001a: 9–10).

Nor do our respondents expect any drastic changes in production volumes in the near future (see Table 5). In terms of different lines of production, the tendency is that the desirability of moderate increase in the crop, dairy or meat production will turn into a stable or slightly decreasing trend in the probable future, as the deviations in the answers also increase. The same tendency is visible in the amount of the total arable area. All in all, the both groups expect the share of agriculture in the Finnish GDP to diminish further.

However, if the number of farms decreases and the share of part-time farms increases, as discussed in the previous section, a decrease in production volumes would be more likely than the assumed status quo. Or else, the production on those fewer farms should become more intensive.

In this respect, farmers and experts disagree on the desirability of regional concentration of agricultural production. The South Ostrobothnian farmers are fairly unanimous on the benefits of regional specialisation, although the scale of concentration causes differences in opinion (45% of the farmers want it to stay at its present level and 30% argue for a moderate increase, with 10% for a considerable increase, while only 14% argue for a decrease). They also perceive regional specialisation as an increasing tendency in the future. South Ostrobothnia has the economics of scale on its side, as agriculture already has a significant role in the regional economy. A group of farmers from a less predominantly agricultural region might have expressed differing views.

The experts, by contrast, stress the harmful effects of concentration. Regional concentration might lead to unequal regional development and have unsustainable ecological, economic or social consequences. It has to be noted, however, that the representatives of the food industry and agricultural administration tended to be in favour of regional concentration.

Both farmers and experts share the view that domestic production would keep up with the changes in the European agricultural markets and the production volumes would stay more or less at the same level despite the radical changes in the production structure. This view is somewhat contradictory and might involve some risks, as we have shown. The views expressed become more understandable if we look at them in the light of the respondents' views on the future demand for domestic products. Both the farmer and the expert respondents hope the demand for

Table 5 Agricultural production structure – perceptions of desirable and probable futures

<i>Statement</i>	<i>Farmers mean* [Std]</i>	<i>Experts mean* [Std]</i>	<i>Difference</i>
Desirable future development			
Share of agriculture in GDP	0.50 [1.04]	0.04 [0.83]	0.46
Demand for domestic food products	1.51 [0.76]	1.25 [0.70]	0.26
Regional concentration of agricultural production	0.30 [0.96]	−0.39 [1.21]	0.69
Total cultivated arable area	0.32 [0.76]	0.17 [0.59]	0.15
Total cash crop production in Finland	0.67 [0.84]	0.41 [0.79]	0.26
Total milk production in Finland	0.53 [0.87]	0.28 [0.66]	0.25
Total beef production in Finland	0.74 [0.88]	0.30 [0.63]	0.44
Probable future development			
Share of agriculture in GDP	−1.09 [0.91]	−1.07 [0.58]	−0.02
Demand for domestic food products	0.52 [1.06]	0.16 [0.74]	0.36
Regional concentration of agricultural production	0.52 [1.05]	0.97 [0.92]	−0.45
Total cultivated arable area	−0.43 [0.95]	−0.54 [0.80]	0.11
Total cash crop production in Finland	0.02 [1.04]	−0.08 [0.86]	0.10
Total milk production in Finland	−0.37 [0.96]	−0.09 [0.77]	−0.28
Total beef production in Finland	−0.06 [0.98]	0.04 [0.69]	−0.10

*−2 refers to a substantial decrease from the present level.

0 refers to no changes to the present level.

+2 refers to a substantial increase from the present level.

domestic products would increase sharply, and also believe in a moderate increase and its abilities to keep up with competition from imported agricultural products. The consensus extends to the goal of keeping all current arable land cultivated in the future too. These two issues reflect the cultural importance of agriculture in Finnish society and shared policy goals. The respondents' faith in domestic production is high.

Uncertain agricultural policy

The ways in which the respondents believed the future challenges of the agricultural production should be addressed by agricultural policy cause uncertainty. Compared to other questions, agricultural policy raises the highest divergence of opinion (see Table 6). There is confusion regarding the path which the EU's Common Agricultural Policy should and could take. The desirable future again looks quite different from the probable one. The discontinuities between the farmer and expert respondents are also noteworthy, especially concerning the share of agricultural support in the farm income.

The divergence of opinion is especially high among the farmer respondents. In particular,

the question on the share of agricultural support in farm income raises differing opinions. One part of the farmer respondents have formulated their answers as a response to CAP reforms, whereupon safeguarding of the national support package has taken precedence over all other interests. Also, the 're-nationalisation' of agricultural policy gains support in response to the enlargement of the EU and the accompanying uncertainties regarding the continuity of agricultural support. The other part of the farmer respondents argues for a thorough reform towards more motivating agricultural policy: agricultural support should be more closely linked to production. All in all, the recent decision to decouple agricultural support from production does not gain strong support from the farmer respondents. Farmers, as well as their interest organisations and representatives from the food industry, argue that if the link between support and production is decoupled, the motivation for farming will weaken, which may again affect the quality of the products.

The expert respondents also advocated a thorough reform of the agricultural policy principles, which, however, look rather different from those proposed by the farmers. The

Table 6 Agricultural policy and support system – perceptions of desirable and probable futures

<i>Statement</i>	<i>Farmers mean* [Std]</i>	<i>Experts mean* [Std]</i>	<i>Difference</i>
Desirable future development			
Importance of agriculture in rural development	0.96 [1.02]	0.66 [0.93]	0.30
Rural policy goals in CAP	0.58 [0.93]	1.04 [0.97]	−0.46
Share of agricultural subsidies in farmer's income formation	0.36 [1.31]	−0.86 [0.89]	1.22
Re-nationalisation of agricultural policy	0.88 [1.14]	0.76 [0.91]	0.12
Agricultural support after the enlargement of the EU	0.34 [1.04]	0.04 [0.80]	0.30
Probable future development			
Importance of agriculture in rural development	−0.68 [1.09]	−0.51 [0.91]	−0.17
Rural policy goals in CAP	−0.36 [1.05]	0.86 [0.73]	−1.22
Share of agricultural subsidies in farmer's income formation	−0.60 [1.10]	0.20 [0.91]	−0.80
Re-nationalisation of agricultural policy	−0.11 [1.17]	0.04 [0.86]	−0.15
Agricultural support after the enlargement of the EU	−1.20 [1.01]	−0.97 [0.71]	−0.23

*−2 refers to a substantial decrease from the present level.

0 refers to no changes to the present level.

+2 refers to a substantial increase from the present level.

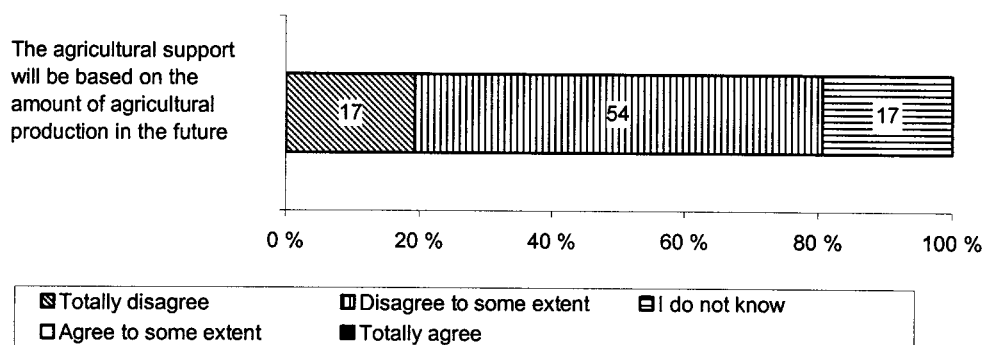
experts argue fairly unanimously that farmers should obtain a reasonable price for their products directly from agricultural markets, not through the support policy system. However, the probable future looks the opposite: the share of the agricultural support in the farm income will probably increase. In contrast to the farmers' views, they see the decoupling of the support as a continuous realisation (see Figure 1).⁷ A majority of 73% shares this view.

When comparing this view to the discussion on multifunctional agriculture, we can conclude that for both groups the idea of agriculture as a producer of public services evokes contradictory associations. In principle, agriculture is first and foremost production of food, and thus, production should also form the basis of income. However, it is also seen as a means for

safeguarding the continuity of Finnish agriculture and recognising agriculture's societal value.

Farmers are also somewhat critical about transferring part of the agricultural support to rural development. The farmers argue for more agriculture based rural development, in which primary production should be the core of rural livelihood. The farmers are rather critical of the achievements of rural policy and stress the inadequacies of the policy as a means of responding to the profound problems of rural areas. Evaluated from this point of view, the future also looks rather pessimistic.

The role of agriculture in ensuring rural livelihood is interpreted rather differently in the future images of the expert respondents. The development of rural policy gains wide support from the expert respondents, likewise the integration of agricultural and rural policies. Experts stress

**Figure 1** Expert panellists' views of the production based agricultural support in the future

the need to look at rural problems in an integrative manner and to widen work opportunities in rural areas in order to prevent depopulation (see also Johnson & Price, 1987).

More attention for agri-environmental issues: Policy and practice

Recently, the environmental impacts of agriculture have gained more attention in society as well as within agricultural policy (e.g. Buller *et al.*, 2000; Jokinen, 2000; Whitby, 1996). Both the farmer and expert respondents perceive environmental policy as an arena where changes would continue to occur (see Table 7). There is, however, a notable gap between the probable and desirable policy development.

The expert respondents share a fairly consensual view on the probable development: the importance of environmental policy increases. The desirability of these changes, however, raises disagreement among the experts. The farmer respondents also estimate that environmental issues would get more attention in the future CAP. Nearly half of the farmer respondents estimate this to be desirable, over 40% want the situation to remain unchanged and only 10% argue for the weakening of the environmental goals. As regards probable development, the divergence of the farmers' views increases: some 58% believe they would be further strengthened, 24% believe they would remain unchanged, and nearly 18% believe they would weaken. The gap between the desirable and the probable future starts to widen as we move from goals to the means of environmental policy and regulation. The farmers' group is fairly unanimous about the increasing tendency for environmental regulation, whereas the desirability of this development is more polarised.

Closer comparison of the groups' views reveals several images of future agri-environmental policy. The views differ both among and between the two groups. One could sum up three diverging images. According to the first future image, the current agri-environmental policy is on the right track and should continue along the same path. The second future image criticises the current policy measures for having too limited environmental content although they have been promoted as 'environmental'. The respondents from the environmental sector

especially argue for a more targeted and cost-effective policy. A small, but critical group of farmers also argue for more policy attention to these matters. In the third future image, the negative aspects of environmental regulation and sanctions are given more emphasis.

Despite the differences in the future images, all respondents are rather critical of the content of the policy. The farmers especially criticise the agri-environmental policy for neglecting the social and local ecological conditions of farming, including the specialist farming knowledge relevant for taking care of the rural environment (see also Kaljonen, 2002, 2003). At the farm level, the conflicting scales of locally varying environmental impacts and decisions, made ever further away, cause tensions.

Within the expert respondents, the question of cooperation between agricultural and environmental administration raises tension. The respondents from the agricultural and environmental administration argued that cooperation is already at a good level, whereas respondents from the research institutions and food industry argued for more cooperation.

In terms of the specific policy goals, both groups argue that the reduction of nutrient run-offs is essential. This is in accordance with a long line of Finnish agri-environmental policy which has concentrated especially on water protection measures (Jokinen, 2000; Kaljonen, 2003). The expert respondents, however, tend to set the reduction goals higher, whereas the farmers stress the risks which the intensification of production might cause with the use of pesticides and fertilisers, and consequently, nutrient load. This is in fact one of the main issues of disagreement between the farmer and expert respondents.

In addition to the water protection targets, the expert respondents call for more attention to the impacts of agriculture on biodiversity, whereas for most of the farmers the loss of biodiversity does not represent such an important policy problem. For the farmers, the desirable future image holds a slight increase in biodiversity, whereas the probable future image is fairly neutral. The loss of biodiversity constitutes a new emerging agri-environmental concern. The concern seems to arise outside the agricultural sector. The representatives of the environmental NGOs and the media, as well as the environmental researchers and administrators, in particular, stressed the consequences of farming

Table 7 Environmental threats and opportunities and the agri-environmental policy – perceptions of desirable and probable futures

<i>Statement</i>	<i>Farmers mean* [Std]</i>	<i>Experts mean* [Std]</i>	<i>Difference</i>
Desirable future development			
Agri-environmental regulation	0.07 [0.94]	0.19 [0.98]	−0.12
Environmental policy goals in CAP	0.45 [0.90]	1.14 [0.75]	−0.69
Co-operation of agricultural, environmental and rural administration in rural development	0.65 [0.78]	0.29 [1.10]	0.36
Nutrient load from agriculture	−0.88 [0.81]	−1.32 [0.67]	0.44
Erosion of cultivated soil	−0.45 [0.94]	−1.03 [0.83]	0.58
Biodiversity of flora and fauna in agri-environment	0.43 [0.91]	1.00 [0.84]	−0.57
Use of fertilisers	−0.30 [0.71]	−0.76 [0.89]	0.46
Use of chemical pesticides in agriculture	−0.43 [0.83]	−0.91 [0.85]	0.48
Measures Water protection (field edges, buffer zones, wetlands, etc.)	0.44 [0.95]	1.22 [0.68]	−0.78
Development of environmental technology	0.88 [0.73]	1.56 [0.63]	−0.68
Precision production techniques	0.64 [0.81]	1.24 [0.67]	−0.60
Organic food in consumers' daily food purchases	1.05 [0.92]	1.06 [0.84]	−0.01
GMO varieties in commercial farming	−0.65 [1.15]	−0.04 [0.95]	−0.61
Occurrence of animal diseases	−0.82 [0.82]	−0.77 [1.05]	−0.05
Environmental information on agricultural products for consumers	0.88 [0.76]	1.12 [0.66]	−0.24
Probable future development			
Agri-environmental regulation	1.03 [0.83]	0.95 [0.60]	−0.08
Environmental policy goals in CAP	0.50 [1.02]	0.92 [0.61]	−0.42
Co-operation of agricultural, environmental and rural administration in rural development	0.67 [0.80]	0.34 [0.68]	0.33
Nutrient load from agriculture	−0.35 [0.99]	−0.63 [0.67]	0.28
Erosion of cultivated soil	0.45 [0.96]	0.12 [0.76]	0.33
Biodiversity of flora and fauna in agri-environment	0 [0.90]	−0.35 [0.85]	0.35
Use of fertilisers	0.16 [0.90]	−0.40 [0.77]	0.56
Use of chemical pesticides in agriculture	0.20 [1.00]	−0.21 [0.85]	0.41
Measures Water protection (field edges, buffer zones, wetlands, etc.)	0.69 [0.83]	0.76 [0.61]	−0.07
Development of environmental technology	0.88 [0.71]	1.06 [0.47]	−0.18
Precision production techniques	0.85 [0.67]	1.12 [0.51]	−0.27
Organic food in consumers' daily food purchases	0.83 [0.84]	0.85 [0.60]	−0.02
GMO varieties in commercial farming	0.90 [0.99]	0.96 [0.64]	−0.06
Occurrence of animal diseases	0.37 [0.83]	0.75 [0.96]	−0.38
Environmental information on agricultural products for consumers	0.82 [0.75]	0.94 [0.62]	−0.12

*−2 refers to a substantial decrease from the present level.

0 refers to no changes to the present level.

+2 refers to a substantial increase from the present level.

practices to the biodiversity of agri-environment. They have also been active in bringing these questions forward for public debate (see e.g. Yliskylä-Peuralahti, 2003).

Regarding the development of environmentally-friendly technologies and cultivation practices, both groups seem to have a fairly consensual view of their desirability and probability.

However, genetically modified organisms (GMO) and products as well as animal diseases are seen as new emerging risks in the future. Both of the groups expect the use of GMOs and products to increase in the future. According to the respondents, this will undoubtedly have a significant impact on the ways in which agriculture is practiced, by whom and where. The position of EU on the development of modern biotechnology (breeding, genomics and genetic engineering) has so far been based on the precautionary principle and the utilisation of transgenic crops has remained low. However, since 2003 when the regulation of the control of GMOs was harmonised, new GMO varieties have been approved for commercial farming in the EU area. The question is closely linked with the WTO negotiations and liberalisation of the agricultural markets. Opinions in our data range from a GMO-free European or Nordic zone to a full-scale exploitation of GMO plant varieties. The desirable future images of our respondents also vary considerably within and between the groups. The notable disagreement on the issue increases the uncertainties linked to this development and its possible impacts.

Although very different in content, the development of animal diseases seems to fall into the same risk category as GMOs. The future holds unexpected development paths. In this respect, both groups stress the importance of risk management techniques as well as discussion on the risks linked to the intensification of production. They also emphasise the importance of developing reliable consumer information and quality and environmental management systems in order to secure and maintain consumer confidence in domestic products.

The several manners in which the respondents estimate the future of organic production is also interesting in this respect. Both groups seem to have quite high expectations of organic production. On this question, the views of the groups coincided most. It seems to hold a future promise and is seen as one plausible specialisation branch among others. The wildest images suggest that the share of organic production in Finnish agricultural production could rise up to 50% by 2025. This image also suggests that the values and principles of organic farming would be fairly easily assimilated into conventional farming. The most probable picture is that the development will follow the goal (15% of the total agricultural production by the year 2010)

stated in the official strategy for organic production (MAF, 2001b). The respondents emphasised, however, that in order to reach these policy goals, the functioning of the organic food chain, price and availability of organic products is critical and needs to be developed further. The respondents' sound view of increasing organic production might also indicate greater emphasis on local production systems in the future. However, if the share of organic farming remains at the present level, its importance will remain marginal.

Discussion

Our study of the future images has covered a wide range of issues from desirable farm structures to the use of nutrients in the production process. What can we conclude on the future images of Finnish agriculture and their implications for the multifunctionality debate?

Both farmers' and agri-food experts' stress the need for agriculture to reorientate its production practices in the future. They share the resilient faith in technological development and see that increasing the efficiency of production and environmental protection are both necessary and compatible. Both of the groups also see the role of agriculture in keeping rural areas vivid and inhabited a crucial future policy question. In this respect the policy support for multifunctionalities of agriculture gets support from our respondents.

The scale and content of the reorientation, on the contrary, raise disagreement. The analysis has revealed that the differences in the farmers' and experts' future images are the most apparent concerning the future of farm structure. There is no agreement on what the farm structure will look like in the future. It is also obvious that the farming identity and the concept of the family farm will become a more complicated issue. There is a tension between the polarisation of farms in size, geographical location, production line and income sources. This will apparently have direct effects on the sustainability of agricultural production; both in terms of ecological, economic and social impacts (see also Lehtonen *et al.*, forthcoming).

In terms of environmental impacts, the structural changes may have contradictory consequences. The environmental impacts caused by large livestock farms and part-time arable

farms of course look rather different. The polarisation of farms might also lead to spatial redistribution of environmental impacts, e.g. the regional concentration of livestock farms might cause over-supply of manure in some areas and create new kinds of land-use conflicts. The polarisation of production structure calls for differentiated environmental policy measures (see also Lankoski, 2003). The problems caused by the over-supply of manure by some livestock farm and the management of traditional biotope by some part-time sheep farm require different kinds of environmental policy instruments. The tensions between the 'polluter pays' principle and the current principle of supporting the production of environmental goods may become even more apparent in the future, if production structure and volumes are to change.

There are also several social risks related to the structural changes that, consequently, may affect the legitimacy of agricultural policy in future. Farmers especially tend to stress the social risks related to changes in farm structure. In farmers' opinion, the reorientation of production should be carried cautiously and in a socially justified manner. There exists a disagreement on the pace and scale of the reforms to be carried out within the CAP. Or at least, there is a fundamental uncertainty as to the future direction of the policy. Farmers trust in the policy institutions is rather weak. The current policy institutions are not self-evidently seen as capable of carrying out the reorientation of the production.

There seems to exist a considerable gap between the future images drawn from the 'life world' of policy preparation and farm management. Also, the gap between desirable and probable futures widens significantly. If farmers' estimations on the desirable future look so much different from the possible one, as our study suggests, the legitimacy of agricultural policy will not necessarily hold in future.

When interpreting these results, we need to remember that the farmers' and experts' future images are drawn from different perspectives. It can be summarised that the expert respondents are well aware of current policy changes and the interconnections between CAP reforms, agri-environmental and rural policy goals. The expert respondents have constructed their future images as a reflection of these developments, whereas the farmers' future images reflect the daily routines of managing their own farms, optimising the relation between

production, support, market prices, labour, available technology and cultural traditions.

One has to also remember that EU membership has had far-reaching impacts on the institutional structures of Finnish agricultural policy making. The decision-making structures and roles between the European Commission, national agricultural and environmental ministries and administration, farmers and their interest organisations are taking a new form (Jokinen, 2000; see also Vihinen, 2001). One indication of this is also the high deviation in opinion as to the cooperation between the environmental and agricultural administration raised among the expert respondents in our study. The changing roles of different policy institutions would require their own careful treatment. Due to lack of space, we want to point out the possible future risks related to the legitimacy of policy reforms. According to our analysis, increasing the legitimacy of the agricultural policy is a key future challenge both in terms of policy practices and its impacts.

Regardless of these uncertainties felt within the policy institutions, the respondents share a resilient faith in Finnish agriculture. Both groups expect the total output of agricultural production to remain at its present level, while at the same time, they anticipate several radical changes in the operating environment of agricultural production, e.g. the long-term impacts of the enlargement of the EU on Finnish agriculture and the realisation rate of GMOs in commercial farming. One could also argue that the uncertain character of the CAP has even strengthened the shared consensus, from local to national level, on the importance of domestic production. In this respect, the notion of multifunctional agriculture can be used as a rhetorical means for safeguarding the continuity of Finnish agriculture and recognising agriculture's societal value. Whether it offers paths for true reorientation remains open. The concept of multifunctional agriculture implies contextual interpretation.

Conclusions and Reflection on Methodology

The subject of our study has been an on-going policy process, which involve several social actors and societal institutions. Nowotny *et al.* (2001) have noted that as the research approaches the present, it inevitably forfeits a critical distance

between the studied phenomena and the observer. This inevitably means that the research becomes an active part of the policy process, which in turn also affects the production of knowledge. They become inseparable. This does not necessarily have to be a problem. On the contrary, in our view the close linkages between policy process and futures research are necessary to guarantee the policy relevance of the results (see also Lehtonen *et al.*, forthcoming). This can, in fact, be understood as the core of futures studies: its very purpose is to bring together and enhance dialogue between different stakeholders in order to facilitate planning and decision-making in a future-oriented way. This requires capabilities for critical self-reflection from all parties, both research and policy-making. We see that the abilities for self-reflection are now especially important for agriculture, as it is facing a rather challenging future. We hope our study has managed to offer some small input for this self-reflection and the consideration of various development paths.

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Notes

1. In the EU's Common Agricultural Policy, the classification of Less Favoured Areas (LFA) is used for areas where the physical landscape or climatic conditions result in higher production costs (EEA, 1999).
2. The policy documents analysed include, e.g. Strategy for Finnish Agriculture (MAF, 2001a), Strategy for the Renewable Natural Resources in Finland (MAF, 2002), Strategy for Organic Production (MAF, 2001b), National Cereal Strategy (MAF, 2000a), Bio and Gene Technology Strategy for Agriculture (MAF, 2000b), Foodstuffs Production in Finland: Quality Strategies and Goals (MAF, 1999) and Rural Policy Programme (Rural Policy Committee, 2000). Work of other futures studies has also been utilised (e.g. Puolanne *et al.*, 2002).
3. The statements from the questionnaire are presented in Tables 4–7.
4. The research carried out on the perceptions of the expert group consists a larger study, in which more specific future paths were developed in an iterative process for the basis of scenario building. (For a more detailed analysis see Rikkinen, 2003; Rikkinen *et al.*, forthcoming.)
5. In South Ostrobothnia, approximately 12% of the working population is occupied within primary production, while the percentage in Finland in total is 4.2%. Furthermore, about 40% of the working population in South Ostrobothnia is employed by the food industry sector. The average size of a farm in the region varies from 18 hectares to 27 hectares depending on the sub-region. The structural changes in Finnish agriculture can be seen in the region: the number of farms has decreased, while the average arable area and livestock units per farm have increased. (Information Centre of MAF, 2003.)
6. Finnish statistics tell their own story. In 2000, there were 79,783 active farms in Finland. In 1990–2000, the number of active farms fell by 39%. Of the 129,114 active farms in 1990 more than 49,000 farms had abandoned agricultural production by 2000. It has been estimated that this trend will continue and by 2010 there will be c. 38,000 to 49,500 active farms in Finland (Lehtonen *et al.*, 2002). The number of farms fell most at the very beginning of EU membership, and in recent years the decrease has slowed down. Most of the farms that have discontinued their production have been livestock farms. Many of these farms have continued as crop producers or rented their fields to neighbouring farms. In 2000, the share of livestock farms was 46% and close to 50% practised crop production, while in 1990 52% of the farms raised livestock and 37% were arable farms. The average area of active farms has also grown from 17.3 hectares in 1990 to 28 hectares in 2000, i.e. almost 62%. The growth has accelerated especially on pig, poultry and dairy farms. Despite these changes, more than half of active farms still have less than 20 hectares of arable land, and only about 10% of the arable farms cultivate more than 50 hectares. The transfer of farms to the next generation has also fallen during the 1990s. In the early part of the decade, about 3000 farms were transferred each year, but in recent years their number has been c. 1000 each year. At the moment, 43% of all the farm household members get extra income from outside the farm and some 30% of all the farms practice other entrepreneurship. (Information Centre of MAF, 2003.)
7. This question is not included in Table 6, as the question was posed slightly differently to the

expert respondents. The experts were asked to give their views on the argument: 'In the future, the agricultural support will be paid to farmers according to the amount of agri-products produced'. The multiple choices varied from agreeing fully to totally disagreeing on a scale of five choices.

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Co-construction of agency and environmental management. The case of agri-environmental policy implementation at Finnish farms

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Abstract

One of the main challenges of European environmental policies is to recruit local-level actors to fulfil set targets. This article explores how targets of European agri-environmental policy have been achieved in Finland. It also analyses how implementation practices produce conditions for agri-environmental management and how policy success—or sustainability in general—relates to the different actors' capacities to act. It is argued that we need to adopt a relational view in order to analyse the success and outcome of agri-environmental policy. This article assesses the ways in which the actor-network theory could contribute to this discussion by a notion of co-construction of agency. The empirical part of the article follows farmers' sociologies. The practices and conceptualisations through which the policy goals are translated into farming practices are analysed, and it is shown how different forms of knowledge have become relevant stakes in the politics of agri-environmental management. It is argued, that the notion of co-construction of agency will help to open up the translation process and scaling between local and universal knowledge. Most importantly, it reveals the different forms of resistance deriving from farming practices. Finally the challenges that the notion of co-construction of agency poses for the agri-environmental policy are discussed.

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1. Introduction

One of the main challenges of European environmental regulation is to recruit local-level actors to fulfil set targets. In this respect, the agri-environmental policy has had troubled times as it has spread to different locales in Europe. The implementation of the policy has been challenging, trade-offs between economic and environmental concerns notable, and the environmental goals hard to reach.

This article discusses how the targets of the agri-environmental policy of the European Union (EEC, 2078/92; EC, 1257/99) have been achieved on Finnish farms. The European agri-environmental policy is based on the idea of agriculture as a producer of environmental goods which the State should pay for. The policy aims to integrate ecological objectives into current farming practices. It is not based on the protection of some geographical

area, but on the governing and self-governance of independent actors and their active interference with nature through farming practices. Furthermore, the policy provides new sources of income for farms and can consequently have significant impact on livelihood in rural areas.

The agri-environmental policy can thus be understood as an attempt to govern local activities at a distance. In opposition to direct regulation, the idea of governing at a distance refers to micro-level processes in which local actors are persuaded to organise their action in line with policy goals (see also Latour, 1987).

In such a case the ways in which the policy objectives are operationalised and translated into practice can be seen as a core element in the success of agri-environmental management (see also Burgess et al., 2000; Curry and Winter, 2000; Juntti and Potter, 2002; Morris, 2004). This article analyses the ways in which the implementation practices of agri-environmental policy produce conditions for agri-environmental management and how policy

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success—or sustainability in general—relates to the different actors' capacities to act. It is argued that we need to adopt a relational view in order to analyse the success and outcome of agri-environmental policy. This article assesses the ways in which the actor-network theory (ANT) could contribute to this discussion by a notion of co-construction of agency (Latour, 1987, 2004; see also Murdoch, 2001).

Next I will introduce briefly the current agri-environmental policy in Finland. In the following section I will describe the empirical material of the study and then move on to the empirical analysis. I will analyse the practices and conceptualisations through which the policy goals are translated into farming practices. I will show how different forms of knowledge have become relevant stakes in the politics of agri-environmental management and how the notion of co-construction of agency can help to open up the translation process and scaling between local and universal knowledge. Most importantly, it helps to reveal the different forms of resistance deriving directly from farming practices. I will close the article with discussing the challenges the co-construction of agency poses for agri-environmental policy.

2. Policy implementation and creation of collectives

In order to evaluate the success of agri-environmental policy—or understand the nature of environmental problems in general—we need to take a relational view. Latour (1993; 2004) has argued provocatively that many environmental problems mix the social and natural elements in such a promiscuous fashion that the categories of nature and society become meaningless. For example, the eutrophication of the Baltic Sea has such strong material and social characteristics that we would lose essential features of the phenomenon if we separate the material and the social while studying the political processes of minimising eutrophication. Rather we should look at how, why and for what purposes the collectives tying together human and non-human elements are brought together in networks that extend across space and through time and how they are stabilised.

Most prominently associated with the work of Latour (e.g. 1987, 1993, 1999a, 2004) and Callon (e.g. 1986), ANT offers a promising methodological tool for bridging the dualisms of nature/society and structure/action in the analysis of environmental policy.¹ ANT begins from the

proposition that nature and society are co-constructed; there is no *a priori* pole. Rather it is the relationships between these entities that are fundamental to understanding action.

According to Latour (1999b, p. 288) action comprises not “what people do” but “what is accomplished along with others”. This principle also has methodological consequences stating that no pre-assumptions can be made on who or what will act in any particular circumstance (Callon, 1986). Action is always context dependent. In this sense the notion of agency implied by ANT differs from that in most conventional sociological analyses. The identities of actors—or actants—are determined within the networks in relation to one another (see also Murdoch, 1997). According to Callon and Law (1995, p. 485), “It is the relations ... that are important. Relations that *perform*. Perform agency.” The social and natural are co-constructed to the extent that all of the parties in the network are modified by the *event* (Murdoch, 2001, p. 118). They “mutually exchange and enhance their properties” (Latour, 1999b, p. 125).

Following the vocabulary of ANT the implementation of agri-environmental policy can be seen as a creation of collectives in which the actors and organisations involved attempt to enrol actors in the network, tie other actors to their goals and how all the actors evolve through this event and are forced to reinterpret their goals. For example, the findings of agricultural impacts on the eutrophication of the Baltic Sea—which in Finland is recognised as perhaps the worst environmental problem caused by agriculture—are produced in a specific context by certain scientific communities, each with their own validation criteria. To generate any action, these arguments must be circulated further. They must be translated into comprehensive policy goals accepted by the various policy sectors, each of which has its own interests and traditions. Furthermore, if general policy goals or impact assertions are to affect farming practices, they must be backed by specific knowledge about local natural conditions, and then transformed into statements about agricultural impact on these conditions. At the same time, they will have to be adapted to suit the social conditions of farming and tie in with the cultivation practices.

The creation of collectives is a precarious process (Callon, 1986). The durability of the network may be contested at any time. The collective is dependent not only on the actors who build it, but also on both social and material entities that are enrolled into it and the terms of their enrolment. Both humans and non-humans may have capacity to act within their networks, often with unpredictable results.

The ANT has been criticised for not treating the different actors equally in their analysis, and concentrating on the powerful actors, namely the scientists. This has led to Machiavellian analysis of power relationships (Fujimura, 1992). Concentrating on the powerful has made the others silent. It is argued that dismissing human actors' intentions has resulted in inadequate analysis of successful and unsuccessful enrolment (e.g. Collins and Yearley, 1992; Murdoch, 1997; see also Hacking, 1999).

¹ Actor-network theory has been developed within the social studies of technology and science, but has slowly gained more attention also among environmental and rural sociologists, who are confronted with the hybrids of nature and society in their research (for an overview of the research challenges, see e.g. Goodman, 1999; Murdoch, 2001; Whatmore, 2002). Latour has emphasised that ANT is not a theory but some kind of infralanguage that would encourage us to imagine a world where socio-natural relations are multiple, messy and complex. It is not a theory of a world, but mere sensitivity to certain features in the world. These features include, most importantly, the role of material elements in the creation of relationships and distribution of power.

Callon's (1986) case study on the scallop fishing at the St. Brieuc Bay provides a good example of this. In his study Callon describes how the betrayals of both fishermen (who fished the scallops prematurely) and scallops (which refused to enter the collectors in a sufficient and regular way) caused the scientific network to fail. Wynne (1992), however, states that Callon's account of the betrayal does not recognise that the fishermen were perhaps always likely to have been ambivalent about the identity assigned to them by the scientists. Thus, the betrayal may have been much less of a shift than it appears in Callon's treatment. Star (1991; see also Bowker and Star, 1999) has also warned that concentration on the powerful actors might lead to an inadequate analysis of the multiple memberships people tend to have within the networks.

These critical notes are of special importance for this study as my focus is on the ways in which the farmers have been enrolled in the schemes and the policy has been translated into farming practices. The analysis of these questions requires careful treatment of possible emerging ways of resistance and the kind of agency the policy implementation produces.

3. Agri-environmental policy in Finland

The European agri-environmental policy sets out the general framework the member states are to follow, but which can be translated to correspond to national characteristics and needs. The Finnish interpretation of the policy goals emphasises rural well-being and water protection (Council of State, 644/2000; MAF, 1994, 1999), thereby following the previous national policy approaches (Jokinen, 2000). The policy model has been among the most extensive in the EU (e.g. Whitby, 1996; Buller et al., 2000).²

²Although a detailed analysis of the politics behind the European Common Agricultural Policy (CAP) is beyond the scope of this paper, I still wish to emphasise that the integration of environmental aspects into agricultural policies has been far from easy. The main principles of the current agri-environmental policy model were laid down in the CAP reform of 1992, which introduced the agri-environmental programme (EEC, 2078/92) followed by the rural horizontal programmes (EC, 1257/99) in the Agenda 2000 reform. The integration of environmental and agricultural policy in 1992 was carried out along with the shift from the price subsidy system to the direct subsidy system. The Agenda 2000 reform has further emphasised the need to better incorporate consumer demands and environmental concerns into the CAP (CEC, 1998, 2002). The challenge of CAP has been to engage in wider processes of agricultural trade liberalisation while, at the same time, developing an agricultural and rural policy that recognises the *multifunctional* role of agriculture. Multifunctionality is claimed to be a particular and unique *European model of agriculture* and includes the management of rural landscapes and ecological features, as well as the social role of keeping rural areas inhabited and viable. Critics have argued that several CAP reform measures have, in fact, very limited environmental content, even though they have been promoted as "environmental". It is also argued that the EU has affected the environment perhaps more through its free-trade principles and intensification of agricultural policy than through its environmental measures. For a detailed analysis of CAP and agri-environmental policies, see e.g. Whitby (1996), Buller et al. (2000) and Dobbs and Pretty (2004).

The agri-environmental practices are inscribed in *general* and *special protection schemes* (MAF, 646/2000; MAF, 647/2000). A farm enrolled in the general protection scheme has to follow set fertilisation levels, take soil analyses every five years and keep a yearly cultivation plan, construct field margins and filter strips. In addition to water protection, some requirements for plant protection, biodiversity protection and landscape management are included. Hence, the scheme prescribes general requirements for agri-environmental management practices and is nation-wide in scope. The special protection scheme, by contrast, prescribes more focused measures for environmental protection, providing financial support for covering the investment and management costs of e.g. the construction of riparian zones, wetlands or traditional biotopes. The regional environmental and agricultural administration are in charge of the implementation and decision-making of the schemes. Also advisors take part in implementation by arranging courses and carrying out environmental plans at the farm level.³

The environmental goals have been implemented by aligning the goals of various actors. The Finnish policy model is based on a strong use of win-win rhetoric: everybody would benefit, if as many actors as possible would participate. The associations created suggest that if a farmer wants to protect nature, s/he has to enrol her/himself in agri-environmental schemes and follow the agreed agri-environmental management practices.

The schemes can be seen as *intermediary elements*, which try to invoke an alliance between environmental and agricultural administration, farmers and (implicitly) nature. Farmers get support enabling them to continue agricultural production and keep rural areas viable. Most Finnish farmers have indeed realised this. Largely due to the importance to farm income, some 90% of Finnish farms are enrolled in the general protection scheme (MAF, 2004, pp. 31–34). For example, in southern and western Finland the share of support in farm income may vary from 35% to 53% in cereal farms and from 15% to 35% in livestock farms (Koikkalainen and Lankoski, 2004). The wide coverage of the programme should also be in the interest of the environment, lakes, rivers and the Baltic Sea. Furthermore, on a higher policy-making level, the policy has allowed the Finnish State to compensate for declining agricultural incomes and promote the welfarist ideal of equality between different production sectors and regions (Jokinen, 2002; see also Granberg, 1999).

The policy can, however, only succeed in reaching its goals if both natural entities and farmers act in accordance with the roles assigned to them. Nutrients should not run off the fields, and farmers should follow the set agri-environmental management practices and also produce environmental goods in addition to foodstuffs. These alliances and associations need to be tested on each farm

³I have analysed the roles of different actors and implementation practices in more detail elsewhere. See Kaljonen (2002, 2003).

Table 1
Production sectors and farm sizes of the interviewed farmers and survey compared to the production structure of South Ostrobothnia in total

Production sector	South Ostrobothnia (%) ^a	Survey (%)	Interviews (n)	Farm size (ha)	South Ostrobothnia (%) ^a	Survey (%)	Interviews (n)
Crop production	40 ^b	48 ^c	10				
Special plant production	6 ^d	12 ^e	4	<4	4	4	—
Milk production	29	24	5	4–5	32	30	5
Pig husbandry	6	8	6	15–30	32	33	10
Poultry husbandry	2	2	2	30–50	20	19	9
Other livestock	6	6	4	>51	13	14	7
Other production	13	1					
Total	100	100	31	Total	100	100	31

^aThe share of farms in South Ostrobothnia in summer 2000 (Information Centre of MAF, 2003).

^bIncluding farms in which the main production sector is cultivation of cereals (wheat, rye, barley, oats). Malt barley and oil plants are included in the “special plant production” category.

^cIncluding farms where the main production sector is cultivation of cereals (wheat, rye, barley, malt barley, oats) and oil plants.

^dCultivation of malt barley, peas, potatoes, sugar beet and oil plants (turnip rape, rape, sunflower).

^eCultivation of potatoes, sugar beet, etc. Malt barley and oil plants are included in the “crop production” category.

and in each field, year after year. In the following I will assess how tight these associations are.

4. Method

For this study I have followed the sociologies farmers use in explaining their environmental management practices. Latour (1987) has emphasised in his methodological principles that a researcher should follow the actors as they move around in their networks and, in every way, avoid pre-given structural explanations for social phenomena. As action arises within the context, it can, respectively, only be understood from that context.

To follow the actors is by no means an easy job. This principle of general symmetry has confronted criticism from several fronts (e.g. Collins and Yearley, 1992; Murdoch, 2001). The critics argue that ANT does not provide clear methodological advice where to stop; it does not make sense to follow the actors ad infinitum. The critics also argue that we are by no means able to follow the actors in a symmetrical manner. The principle only renders power back to natural scientists or the most loud ones (see especially Hacking, 1999; Murdoch, 2001). In this study, I have used the idea of farmers’ sociologies, first and foremost, to guide my empirical analysis towards careful listening of the explanations the interviewed farmers’ themselves give for their actions.

I interviewed farmers from 31 farms, located in the region of South Ostrobothnia, western Finland. South Ostrobothnia has a fairly vital and intensive agricultural production from a Finnish perspective.⁴ The interviews

were carried out during the years 2000–2002. The farms were selected to represent different production modes, size, age and environmental actions (Table 1; for details see Kaljonen, 2002). All of the interviewed were enrolled into the general protection scheme; nine of them had contracted to the special protection scheme. I have decided not to use too many direct citations in the text.⁵ The article should be read as my interpretation of the farmers’ sociologies.

For comparison I will also present some empirical data provided by the survey that I carried out among South Ostrobothnian farmers in 2001. The survey concentrated on farmers’ perceptions of the agri-environmental policy and was sent to 755 active farms in the region, of which 53% responded (Table 1; for details see Kaljonen, 2002).

5. Translation of policy goals into farming practices

5.1. “More common sense and flexibility”—gripping on scheme peculiarities

Assessing the policy principles from the farmers’ perspective, the idea of agriculture as a producer of environmental goods evokes contradictory associations. In principle, agriculture is first and foremost production of food, and

(footnote continued)

accelerated especially on pig, poultry and livestock farms. Despite these changes, more than half of the active farms still have less than 20 ha of arable land, and only about 10% of the farms cultivate more than 50 ha. In 1990–2000, the number of active farms in Finland fell by 39%. Of the 129,114 active farms in 1990 more than 49,000 farms had abandoned agricultural production by 2000. The number of farms fell most at the very beginning of EU membership, and in recent years the decrease has slowed down. Most of the farms that have discontinued their production have been livestock or dairy farms. Many of these farms have continued as crop producers or rented their fields to neighbouring farms. At the moment, 43% of all the farm household members get extra income from outside the farm and some 30% of all the farms practice other entrepreneurship (Information Centre of MAF, 2005; Niemi and Ahlstedt, 2005).

⁵The direct citations are marked with *italics* in the text.

⁴In 2000, approximately 12% of the working population was occupied within primary production, while the percentage in Finland in total was 4.2%. Furthermore, about 40% of the working population in South Ostrobothnia was employed by the food industry sector. The average size of a farm in the region varied from 18 to 27 ha depending on the sub-region. In Finland the average size of the farm was 28 ha in 2000. It has grown 62% from the year 1990, when it was 17 ha. The growth has

the decoupling of agricultural support from the production (of which agri-environmental support is one example) is seen to underestimate this principal motivation for farming. The acreage-based policies are feared to undermine the motivation for production and lead to *quasi-farming*, as the farmers I interviewed called it.

At the same time, however, the money is badly needed on the farms. The rhetoric of producing environmental goods provides a good and usable legitimation for financial support. According to the survey, the South Ostrobothnian farmers see environmental policy and water protection, in particular, as necessary, but it should be voluntary and compensate the incurred expenses (Fig. 1). Other studies report similar observations among the Finnish farmers (e.g. Niemi-Iilahti et al., 1997; Soini and Tuuri, 2000) and elsewhere in Europe (Glaasbergen, 1992; Lowe et al., 1997; Wilson and Hart, 2001).

Farmers also consider that the agri-environmental policy has changed their farming practices and reduced the environmental impacts of agriculture (Fig. 2). The agri-environmental schemes, together with the acreage-based

agricultural support policy, have changed fertilisation practices especially. The use of fertilisers has decreased (Fig. 3) and cultivation planning and soil analysis have become routine practices on most of the farms (Kaljonen, 2002, pp. 20–22; Palva et al., 2001, p. 9; Pyykkönen et al., 2004, p. 15). Perhaps the biggest investments have been in enlarging the manure storages to be capacious enough to store the manure over the winter period, in order to avoid the nutrient run-offs caused by the storage and spreading of manure on the frozen fields.

However, on listening to the farmers more carefully, going out into the fields with them and asking how they carry out agri-environmental management in practice, the success of the enrolment seems less obvious. When I asked one dairy farmer her opinion of agri-environmental policy, she answered:

...It is a good thing, I don't argue against it. It is good that the environment is being looked after. I think the purpose is good, but I don't quite know how it should happen. Some things in the agri-environmental schemes

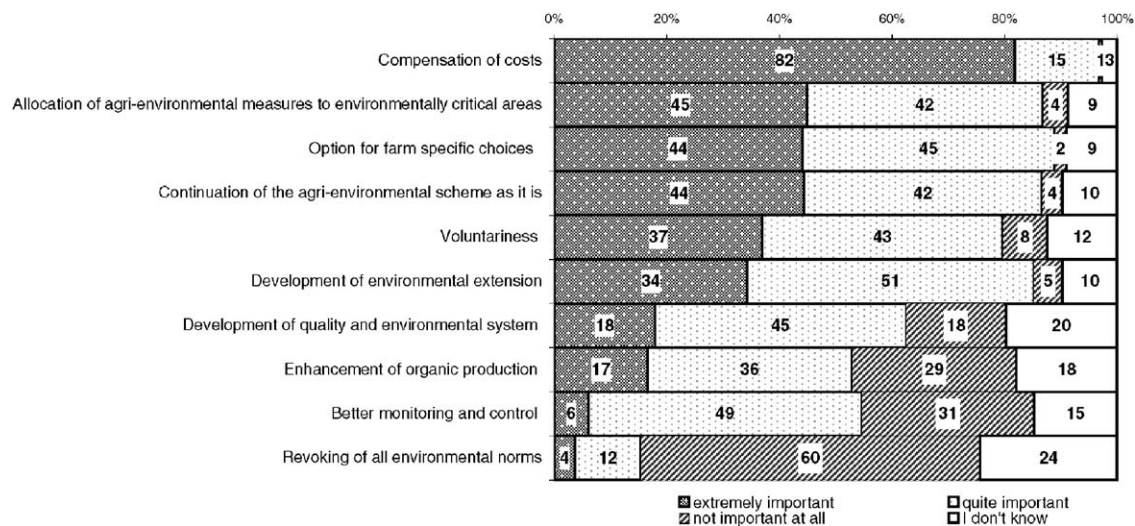


Fig. 1. The most important aspects to be taken into account when developing the agri-environmental policy according to the farmer survey (Source: Author).

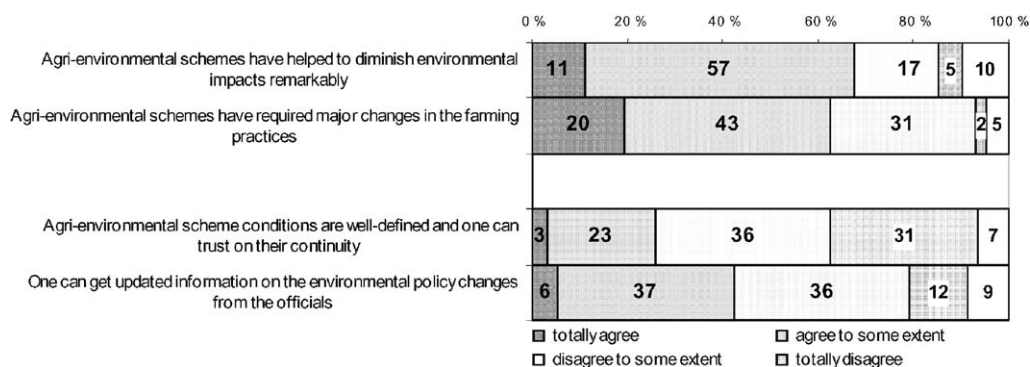


Fig. 2. Assessment of the impacts and implementation of the agri-environmental schemes according to the farmer survey (Source: Author).

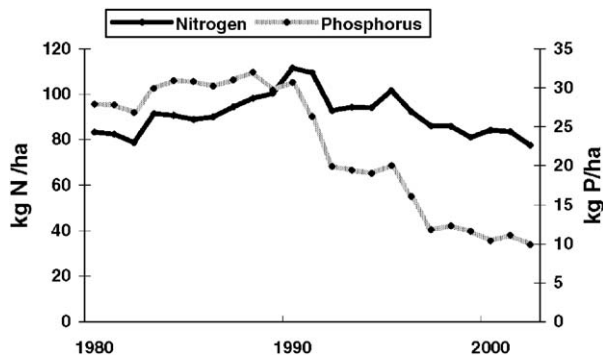


Fig. 3. Sale of fertilisers in Finland (Statistics Finland, 2004).

are so irksome. They really make me laugh sometimes, how fiddling they have to be. [...] These nature issues, I think they have gradually grown in the thoughts of farmers, while living and working on the farm. They have usually inherited the farm from their parents. Hence, before they start with their own farming, they have already worked together many years with their fathers and done all sorts of things together... And then somebody comes and talks about it. Somehow it feels... How could I say... a farm is assumed to be a place where you could control everything. It is not understood that there is no way you can control everything on the farm. It is just impossible to get everything onto paper, and always. It is just life.

This dairy farmer sees agri-environmental policy as important, but criticises it for neglecting the social and local ecological conditions of farming. She is not alone. While conducting interviews with the farmers, I was struck by the way in which this criticism binds together the otherwise rather heterogeneous group of farmers. The farmers tend to argue, quoting one livestock farmer, that “the principle of agri-environmental policy is fine, if it only had more common sense and flexibility” and the discussion got easily bogged down to what is permissible or not according to the scheme conditions—or what is right or wrong in the policy. Nearly all of the farmers interviewed raised these issues—only the context varied somewhat (see also Fig. 2). The critique concerns some very practical problems of following the codes of agri-environmental schemes on the farm. The peculiarities of bureaucracy and applying theory to practice simply seem to make good stories, and during the interviews I heard dozens of them. Many also thanked me afterwards for the chance to let the worries out and gripe again.

Scheme conditions easily become colonising elements in practices of agri-environmental management and policy. Agri-environmental schemes together with other agricultural subsidies have increased the amount of paperwork on farms. The filling of scheme applications or cultivation plans has brought new concepts to farming and it is mainly through these bureaucratic inscriptions that the goals of environmental protection have been realised on farms.

Many farmers, in fact, said that the schemes have not changed the farming practices that much, they are just written down.

The farmers insisted on more *common sense*, mostly in the environmental regulations concerning fertilisation practices, land application of manure and the use of dungheaps.⁶ The manure seems to capture the very essence of the contradictions revolving around the agri-environmental debate in Finland. In my previous study, in which I interviewed the farmers in 1998, the investments in manure storage raised heated discussion and were closely inter-related to the structural changes the Finnish farms were going through (Kaljonen, 2000).⁷ Now, a few years later, when most of the active farms have put their storage facilities in order, the discussion revolved around the land application of manure, the use of dungheaps and the new restrictions imposed by the Nitrate Directive.

The way in which the agri-environmental policy treats manure is hard for farmers to understand. Farmers observe the movements of nutrients by assessing the growth of plants, and many of them are also well aware of the research results of the impacts of nutrient run-offs into the water system. Based on those experiences, the leakages from a dungheap seem exaggerated. For farmers, *manure, dung, muck, shit or slurry* is a natural ingredient of farming, something that by nature belongs to a livestock farm. It is also economically valuable for its nutrients, composition and low cost. Manure cannot be detached from a farm and linked solely to nutrients in the run-off models; it is also hard to label it as pollution. Pollution refers to harmful impacts caused by industry and inorganic materials. One dungheap is a too minor scale event to produce such drastic consequences. As one young livestock farmer claimed: “there isn’t any farmer who would be so stupid as to make a dungheap at the lower or flooded parts of the field. They go far too far with it. If it leaks, it leaks into the field, not to the water system. The world won’t get polluted from a dry manure-hill.”

Farmers criticise environmental policies for neglecting the elements of a local situation, both in terms of the social

⁶In addition to the agri-environmental schemes, the use of fertilisers and manure is controlled by the Nitrate Directive (91/676/EEC). The implementation of the directive has also been troublesome. The national legislation has been revised several times (for the national implementation, see 219/1998; 907/1999; 931/2000) since “good agricultural practices” defined by the directive must be in accordance with the general protection schemes. The Nitrate Directive sets out the principles for manure handling facilities, capacity of storage, as well as the amount, dates, place and practices for the land application of manure and the use of dungheaps. According to new requirements, making a dungheap requires a permit, which also stipulates the conditions where and how the dungheap has to be constructed.

⁷An interesting example of the feelings this project has raised was a piece of art I came across on one dairy farm. Beside the barn there was a figure the shape of a heart, made of cement with a truncated manure fork standing in the middle. One could also find the numbers 907/1999 written in the cement and the date of construction. It was a memorial to the building of a new manure storage required by the Nitrate Directive of the European Union.

organisation of work and ecological conditions including specialist farming knowledge, which are relevant for handling manure. For example, the varying soil characteristics and gradients of different fields, the composition of manure, the problems caused by the remote fields, the weather, the carriage, the wet roads, the odours, neighbours, the workload of enlarging farms and the busy springtime are largely overlooked by the required fertilising practices. From the point of view of the organisation of the work on the farm, the use of a dungheap is in many cases more reasonable than carrying manure to all of the widespread and faraway fields during the busy springtime. Farmers also argue that they are capable of handling manure in such a way that the risk of leakages can be avoided.

5.2. Contested identities of environmental managers

Farmers tend to interpret agri-environmental management practices and their identity as environmental managers in rather different terms and resist the standardised ways of enrolment proposed by the agri-environmental policy. The policy principles suggest that as farmers are first and foremost food producers, they need to be paid for using their craftsmanship for other forms of public good, namely better environment. Hence, the environmental policy sees farmers as able producers of food, but feeble environmental protectors—proposing that farmers will continue to exploit natural resources unsustainably unless they are paid to change their farming practices. Farmers are seen as *technicians*, whose interests are primarily financial (see also Burgess et al., 2000).

The policy principles challenge the ideal of farming as an activity that takes care of its environment per se. Farmers are seen to possess the agricultural skills necessary for agri-environmental management, but they are also identified as being unaware of the environmental impacts of their practices and ignorant as to how they should look after the environment properly. In this interpretation, farming skills are equated with knowledge about agriculture, whereas science is equated with knowledge about nature and environmental impacts.

Farmers, on the contrary, argue that it is these very farming skills that also make them able environmental managers. Although the farmers interviewed admit the environmental impacts caused by the technological development of production, they simultaneously tend to cling to the ideal of a respectful relationship between agriculture and nature. Farmers emphasise that in order to have the family farm handed down to the next generation, and for the land to remain productive, it must be tended properly and not be exploited. Moreover, farmers take the view that the relevant skills for environmental management are gained on the fields through trial and error, working with nature and following the seasonal and generational cycle at the farm. Similarly, the required paperwork and completion of scheme applications undervalue the hard

and concrete farming work (see also Silvasti, 2003; Thompson, 1995).

Farmers also emphasise that a farmer can really only know his own fields well—the neighbour knows his. Although the transfer of knowledge and experiences between colleagues is part of being a farmer, farmers emphasise that you cannot rely on others' experiences before you have tested them on your own fields.

Craftsmanship of farming derives from *living one's field*. One older arable farmer, in fact, used this exact phrase to describe that his fields are in active agricultural use and that his cultivation practices have made them what they are now. The concept is thus historical, including both past and present activities. It also takes the form of a hybrid connecting both human activities and natural elements of the field.

One can find similarities with the farmers' knowledge of living one's field and the kind of sentient ecology Anderson (2000) observed among the reindeer herders and hunters of the Taimy region of northern Siberia and Ingold (2000, pp. 13–26) among the Cree native hunters of north-eastern Canada. Sentient ecology can be described as people's knowledge of their environment, which is not transferable in contexts outside those of its practical application. It is not of a formal and authorised kind. On the contrary, it is based in feeling, consisting of skills, sensitivities and orientations that have developed through long experience of conducting one's life in a particular environment.

Thus, farmers' responses directly challenge the standardisation and dualistic accounts of nature and society built into general accounts of the protection schemes. Agri-environmental policy tends to handle nutrients on a universal field, largely ignoring the economic and social context of farming practices. The quantitative and universal elements of agri-environmental schemes contradict farmers' practically orientated knowledge of living one's field, which emphasises variations and uncertainties in soil conditions, weather, cultivated plants, family labour, production prices or subsidies, for instance. This variability is a reflection of building diversity into practice, adaptively coping with the multiple dimensions to be taken into account in farming (see also van der Ploeg, 1993). Farmers assume predictability to be intrinsically unreliable as a key part of their cultural identity and practical knowledge. Multidimensionality is taken for granted; furthermore, it cannot be codified. *It is just life*.

It should be noted that knowledge of living one's field also pursues control, but is of a kind which is radically different from that embodied in scientifically based commitments. It is local and contextual rather than decontextual and universal precisely because (van der Ploeg, 1993, p. 212): "it presupposes an *active, knowledgeable actor*, who actually is the 'agent' of the unity and constant interaction of mental and manual work. It can also be defined as local because it allows these actors to obtain a high degree of control and mastery over the highly diversified local situation."

5.3. Farmers as spokesmen of their fields

There is no agreement as to how the environment should be managed, by whom and what kind of skills it requires. Farmers claim their rights to natural resource management and base their arguments on their knowledge of living one's field, i.e. experiential knowledge of farming and local environmental and social conditions. Similar disputes on valid knowledge have been frequent within natural resource management in Finland (e.g. Oksanen, 2003; Nieminen, 1999; Peuhkuri, 2002) and elsewhere in Europe (e.g. Clark and Murdoch, 1997; Lowe et al., 1997; Binton, 2001; Lundqvist, 2001).

Farmers' responses can be interpreted as a cultural response to a cultural form of intervention—that is, one embodying particular normative models about the relationship of human activities to nature (Wynne, 1996). Neither of the two interpretations is more correct than the other—the crucial difference is the scale on which these interpretations are derived, and on which they can operate (Latour, 1987, pp. 210–212).

Local and universal knowledge, however, should not be regarded as different a priori. Farming relies on both knowledge categories and in practice they become blurred. For example, re-evaluation of fertilisation practices requires long-term experimental knowledge of the nutrient contents of the soil as well as more generalised knowledge of the interrelations between soil, nutrients, plant growth and run-off—and knowledge of the technological solutions available. Knowledge of farming is constantly changing as new information and experiences are encountered, decisions are made and action is taken.

The ways in which the boundaries between the universal and local knowledge categories are defined and maintained depend upon the specific context. It is a network effect. In the implementation of the agri-environmental policy, the boundaries seem to have become sharper. The different forms of knowledge have become relevant stakes in the politics of agri-environmental management. Appealing to the experienced-based knowledge of farming and local environmental conditions is social action that co-constructs farmers' position in agri-environmental policy and consequently their agency as environmental managers.

Following Tim Ingold (2000, pp. 24–26), the griping about agri-environmental schemes and the stories about the impossibilities of applying policy principles to practice can be seen as a kind of performance. A farmer can *tell*. He can do so in two ways. First, he is a perceptually skilled agent, who can detect those subtle clues in the environment that reveal the condition of the soil: thus he can “tell” what kind of nurture the soil or plants need. Secondly, he is able to narrate stories of his farming activities and of his ways of perceiving nature. In telling this other sense, he is not solely aiming to produce a transcription to what has happened. The farmer's story is a performance; its aim is to give form to human feeling and in this case to the importance of the farmer's work as well as the underlying

values of good farming: the values and ways of life that now are threatened; the hard and concrete farming work; the respectful relationship to nature, the farmer as a master of his own land, and agricultural production as such (see also Silvasti, 2003).

The griping may serve as a discursive way of building a community of farmers to protect an image of uniformity against outside threats. The farms are economically dependent on the agri-environmental support, and as many of the farming activities are being scrutinised, farmers feel that the administration no longer trusts farmers' own abilities to estimate what is good or bad farming, as if environment were being taken out of the farm. For example, a cultivation plan is to make farming practices controllable both for a farmer himself and for an inspector. Tightening of the environmental policy alongside the structural changes caused by Finland's EU membership and CAP has increased the feeling of decisions being made top-down and ever more remote (see also Kaljonen and Rikkinen, 2004). Also the implementation of the Natura 2000 nature conservation programme needs to be mentioned here. Its implementation has had significant repercussion on the lack of confidence between farmers and the environmental administration (Hiedanpää, 2002; Oksanen, 2003). The wounds are still to be healed.

Appealing to experiential knowledge of living one's land makes it possible to keep nature and decisions regarding its use and management on the farm. Farmers are the spokesmen for their own fields. Interestingly, they seem to co-construct their knowledge of living one's land into a “black box”—one that only the farmer himself knows. In this manner, they can try to keep the others, e.g. environmental officials or inspectors, off their fields. However, sticking to local experiences and knowledge basis is not necessarily the best tactic for farmers. Farmers restrict their agency to their own fields and farms. Due to the place specificity, the knowledge of living one's field cannot act-at-distance very powerfully. It is the ability to act-at-distance—to apply standardised methods that are not place-specific and utilise more extensive connections—that makes the environmental policy and science more powerful than the locally based practices (Latour, 1987).

5.4. What if nutrients run off?

How does the success of the agri-environmental policy look from the point of view of environment? Has the policy made it possible to reduce the environmental impacts caused by agricultural production and produce the kind of environmental goods society expects?

The environmental impacts of agriculture are caused by non-point source pollution. Hence, reducing nutrients in one field is not necessarily enough: the actions need to be carried out extensively and over a long period of time. From this point of view, the nation-wide coverage of general protection schemes and the changes it has brought to e.g. fertilisation practices (see Fig. 3) should be in the

interest of the environment—lakes, rivers and the Baltic Sea. Furthermore, as agri-environmental schemes provide support enabling farmers to continue agricultural production, rural areas remain alive and the landscape managed.

However, the proposed management practices will only be effective insofar as the required conditions can be repeated effectively in the fields. In fact, there are many failings in this respect. Again an example from the use of dungheaps provides an illustrative example. Since most farms have enlarged their manure storage facilities, and more restrictions have been imposed concerning the dates when manure may be spread and the places where dungheaps may be used, many farms have changed to spreading manure in the spring (Pyykkönen et al., 2004, p. 16). This should be a positive development in terms of reduced environmental impacts, and policy goals. However, as fields on Finnish farms are typically rather small, and often located at long distances, the busy springtime has forced many farmers to spread manure or slurry onto the “home fields”, which are nearest to their farm and barn. These fields tend to have already rather high nutrient contents, whereas the more distant fields are again neglected, leading to problems with nutrient depletion. This would not be in the interests of the environment. The problem even cumulates further, if the regional concentration of the livestock farms continues as has been envisaged due to the structural changes within the agricultural sector (Lehtonen et al., 2005).

Other examples also exist, e.g. the analyses of nutrient contents of manure have proved unreliable, because the sampling conditions cannot be standardised on each farm. The width of a filter strip has very little to do with the actual run-offs unless the local farming conditions (e.g. soil, slope, plant or tillage method) are taken into account (e.g. Uusi-Kämpä and Kilpinen, 2000; Tattari et al., 2003).

Implementation aims at universality, control and predictability. However, the objects do not seem to obey. There is no certainty about the environmental impacts of different measures, and they vary according to local conditions.

Furthermore, one has to remember that the time scales of policy and ecology are critically different. If an agri-environmental programme runs for five years at a time, the impacts to be seen in the water system may not appear for dozens of years. The impacts of the reduced use of fertilisers, for example, are harder still to assess, even with the help of watershed modelling (Palva et al., 2001; Pyykkönen et al., 2004; MAF, 2004). Nature reveals its position only later.

6. Discussion

The analysis of farmers’ sociologies has highlighted the multiple identities farmers hold in relation to environmental management and policy. The identity of an environmental manager—or of a farmer—is not fixed. It

is co-constructed in a particular event. The empirical analysis has shown how farmers can draw upon social relations and forms of local knowledge in order to resist or mediate the terms of enrolment offered by agri-environmental policy. It is this precise form of resistance that binds together the otherwise rather heterogeneous group of farmers. I, however, want to emphasise that concentrating on the political nature of the use of local knowledge has brought forth common traits in the farmers’ sociologies and, consequently, drawn a much narrower picture of the individual variation among farmers than found in real life.

On the basis of these results, one could ask whether the implementation of agri-environmental policy has politicised local knowledge in a new manner. As the decisions about agricultural as well as environmental policy are being made ever more remote, basing their arguments on the knowledge of living one’s field offers farmers an alternative route for claiming their rights to natural resource management. Gripping about the local applications of agri-environmental schemes may also imply that farmers want to keep the environmental policy at-the-field-side and leave the more profound questions of the environmental impacts of agro-technological development and different production styles alone. However, as this study has shown, the criticism also involves profound discussion on the means and scales of agri-environmental management (see also Kaljonen, 2003; Murdoch and Clark, 1994).

Farmers argue that the policy should more forcefully recognise the importance of local ecological and social conditions and in so doing support the use of farmers’ knowledge of living one’s field in agri-environmental management. The policy has been incapable of recognising and incorporating the value of invisible farm work. Following Wynne’s study on risk management practices (1989), we could talk about the “naïve sociology” of the agri-environmental schemes which rely on the assumption that environmental management practices can be carried out the same way on each farm and in each field. However, if agri-environmental policies overlook the social context in which environmental management takes place, new regulations may fail to achieve their objectives, or at worst even lead to negative side effects.

The results of this study are interestingly echoed in the study of Bowker and Star (1999; see also Murdoch, 1998, p. 366) in which they observed a duality in the types of action nurses had towards a classification scheme for nursing work. They observed two types of action: (i) the standardisation and regularisation behaviour within the network of classification and (ii) an attempt to partially offset the classification scheme in order to retain powers of negotiations at the local ward level. Star’s case study usefully illustrates that these two types of action will frequently be in tension with one another as formal and standardised networks attempt to simplify the actions of entities coping with multiple network memberships. They also note that

the two types are not in some kind of dualistic opposition. They are a *duality*.

Accordingly, while resistance to the scheme emerges at the farm level, the farmer should not be characterised simply as a “site of resistance”; rather, it comprises a site of “alternate ordering” wherein the classificatory scheme becomes embedded in the heterogeneous relations existing at the farm level and the two combined to give rise to a new form of (dis)order (Murdoch, 1998, p. 366). So in this duality of action, it might be said that the farmer is configured by the scheme and the scheme is configured by the farmer. They co-construct each other in a particular event.

From the point of view of agri-environmental policy, the challenge posed by the notion of co-constructed agency is twofold. The environmental impacts of agriculture are cumulatively caused by non-point source pollution, visible only in the long term and dependent on the local ecological conditions. The local variations in the quality of the environment are, consequently, crucial to its social value and to the management practices best suited to it. Hence, it is altogether difficult to construct generalised accounts for agri-environmental management. The outcomes tend to become compromises which no longer take account of their original aims, as the many examples of agri-environmental schemes have shown. At the same time, they also exclude the knowledge of living one's field, which forms an essential element in the identity of farmers as environmental managers. There is a risk of creating an intensifying cycle of dependency, where the use of language and knowledge is the exclusive domain of a certain group of actors, to the exclusion of other forms of knowledge (see also Wynne, 1996) and action.

At the moment the identity of an environmental manager offered by the policy looks rather one dimensional. The schemes do not promote any voluntary actions for environmental protection; they just force farmers to follow the standard rule. This is further enforced by the farmers' position in the agricultural policy as a whole. Due to a confusion of scale, the capacities to act created by the agri-environmental policy are rather limited. The agri-environmental policies should be able to move on different scales and address a particular environmental problem on the relevant scale (Haila, 2002). The ways in which schemes are designed has a direct impact on the different actors' capacities to act and, hence, on the effectiveness of the policy.

In this article I have argued that in studying environmental policies we need systematic analysis of the associations between intertwining ecological and social processes. These two are inseparable. Methodological principles provided by ANT guide us towards that direction. The multiple identities and dualities of action need, however, a careful treatment. The kind of identity and capacity to act that the policy is able to produce has a direct effect on the effectiveness of environmental policy—and sustainability in general.

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A matter of scale – Study on the politics of agri-environmental policy implementation

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ABSTRACT. We need a more thorough understanding of the ways in which vertical scales and horizontal networks hang together in tension in order to understand policy failures experienced within agri-environmental policies in Europe. In this paper I ground this argument with the experiences gained from the implementation of Finnish agri-environmental policy. I bring together an extensive body of empirical material of the Finnish implementation practices during 2000–2006 and examine how the concept of mode of ordering (developed by Law, 1994) could assist us in analysing the complexities of implementation. I elaborate the modes of orderings enacted by the various civil servants, how they have come to depend upon one another and evolved as they have interacted. The opening of the implementation practices reveals how the Finnish agri-environmental policy has taken a fixed scalar form contributing to a hardening of conventional categories and actor positions. This fixed scalar form has not had the capability to meet the challenge of fragile environmental relations. I close the article with a discussion on alternative routes of action.

This is a paper on form. In this paper I explore the implementation of Finnish agri-environmental policy and trace the scalar form the policy has taken. I argue that we need a more thorough understanding of the ways in which vertical and horizontal scales hang together in order to understand policy failures experienced within agri-environmental policies. This implies that we cannot any longer take the scales of policy as given; on the contrary, they should be approached as our empirical matter of concern.

Finnish agri-environmental policy has not met the environmental goals it has set for itself.

The agri-environmental programme, which came to force in 1995 when Finland joined the European Union (EU), introduced a major shift in Finnish agri-environmental policy (MAF 1994, 1999; 2007, Jokinen 2000). It was a crucial step towards an active and explicit integration of environmental concerns into agricultural policy. It promised a new approach to agri-environmental governance suggesting that farmers should be paid for providing environmental goods and practicing environmentally sound farming. It introduced also a novel form of cross-sectoral and multi-level policy practice to agri-environmental governance. The environmental assessments

(Turtola–Lemola 2008) carried out suggest, however, that the changes that have taken place in cultivation practices have not led to such a decrease in the nutrient loads as was wished for.

Finland is not alone in not fulfilling the promise. Also in many other European countries the policy is lacking significant environmental impact (see for an overview e.g. Buller et al. 2000, EC 2005). The several reform measures of the Common Agricultural Policy (CAP) have been shown to have rather limited environmental content, even though they have been promoted as “environmental”. It is also argued that the environmental policy measures have not had the capacity to respond to the environmental pressure caused by the free trade principles and the intensification of agricultural production promoted by the CAP (e.g. Evans et al. 2002, Winter 2000, Potter–Tilzey 2005, Lehtonen et al. 2008).

Finland has adopted a dual policy model, which consists of two kinds of farm-level contracts: general (GPS) and *special protection schemes* (SPS).¹ The GPS was specifically built to compensate the decline in farm income caused by the EU membership. Largely due to its importance to farm income (Koikkalainen–Lankoski 2004) more than 90% of the Finnish farms have been enrolled in the GPS from its very start (MAF 2004: 31–34). The GPS is thus nation-wide in its reach and scope. The SPS was more precisely built to address specific targeted environmental actions; money distributed via it has been less significant, as has been its success among farmers (ibid.). The SPS operates on a paddock scale. The regional agricultural and environmental officials, together with advisors, are in charge of the implementation of the schemes. The statutory division of work has brought this group of actors to work together more closely than before.

This translation of the policy principles has integrated the environmental considerations into productional matters in a very specific manner, producing an intense tension between the various operational scales and horizontal networks of the policy. In this paper I state that we need to open up these tensions, if we wish

to understand the policy failures experienced within agri-environmental policies.

Implementation is a critical phase in the policy process where policy goals are aligned with farming practices and ecological processes. This process has been a subject of numerous studies within Europe (e.g. Burgess et al. 2000, Curry–Winter 2000, Juntti–Potter 2002, Morris 2004, Wilson–Juntti 2005, see for Finnish studies Niemi–Iilahti et al. 1997, Soini–Tuuri 2000, Kaljonen 2002, 2008). These studies have highlighted the ways in which the various actors find their ways of working together; how expertise and knowledge gets distributed amongst the horizontal network is crucial for policy success. The vertical structuring and layering of the policy actions have also been identified as crucial for the realisation of environmentally friendly agriculture (e.g. Buller et al. 2000, Lowe et al. 2002, Winter 2006, Wilson 2009). The mutual interdependency of vertical scales and horizontal networks has, however, received less attention. Jessop et al. (2008) have stressed that if we are to understand how sociospatial relations take shape, we need to recognise their polymorphies in much more complex ways than what we have been used to. When coupling scale and networks, this would require flat ontology, with multiple ascalar entry points (ibid: 395–396, see also Bulkeley 2005).

The tactic of science and technology studies (STS) of turning matters of fact into empirical matters of concern can contribute much to the analysis of polymorphies of scale. The main argument of STS is that that we cannot separate objects from the material practices and relations in which they are created (e.g. Latour 2004, Law 2004, Mol 2002). Objects are gatherings, whose quality and durability depend on the *form* of the process in which they are created (esp. Latour 2004, see also Gomart–Hajer 2003). In practices objects also become *matters of concern*. They become something that are capable of concerning the practitioner and eventually also transforming him/her (see also Mol 2002).

Such a relational view suggests that we should approach the scales of policy as mosaic processes enacted in practice (see also Howitt 1998, Bren-

ner 2001, Haila 2002). Furthermore, the success or failing of agri-environmental policy should not be seen as something to be explained by some social structure or force; on the contrary, the form of the process may explain some features of what makes a policy successful or not. The relational view on policy practice sensitises us to the various processes of change and stagnation that arise from within the policy system. The interest in form calls for careful treatment of complexity.

John Law (e.g. 1994, 2004), together with Annemarie Mol (2002), have been the most prominent developers of complexity within STS (e.g. Law 1994, 2004, Law–Mol 2001). They have reminded us that things (like policies and natures) do not simply have a contested history, but also a complex present, ‘a present in which their identities are fragile and may differ between sites’ (Mol 2002: 43). In respect to the study of implementation practice, Law’s (1994) analysis of managerial practices in a laboratory is of special analogical importance (see, for the use of analogies, Haila–Dyke 2006). In the study Law showed how in managerial practice there existed side by side various *modes of ordering*, not just one idea of management. He further revealed how these orderings are performed, embodied and told in various materials. He did not however leave his analysis there, on the contrary, he showed how the orderings are interrelated and evolve together as they are recursively told and performed. In such a view, the quality of form is not just about network or process stability (as emphasised by Latour e.g. in 1988), but about how multiple matters of concern can co-exist in productive ways (see also Mol 2002).

This kind of an approach allows a complex view on the tension between vertical scales and horizontal networks in the implementation of agri-environmental policy. In this paper I visit the offices of civil servants who are in charge of the implementation of agri-environmental policy in Finland and elaborate how they enact their matters of concern at distinct operational scales. After discussing the various modes of ordering separately, I expand the analysis to the various mechanisms in which these have come

to depend upon one another and how they have evolved as they have interacted. By opening up the implementation practices, I reveal how the Finnish agri-environmental policy has taken a fixed scalar form contributing to the hardening of conventional categories and actor positions. This fixed scalar form has not had the capability to meet the challenge of fragile environmental relations. I close the article with a discussion on alternative routes of action.

Empirical matters

The analysis presented in this paper builds upon extensive empirical material I have gathered on Finnish implementation practices during 2000–2006. I have followed the implementation practices in West and Southwest Finland. These two regions present critical cases of regional implementation practices (Flyvberg 2001: 77–81). Both regions have a vital agricultural production basis and strong farming culture. They both have struggled with conflicts caused by agricultural pollution and, in so doing, also taken an active stance towards agri-environmental policy. The high regional stakes render visible and clarify the various complexities involved with policy implementation, making them fruitful cases for elaborating the different modes of ordering and processes of scaling. In this study, I am interested in how these critical cases can help us to understand the ways in which vertical scales and horizontal networks hang together in policy implementation.

In these two regions I have visited the offices and interviewed the key persons in charge of the policy implementation at the regional and municipal level, including the agricultural and environmental administrations, the advisory organisation, the Farmers’ Union and the environmental NGOs (altogether 33). In order to assess the relationship between implementation practices and policy formation, I have also interviewed the key persons at the national level (all together 12). To get a grip on practice, I have observed watershed-level riparian zone planning (Kaljonen 2003) and regional biodiversity management planning (Kaljonen 2008) in action. I

have also studied policy documents, evaluation reports and background memos produced by administration and regulatory science.

I needed all this diversiform empirical material in order to trace the scalar form the implementation has taken. Due to the synthesising character of the article, I present the various practices and modes of ordering on a rather general level. I concentrate more on their mutual co-evolution. A more detailed examination of the implementation practices can be found in the research reports (Kaljonen 2002, Aakkula et al. 2006) and separate articles (Kaljonen 2003, 2008). Furthermore, my focus is on the practices of civil servants. However, in order to make the form of the policy transparent, I need to on occasion refer to the matters of concern of farmers. The more detailed analysis lying behind these arguments can be found in Kaljonen (2002, 2006).

Implementation practices: multiple modes of ordering

At the regional agricultural office: support for prosperous Finnish agriculture

Regional agricultural officials are in charge of the enforcement, decision making and control of the agri-environmental schemes. They govern and control the GPS and decide upon the SPS contracts on the basis of the comments given by the regional environmental administration. Their offices are situated in the Regional Work and Employment Centres, which are also in charge of the regional distribution of agricultural support and rural development funds.

The main task of the regional agricultural officials is to ensure that the decisions are made in time and money is transferred to the farmers' accounts in a *just* and *fair* manner. This is what they recursively told me in the interviews. The main technologies for safeguarding the justness of the policy are detailed support blankets, control rounds and satellite maps. These technologies render the management actions visible, enabling control all the way from farm level up to European level.

The expertise of agricultural officials builds

upon practical knowledge of the support system and administration – in addition to that of agricultural production and entrepreneurship. In the practice of implementation they have left the responsibility of the environmental content to the environmental officials. The agricultural officials argue that agri-environmental support should be seen as part of the whole agricultural support package and used for ensuring a prosperous Finnish agriculture within European markets. The task of the agri-environmental policy is to ensure that Finnish farming stays as environmentally friendly as it is. The nationwide coverage of the GPS ensures the best results both in terms of social equity and environmental impacts – everybody, nature included, would benefit the most if as many actors as possible participated.

This mode of ordering enacted by the regional agricultural officials actively builds upon continuity. It reasserts the claims that Finnish farmers are stewards of nature and countryside; a claim that has weighed heavily in the Finnish agri-environmental policy all through its history (Jokinen 1997). The emphasis on the GPS also stresses the welfare state's idea of equality between different production sectors and regions; an emphasis which has been one of the guiding principles of Finnish agricultural policy from the 1950s onwards (Granberg 1999). It is the national scale that matters for agricultural officials.

A particular kind of cognitive dilemma, however, brings dissonance to the mode of ordering enacted by the regional agricultural officials. The dilemma arrives from associating together the ethos of entrepreneurship with the principles of the European Common Agricultural Policy. The acreage-based agricultural support simply does not go together with the ethos of entrepreneurship. This cognitive dilemma may even accentuate in the future and cause disturbance to motivation within the profession to work for a more prosperous Finnish agriculture.

At the regional environmental office: towards environmentally effective policy

For regional environmental officials, the agri-environmental schemes have offered a much

wider set of concrete means and a greater amount of monetary resources to pursue their goals than they have had before. Previously all they had was advice and co-operation (e.g. MoE 1992, Niemilähti–Vilkki 1995, Jokinen 1997). The most important task offered by the policy is to provide a comment on the environmental content of the SPS applications. In addition to commenting, environmental officials also take part in the control of the SPS and the farmer extension via courses, projects and planning.²

The interviewed environmental officials saw as their duty to bring environmental expertise to the regional implementation network. They are to ensure that the environmental goals of the schemes are met. They saw themselves as spokesmen of nature – and, I need to add, many of the civil servants that I interviewed were very committed as such. This commitment, obviously, gave them motivation and flame for their work in the field.

As compared to the regional agricultural officials, the environmental officials act and speak more forcefully for the increasing of the environmental effectiveness of the policy. The regional environmental officials tend to stress the absolute character of agri-environmental impacts (see also Jokinen 2000): the decreasing of environmental impacts should be the only justification for spending public resources. As it is, farmers have gained environmental support on too loose grounds. Their demands for a more effective policy have increased in number, as the results from the evaluation studies have shown that the policy is far from reaching its goals (Turtola–Lemola 2008, Kuussaari et al. 2008). They criticize the nationwide GPS and emphasize the technologies offered by the SPS. Agri-environmental support should be allocated to environmentally critical areas and to more effective measures. They also stress the need for normative environmental control.

The implementation of the SPS has not been an easy task for the regional environmental officials. Introducing the opportunities and requirements offered by the SPS to farmers has required a lot of work, both by the office-desk

and in the fields. After the first years of training with the decision-making procedures, the environmental officials have slowly moved to develop novel working methods in order to increase the effectiveness of the measures. General planning provides an illuminating example of novel practices. The aim of the planning has been to allocate the SPS to ecologically critical areas, increase the interest of farmers and develop collaborative ways of working. The first general riparian zone plans, which aimed at reducing the nutrient loads from cultivated fields, were made in the late 1990s in Southwest Finland. After the first positive results, the practice has spread throughout the whole country, and to new areas such as biodiversity management and wetlands. In practice the planning consists of field and map work as well as participatory meetings together with the farmers, rural officials and advisors.

According to empirical analysis (Kaljonen 2003, 2008), the general planning has provided a concrete tool for environmental officials to pursue their goals; while, at the same time, enacting a new operational scale to the practice of agri-environmental policy. General planning has brought consistency to the implementation and facilitated the complicated decision-making procedures with the schemes. It has succeeded in attracting farmers and the number of SPS contracts has risen. The plot scale enacted by the SPS has been accompanied by a watershed or regional scale enacted by the general planning. Rescaling is further supported by the watershed-level models, maps of critical areas and planning tools developed by the regulatory science of environmental administration.

At the local level: buffers between administration and farming

The implementation of agri-environmental schemes has rendered visible the importance of local-level actors in translating policy goals to farm-level practice. Here the role of advisors and municipal rural officials is of particular importance.

In Finland the rural advisory centres have traditionally taken care of the farm-level advice, also when it comes to environmental issues. The advisors had, for example, at the beginning of the 1990s a large advisory campaign entitled *Our Common Environment*, during which they made environmental management plans for farms and gave general advice. The campaign was based on voluntariness. The agri-environmental programme has given them a chance to continue this work. During the first agri-environmental programme period advisors carried out the farm-level environmental management plans required by the GPS; they also helped farmers in taking soil samples and preparing cultivation plans. The largest resources were invested in compulsory farmer courses. In addition, advisors have offered farmers consultancy in e.g. landscape and biodiversity management planning on a site and village scale.

Another group that is important in translating the scheme conditions to practice are the municipal rural officials. Coping with the EU, CAP and changing policies has placed new requirements on the farmers: one has to be in the right place at the right time in order to keep abreast of the support conditions. For this the advice of the municipal rural officials is highly appreciated. Similarly to the regional agricultural officials, the interviewed municipal rural officials saw smooth and fair administration of the support system as their main task. At the municipal level, there is, however, another, perhaps even more important task: to work as a *buffer* – to use a concept applied by my interviewees – between the policy and the farmers. The interviewed advisors also identified this task as important for them.

To act as a buffer means first of all capability to translate scheme conditions to farmers. This requires a lot of work: one needs to follow the development of the agricultural and environmental policy, to be aware of the latest interpretation of the scheme conditions, and most importantly, to have the ability to translate them to practice. The information should flow also the other way around. The experiences gained from practice

need to be translated back to administration: "... so, that they won't become too alienated from real life", as one advisor put it.

The local rural officials and advisors act as buffers between policy and practice, but also between different cultures and scales of action. The farmers' scale of action is most of all local; their matters of concern arrive from the realities of farm livelihood (Käljonen 2006). They criticise agri-environmental schemes arguing that the knowledge of farming and local environmental conditions and care should be better incorporated to the governance of the agri-environmental problems. Local officials stress that they know the farming culture and understand the farmers' way of thinking. The local officials have developed a close relationship with the farmers, which needs both trust and dependency to exist. The farmers are dependent on the information the officials possess, but at the same time their relationship seems at its best to have evolved into being flexible enough to accommodate the farmers' own accounts of subjectivity and soften the ambivalence which taking part in environmental conservation might have provoked. They have been capable of addressing the social problems felt in the Finnish countryside and of supporting the farmers' cultural identity.

Municipal officials and advisors are, first and foremost, spokesmen for *living countryside*. They stress that agri-environmental schemes should be used for diversifying livelihood in rural areas and safeguarding the conditions for practising vital agriculture. For the advisors the landscape management is, further, a route to express their love and caring towards the countryside. At best, this vision and commitment for a living countryside can act as a motivation for their work. The most appropriate scale of action for realising these visions is from farm to locality.

However, many local rural officials have felt the administration of the subsidy system as so devastating that they have practically not had resources for anything else. They have found themselves in a double alliance (see also Rose-Miller 1992). On the one hand, they have allied themselves with the administration, focussing

on their problems and translating concerns about environmental or economic performance. On the other hand, they seek to form alliances with farmers, translating their daily worries, decisions on investment, economic burdens and practical agricultural work. This double alliance makes their position within implementation ambiguous. The role of municipal rural officials and advisors in the implementation of agri-environmental policy is characterised with many institutional uncertainties and variety between the different localities. In my interpretation this mode of ordering has also the loosest end and least fixed boundaries.

Movement within modes of ordering

As we can see, the different parties involved, which traditionally have looked at agri-environmental questions from rather different angles, have been able to translate the agri-environmental schemes as their own matter of concern. In the practice of implementation these multiple matters of con-

cern exist side by side (Figure 1). They all draw on particular governmental technologies operating at distinct vertical scales. The analysis of the modes of ordering has rendered visible how the vertical scales are tight as to the division of work and expertise within the horizontal network.

Distinguishing multiple modes of ordering in this manner, however, gives still far too stable a picture on what is happening in practice. These modes of ordering have loose ends, and their own inner disturbances and dissonances. Furthermore, the modes of ordering are not closed off from each other – they evolve all the time as they interact with one another and the rest of the world. There is a lot happening in between the various modes of ordering.

From collaboration to stagnation

As I directed my attention to the dissection between the various modes of ordering, I recognised another distinct mode of ordering, which emphasises explicitly the *collaborative practice*

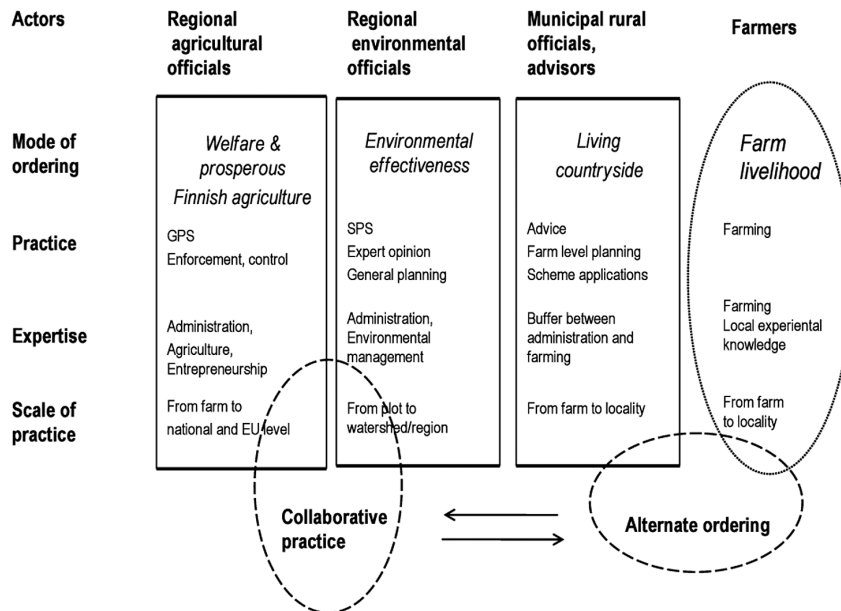


Figure 1. Implementation practices: multiple modes of ordering

between the various actors (Figure 1). Despite the differences in their modes of ordering, the regional agricultural and environmental officials have actively developed collaborative working methods and harmonised decision-making procedures. The statutory division of work has established a co-operational routine between them in the implementation of the policy (see also Soini–Tuuri 2000, Juntti–Potter 2002). Niemi–Liljahti–Vilkkii (1995), who studied the regional networks of agri–environmental policy at the beginning of 1990s, state that although co-operation was promoted on a political level, the policy of that time did not really offer concrete means for co-operation. Viewed against the situation back then, the implementation of agri–environmental schemes has changed the situation significantly.

Both sectors appreciate the increased co-operation highly. Working together and getting to know each other's competencies and personalities has created a trustworthy relationship between the two sectors. Practice has also taught that agri–environmental management requires actions, competencies and knowledge of both sectors. For example, one of the interviewed environmental officials said that they have explicitly decided to go forward with those issues where consensus between the different parties already exists. They do not want to risk the trustworthy relationship that has been developed between the agricultural and the environmental sector.

Kröger (2005), who has studied agri–environmental policy making at the national level, has also witnessed a birth of a new advocacy coalition, which resonates with the regional-level collaborative practice. This advocacy coalition does not acknowledge the intrinsic value of environmental protection, but regards it necessary for maintaining the legitimacy of agricultural production in Finland. At the national level the active committee work during the preparation of policy and the shared worry over the continuation of Finnish agriculture in the European markets has rendered various actors ready for compromises.

This kind of mode of ordering, which has

evolved out of collaborative practice between the agricultural and the environmental sector, seems to have gained a hegemonic position within the practice of agri–environmental governance in Finland. Hajer (1995) has spoken of the importance of identifying hegemonic discourses within environmental policy analysis in order to understand the inner dynamics of policy development. On the basis of my empirical findings, I very much share his plea. I, however, want to suggest that considering discourses as modes of ordering enacted in practice brings more dynamics to the understanding of policy evolution.

In the previous chapters I have showed how the modes of ordering of the agricultural sector, which aims at prosperous Finnish agriculture, and of the environmental sector, which stresses the need to move towards a more environmentally effective policy, are enacted by various technologies, most notably the GPS and the SPS. If I had analysed only discourses, I would not have been able to grasp the way in which these technologies actively enact the scales of agri–environmental management. When we stretch the analytical focus to the interplay of policy preparation and implementation, the relationship between the operational scale of agri–environmental governance and the hegemonic collaborative practice becomes even more obvious.

In my empirical analysis I have showed how the environmental sector has tried to use the SPS measures and general planning for rescaling the policy. At the regional level these attempts have received acceptance and the environmental sector has gained more appreciation and power. However, on a national scale the rescaling attempts have proven to be more difficult. At the national level, the political aim of safeguarding prosperous Finnish agriculture and the idea of environmental stewardship have been so strong that decisions on environmentally based allocation of the schemes could not really be taken. The agricultural policy community, as Jokinen (2000) has argued, is still a powerful player in defining the content of agri–environmental policy. The way in which the GPS was built to compensate the decline in farm income caused

by Finland's EU membership in 1995, and how this rationale has maintained its hold until today, is a durable indication of the policy community's impact. There are also many examples of failed attempts when the environmental sector has tried to strengthen the environmental requirements set by the GPS.

This kind of analytical look on how these two modes of ordering have evolved together to co-exist has revealed how the close collaboration between the two sectors, at first, contributed significantly to policy learning, but has since stagnated into repetitive cycles of practice which contribute to the hardening of conventional categories and fixed scales of agri-environmental management. The agricultural sector has taken the ownership of the GPS, which operates at the national scale; while the more localised SPS measures are left for the environmental sector to play with.

Vicky Singleton (2005) has reminded us that it takes a lot of extra effort to push the conventional categories and question the boundaries in the practice of policy implementation (see also Ellis–Waterton 2005). In her study about the novel British Public Health Policy she has shown how it was the implementation phase of the policy that was not able to enact the promises given by the policy. On the contrary, it was the very conservative element in the practice of practitioners that hardened the conventional categories and caused the failing of policy. In the case of agri-environmental policy it seems that the most rigid elements within the system arrive from the political realities enacted at the national level, which are then further re-enacted by the administrative routines and technologies used by the various sectoral organisations. The case of agri-environmental policy also shows how something that at first has contributed to policy learning, as a consequence of repetitive cycles of practice, has become a congealing force.

Mutually constituted others

There exists an alternate ordering, which heavily questions the hegemonic view on agri-envi-

mental governance (Figure 1). Farmers in particular have contested the normalised accounts of environmental management proposed by the schemes (Kaljonen 2006). The municipal rural officials have together with the advisors joined the farmers in this criticism, as I have described earlier. They question the very premises of the policy, arguing that the knowledge of farming and local environmental conditions and care should be better incorporated to the governance of agri-environmental problems. As farmers, together with the local officials, appeal to local farming knowledge they, at the same time, enact their agency as environmental stewards within the network of agri-environmental governance. This alternate ordering, coupled with the repetitive cycles of collaborative practice, tends to enact the boundary between localising and universalising knowledge in such a dualistic fashion that these have become *others* to one another within the current network of agri-environmental governance in Finland (see also Callon–Law 2005).

I would even argue that the hegemonic view has been compelled to silence the matter of living countryside in order to sustain its coherence. The active materiality of implementation practices and the use of various technologies have made these efforts concrete. For example, the pivotal role of the GPS in the practice of agricultural officials withholds their motivation to associate entrepreneurship and environmental management. The policy does not offer any concrete tools for supporting the linkage. Also, despite the several attempts to lessen the bureaucracy of the schemes, the outcome has been the opposite. The system seems to regenerate its technologies in ways that produce more scrutinised control. The farther off the decision-making happens, the more important these technologies become. Also, the more multiple policy levels there are, the more emphasis the restraining of failing of government seems to get (Vaughan 2004). The boundary between localised and universal accounts of agri-environmental management is enacted and re-enacted again and again.

Again we can identify a dynamic relation within the implementation which tends to harden the

conventional categories. It seems extremely difficult for the actors to move across the scales. It is however possible to detect some novel openings where the modes of ordering have been brought together in unusual and fruitful ways; where boundaries of knowledge have been stretched and the pre-given scales of practice questioned. General planning is one such example. It has enabled flexible movement between the scales and created conditions for learning between different modes of ordering. The farmers' engagement in their local environment as well as with the long networks of policy has allowed them to identify themselves as knowledgeable actors in areas where claims based on local understanding in many respects outweigh the more universal claims of other actors, such as the environmental authorities. Despite this potential for rescaling and empowerment, the room of manoeuvre allowed for farmers and nature is rather limited. The general planning still takes place in the strict institutional setting of agri-environmental schemes.

The fixed scalar form

The implementation of the Finnish agri-environmental policy has taken a fixed scalar form. According to the results of this study, the collaborative practice that has developed out of co-operation between the agricultural and environmental sectors is critical for understanding the dynamic evolution of the agri-environmental policy in Finland. In the analysis I have shown how this collaborative practice first contributed to policy learning, but as a consequence of repetitive cycles of practice, has become a congealing force. Treatment of governmental technologies as active elements in the policy practices has made these repetitive cycles visible. Within implementation practice, the agricultural sector has taken ownership of the GPS, which emphasises the welfare effects of the policy on a national scale; while the more localised SPS measures are left for the environmental sector. The opening up of implementation practices has rendered visible how the vertical scales of the policy are enacted by the tools, tasks, expertise and knowledges as divided

within the horizontal network of governance. This tight association between the vertical scales and horizontal networks of the policy has led to a hardening of conventional categories and fixed actor positions. This association brings a strong rigid element to the policy practice. The rigid element is a direct effect of the past networks. It may also constrain the subsequent evolution of policy and imply a situation where change is only incremental.

This kind of rigid practice tends to demarcate the problems and solutions within the system, producing a rather technocratic understanding of agri-environmental management. Policy learning takes place on a scale of detailed scheme conditions – and the inner stability of the collaborative practice is strengthened. The alternatives are demarcated as 'others'. Shape and given constancy are held as a result of the discontinuities of conjoined alterity. According to the results, currently, the local scale, represented by farmers, their fields and varying environmental conditions, is actively constructed as 'other' within the network of agri-environmental governance. Nature is allowed to speak only quietly with a standardised voice. Also the farmers' voices, which claim for better incorporation of local experiential knowledge on farming and environmental conditions to the governance of agri-environmental problems, have been bound to stay local. In this form the *space of appearance* (Jokinen–Hiedanpää 2007) created for nature is tightly standardised and controlled. It does not allow for surprises.

The results show that there is an evident need for such policy practices which allow different social worlds to come together and cross the fixed scales of action. I rose general planning as one such example where the space of appearance for nature has been loosened a bit. This example highlights that the conventional political institutions and administrative solutions alone lack the powers to deliver required policy results, novel practices and meanings need to be invented. The national and paddock scales imposed by the GPS and the SPS are not solely capable of solving the problems of agri-environmental governance. Scales need to be crossed and mixed.

Discussion

I want to emphasise that the scalar form revealed in this paper is only one of the many forms which are or may be taken by the policy (see esp. Law 2004). Furthermore, it is conditioned by my sociological imagination. I hope that the exposed form can help us to understand the policy failures experienced within the Finnish agri-environmental policy, and also elsewhere. I wish the Finnish case can also sensitise the environmental and rural policy analysis to the matter of scale. The Finnish case has highlighted the need to understand better the rigid elements brought by the tight association between the vertical scales and horizontal networks. It has further underlined that we should not only analyse materially heterogeneous networks, rather we should view enactment as a complex association of that which is present and that which is not. These two notions add important aspects to the analysis of how multiple modes of ordering hang together and evolve to co-exist.

In order not to get too fixed with the current forms of policy and research, it is important to search alternative routes of action where the complexities and presence of nature could be taken more seriously in the agri-environmental policies. The ideas of fluid and fire spaces proposed by Law and Mol (2001) can offer us some guidance on the way. Fluid spatiality suggests that varying configurations, rather than representing breakdown or failure, may also strengthen objects. In the practice of agri-environmental policy this would mean that the more flexible the policy becomes, the stronger it can evolve. The notion of fire space, consecutively, suggests that we need to be better equipped to recognise the processes of active construction of otherness as regards both humans and non-human elements. At the moment, the local scale, represented by farmers, their fields and the actors at the local offices, as well as nature, are actively constructed as others within the network of agri-environmental governance. If we wish to proceed with the environmental protection, these human and non-human actors need to be incorporated as active partners to the network of agri-environmental

governance, whilst keeping our eyes open to the new alterities. It is an attentiveness to difference that makes for useful and surprising relations.

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NOTES

- 1 The GPS sets out the basic level for environmentally friendly farming practices; the SPS offers more targeted contracts for environmental protection. When enrolling in the GPS a farmer commits to following the rather detailed terms of agreement on e.g. how to fertilize, how much, and when; how wide a headland is to be left along the ditches and watercourses; how much pesticides can be used and with what kind of machines they can be spread; or how to take care of the landscape and biodiversity. After the first programming period 1995–1999, the GPS was divided into a *general* and an *additional scheme*, in order to increase the variety of measures for farmers to choose from. In the SPS a farmer can get support for e.g. constructing a riparian zone (a 15-meter buffer left uncultivated between the field and a water course) or a wetland; biodiversity or landscape management; building up a controlled drainage system; or effective use of manure.
- 2 The municipal environmental officials do not have a direct role in the governing of agri-

environmental schemes, but may occasionally participate in the planning or marketing of the schemes. Their duties within agri-environmental governance relate more to the administration of the Nitrate Directive and the environmental permit system.

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Minna Kaljonen

Ympäristöpolitiikkaa pellon laidalla

– tapaustutkimus suojavyöhykesuunnittelun käytännöstä

Environmental policy at the end of the field. A case study of riparian zone planning practices.

The agri-environmental programme that came into force in 1995 has provided new means for agri-environmental management and changed the practices of the Finnish agri-environmental policy. This article focuses on the role of riparian zone plans as active elements in the implementation of the agri-environmental policy. The analysis is based on a case study on the watershed of Lake Lappajärvi in the Western Finland. The article examines how the riparian zone planning practices redefine the geographical scale of agri-environmental management and policy and also reconstruct the relationship between different actors and their identities. It is argued that the riparian zones, as an end-of-field technology, have acted as boundary objects in the creation of co-operation between farmers and environmental officials. The experiences from the local level also show that watershed level planning has managed to take into account both the locally varying ecological conditions and farmers' direct relationship to nature, and in so doing supported the social conditions for agri-environmental management. The article closes with a discussion on the relevance of the local dimension in the development of the agri-environmental management and policy.

Keywords: agriculture, agri-environmental policy, riparian zone, boundary object

Johdanto

Vuonna 1995 voimaan tulleesta maatalouden ympäristötukijärjestelmästä on tullut suomalaisen maatalouden ympäristöpolitiikan keskeinen toimintamuoto (MMM 1994; 1999). Ympäristöpolitiikan tavoitteet määritellään kansallisella tasolla, mutta ne muunnetaan toiminnallisiksi kategorioiksi maataloilla ja alueellisissa toimeenpanoverkostoissa. Maatalouden ympäristötuen periaatteet ympäristöhyötyjen tuotannosta sekä määrälliset tavoitteet ympäristötukisopimusten määrästä toteutuvat osana paikallisesti eriytyneitä toimintoja.

Ympäristötukijärjestelmän myötä maatalouden ympäristöpolitiikan toimeenpanon vertikaaliset ja horisontaaliset toimintamuodot ovat saaneet uusia muotoja. Yleisille ympäristötukimenetelmille on löydettävä paikalliset sovellutukset, toisaalta eri sektorien on luotava toimivat yhteistyömuodot. Kiinnostava esimerkki uusista toimintamuodoista on suojavyöhykesuunnittelu, johon etenkin ympäristöviranomaiset ovat suunnanneet resurssejaan. Valuma-aluekohtaisten suojavyöhykesuunnitelmien tavoitteena on ollut maatalouden ympäristöhoitoon liittyvien ekologisten ja sosiaalisten epävarmuuksien hallinta. Samalla niistä on tullut aktiivisia toimijoita. Suomalaista maatalouden ympäristöpolitiikkaa ohjannut kansallisen yhdenmukaisuuden periaate on saamassa rinnalleen paikallisiin luonnonolosuhteisiin ja sosiaaliin ehtoihin perustuvan kriittisen alueen käsitteen.

Tässä artikkelissa tarkastelen maatalouden ympäristöpolitiikan muuttuvia käytäntöjä arvioimalla suojavyöhykesuunnittelun roolia ympäristötuen toimeenpanossa. Tutkimusongelman avaamiseksi olen saanut virikkeitä ns. toimija-verkkoteorian ympärillä käydystä keskustelusta (esim. Latour 1987; 1993; Callon 1986; Law & Hassard 1999; Pickering 1992). Toimija-verkkoteorian perusajatus kiteytyy toimija-verkkoon itseensä: se on kollektiivi, joka on inhimillisten toimijoiden (kuten viljelijöiden, ympäristöviranomaisten tai neuvojien) sekä materiaalistien elementtien (kuten ravinteiden, ympäristötukisopimusten tai suojavyöhykkeiden) yhteen kietoutumisen tuloksena syntynyt kokonaisuus. Latour (1993; 2003) väittää provosoivasti, että monien ympäristöongelmien yhteydessä luonto ja yhteiskunta sekoittuvat niin omalaatuisella tavalla, ettei ole mitään järkeä puhua näistä kahtena erillisenä kategoriana. Mielienkiintoista on ennemminkin tarkastella miten ja mitä tarkoituksia varten inhimillisistä toimijoista ja ei-inhimillisistä elementeistä koostuvat kollektiivit syntyvät, leviävät ja vakiintuvat.

Toimija-verkkoteoria avaa uusia näkökulmia maatalouden ympäristöpolitiikan toimeenpanon käytäntöihin auttaen tarkastelemaan viljelymenetelmiä, siis ympäristöpolitiikan kohdetta, toiminnallisina elementteinä. Toimija-verkkoteoria tulkitsee toimintaa kääntämisen (*translation*) metaforan avulla (Callon 1986). Kääntämisen avulla verkostoaan rakentavat toimijat pyrkivät saamaan mahdollisimman monia toimijoita puolelleen vahvistaakseen omaa asemaansa. Käännös siirtää myös uuteen paikkaan: se luo yhteisen intressin sinne, missä aiemmin oli useita erillisiä intressejä ja siten tiivistää ja vakiinnuttaa yhteyttä eri toimijoiden välillä. Käännös vaikuttaa suoraan toiminnan ehtoihin. Kääntäminen on prosessi joka on jatkuvassa muutostilassa; kollektiivien kestävyyttä testataan koko ajan.

Toimija-verkkoteoriaa on kritisoitu siitä, että se suuntaa tutkijan huomion lähinnä vaikutusvaltaisiin toimijoihin (esim. Wynne 1992). Useita eri politiikan sektoreita yhdistävän maatalouden ympäristöpolitiikan kohdalla olennaista on ennemminkin tarkastella miten ja minkälaisen välittävien mekanismien avulla eri toimija-verkostot kohtaavat tai pystyvät toimimaan yhdessä. Star ja Griesemer (1989; ks. myös Star & Bowker 1999: 285–319) ovat kiinnittäneet huomionsa erityisten rajakohteiden (*boundary object*) merkitykseen silloin kun eri tulkinnan kehikoiden kautta yhteen liitetty toimijat pyrkivät löytämään yhteisiä toimintatapoja. Rajakohteet ovat suhteellisen stabiili-

leja ja helposti uusinnettavia asioita, kuten tekstejä, tekniikoita, karttoja tai ideoita, jotka mahdollistavat sekä erilaisten sosiaalisten maailmojen maksimaalisen autonomian että kommunikaation. (Ks. myös Peltola & Åkerman 2000.)

Tarkastelen tässä artikkelissa miten maatalouden ympäristöpolitiikan tavoitteet *käännetään* toiminnaksi paikallisella tasolla. Arvioin välittävien elementtien roolia ympäristötuen toimeenpanossa ja yhteistyömuotojen rakentumisessa. Esimerkkinä käytän suojavyöhykesuunnittelua. Tarkastelen miten suojavyöhykesuunnittelu toimintana rajaa maatalouden ympäristönhoidon kohdetta ja ajallista ulottuvuutta sekä rakentaa eri toimijoiden välisiä suhteita ja identiteettejä. Toisin sanoen miten näissä käytännöissä luodaan maatalouden ympäristönhoidon ehtoja. Esittelen aluksi tutkimusaineistoni. Tämän jälkeen siirryn tarkastelemaan ympäristötuen toimeenpanoa ja suojavyöhykesuunnittelun käytäntöjä. Arvioin suojavyöhykkeiden eri merkityksiä ympäristötuen toimeenpanokäytäntöjen sekä maatalanhoidon näkökulmasta. Lopuksi pohdin suojavyöhykesuunnitelmien merkitystä maatalouden ympäristöpolitiikassa laajemmin.

Tapaustutkimus Lappajärven valuma-alueelta

Artikkeli perustuu tapaustutkimukseen Lappajärven valuma-alueelta Etelä-Pohjanmaalla. Lappajärvi sijaitsee Etelä-Pohjanmaalla, jossa Pohjanmaan jokilakeudet kohtaavat Suomenselän. Lappajärven valuma-alueeseen kuuluvat Lappajärven, Alajärven sekä osittain Vimpelin ja Soinin kunnat. Alueella sijaitsevat järvet ovat antaneetseudulle nimeksi Järviseudun. Alue on maa- ja metsätalousvaltaista ja pellot ovat keskittyneet Lappajärven laskevien jokien varsille sekä järven ympärille. Maatilojen keskipinta-ala on 18 ha, mikä on pienempi kuin Etelä-Pohjanmaalla yleensä. Alue on karjatalousvaltaista, mutta maatalouden rakennemuutosten johdosta viljatilojen osuus on kasvanut. Myös perunaa viljellään laajasti. (Etelä-Pohjanmaan agronomit ry. 2000.)

Lappajärven veden laatu on huonontunut viime vuosikymmenten aikana ja järvellä on havaittu voimakkaitakin sinileväkukintoja. On arvioitu, että Lappajärven tulevasta fosforikuormituksesta yli puolet on peräisin peltoviljelystä, noin 15% karjataloudesta, 10% haja-asutuksesta, 7% metsä- ja turvetuotannosta ja 6% turkistarhauksesta (Rautio 2003: 23–24). Yksi vastaus huoleen järven tilasta on ollut Lappajärvi Life -projekti, joka

alkoi paikallislaitteesta syksyllä 1999 (Rautio 2003). Projekti on alueellisen ympäristökeskuksen vetämä, mukana ovat myös alueen kunnat, eri yrityksiä ja järjestöjä. Projektin tavoitteena on ollut Lappajärven kunnostaminen suuntaamalla toimenpiteet valuma-alueen eri kuormittajalähteisiin. Maatalouden ravinnekuormituksen vähentäminen on ollut yksi Lappajärvi -projektin painopistealueita. Projekti on käyttänyt hyväkseen maatalouden ympäristötuen tarjoamia mahdollisuuksia maatalouden vesiensuojeluun ja alueelle on laadittu suojavyöhykesuunnitelman (Polso 2001).

Tapaustutkimus mahdollistaa yhden tietynä hetkenä tapahtuneen prosessin tiheän kuvauksen ja siten eri toimijoiden välisiin suhteisiin liittyvän dynamiikan analyysin (Flyvberg 2001: 66-87; Latour 1987). Olen kerännyt tutkimusaineistoa haastatte- luilla, jotka käsittelevät ympäristötuen toimeenpanoa alue- ja paikallistasolla sekä viljelijöiden näkemyksiä ympäristötuen toteutuksesta ja viljelymenetelmistä. Suojavyöhykesuunnittelun merkittävyys on siten noussut esille aineistolähtöisesti. Tämän lisäksi olen osallistunut suojavyöhykesuunnittelun yhteydessä järjestettyihin tupailtoihin, mikä on tarjonnut mahdollisuuden havainnoida viljelijöiden ja ympäristöviranomaisten kohtaamisia suojavyöhykekarttojen äärellä. Yhdistän Lappajärven tapaus- tutkimuksen laajempaan maatalouden ympäristö- politiikan kontekstiin käyttämällä tausta-aineistona EU:n, kansallisen ja alueellisen tason politiikkado- kumentteja.

Ympäristötuen toimeenpano ja suojavyöhykesuunnittelun käytännöt

Suojavyöhykkeet osana ympäristötuen keinovalikoimaa

Suomen ympäristötukijärjestelmä pohjautuu EU:n yhteisessä maatalouspolitiikassa sovittuihin periaatteisiin, jonka mukaan maataloudelle on maksettava tukea sen tuottamistaan ympäristö- hyödyistä (EEC 2078/92; EC 1257/99). Suomen tulkinta painottaa kansallisen tasavertaisuuden periaatetta ja järjestelmään on yhdistetty tulotuel- lisia elementtejä (MMM 1994; 1999; vrt. Buller, Wilson & Höll 2000). Toisin sanoen ympäristö-

haittojen vähentämisen lisäksi ympäristötuelle on haluttu turvata myös viljelijöiden toimeentulo ja maataloustuotannon jatkuminen. Linjavalinnan taustalla vaikuttavat niin aiemmat vapaaehtoisuuteen perustuvat maatalouden ympäristöpolitiikan linjaukset kuin myös Suomen maatalouden sopeuttamispaineet osaksi EU:n yhteistä maatalous- politiikkaa ja -markkinoita (Jokinen 2000). Ympäristövaikutusten osalta pääpaino on vesistöjen ravinnekuormituksessa, jota on Suomessa perin- teisesti pidetty vakavimpana maatalouden ympä- ristöongelmana (Jokinen 1995).

Maatalouden ympäristönhoitoa koskevat toi- menpiteet on määritelty *perus-* ja *erityistuessä*, jotka molemmat perustuvat vapaaehtoisiin tilakohtaisiin sopimuksiin (MMM 2000). Ympäristötukeen yh- distetyistä tulotuellisista elementeistä johtuen yli 90% Suomen maatiloista on tehnyt perustukisopi- muksen. Kansallisen yhdenmukaisuuden rinnalla erityistuet tarjoavat mahdollisuuden kohdenne- tumpiin paikallisiin ympäristötoimenpiteisiin.

Eräs ravinnekuormituksen vähentämiseen täh- täävä keino ympäristötuen perustuessa ovat vesis- töjen varteen perustettavat *suojaikaistat*. Niiden tarkoituksena on tuoda takaisin monivuotisen kasvillisuuden peittämät alueet vesistöjen varsiin, jotka hävisivät sarkaojen mukana kun peltojen salaojittaminen, laajat peltokuvior ja tehokkaam- pien koneiden käyttöönotto yleistyi. Suojaikaisto- jen perustaminen on ollut yksi konkreettisimmis- ta muutoksista, joita ympäristötuki on tuonut vil- jelykäytäntöihin (Kaljonen 2002: 27). Ravinneva- lumien estämiseksi suojakaistat eivät kuitenkaan aina riitä ja erityistukisopimuksilla viljelijöitä kannustetaan perustamaan leveämpiä *suojavyö- hykkeitä* (ks. kuva 1, seuraava sivu).

Suojavyöhykesopimus on vapaaehtoinen ja pe- rustuu tilakohtaiseen suunnitelmaan (MMM 2003). Sopimuksen teko edellyttää, että vesistöön rajoittuvan pellon reuna perustetaan vähintään 15 metrin leveydeltä monivuotiselle nurmelle, jäte- tään lannoittamatta, ruiskuttamatta ja muokkaa- matta. Sopimus korvaa sadon menetyksestä, pe- rustamisesta ja hoidosta aiheutuvat kustannukset pienen taloudellisen kannustimen ohella. Sopi- musaika on 5-20 vuotta. Suojavyöhykesopimuk- sen tukiehtoja muutettiin hieman ympäristötu- ki-

1. Tein haastattelut talvella 2000-2001. Haastattelin viljelijöitä 18 tilalta. Haastateltavat valitsin kun- tien maataloussihteerien avustuksella tilan tuotantosuunnan, koon, iän tai ympäristötoimenpiteiden mu- kaan. Osa haastateltavista viljeli maitaan Lappajärveen laskevan Kurejoen rannalla, jolle oli tehty lohkokoh- tainen suojavyöhykesuunnitelma. Tämän lisäksi haastattelin yhteensä 25 henkilöä, jotka ovat olleet mukana maatalouden ympäristöpolitiikan toimeenpanossa. Haastattelin ympäristö- ja maatalousviranomaisia alue- ja kuntatasolla sekä eri järjestöjen edustajia.



Kuva 1. Suojavyöhyke joen rannassa (kuva: Liisa Maria Rautio).

Figure 1. Riparian zone on a river bank (photo by Liisa Maria Rautio).

järjestelmän tarkistuksen yhteydessä (MMM 1999). Etenkin suojavyöhykkeen hoitoa, sadon hyväksikäyttöä, laiduntamista sekä sopimusajan lyhentämistä koskevat uudistukset ovat olleet viljelijöille mieluisia (Kaljonen 2002: 27–31; ks. myös Ollas 2000: 28).

Suojakaistat ja -vyöhykkeet eivät ole mikään uusi ympäristöpoliittinen keksintö; ne ovat olleet osa ympäristöpolitiikan keinovalikoimaa jo pidemmän aikaa. Niiden leveyden hallinnolliseen määrittelyyn on sitä vastoin liittynyt voimakkaitakin kamppailuja (ks. myös Jokinen 1995: 110). Vesilaissa (264/1961, luku 6: 4§) vaadittiin vähintään 60 cm pientareet ojien varsiin. 1990 -luvun alussa istuneet maatalous- ja ympäristöhallinnon työryhmät suosittelivat valtaojien rajoittuvien suojakaistojen vähimmäisleveydeksi 1–5 metriä sekä jokiin ja järviin rajoittuvien suojavyöhykkeiden leveydeksi 5–30 metriä (MMM 1991: liite 9, s. 2). Maaseudun ympäristöohjelman yhteydessä annetut ohjeet hyvistä viljelymenetelmistä suosittelivat 1–5 metrin suojakaistoja ja kalteville maille 10–20 metrin vyöhykkeitä (Korkman ym. 1993: 23; YM 1992: 18). Ympäristötuen valmistelussa suojakaistan leveys joutui poliittisen kamppailun kohteeksi kun ympäristötukiohjelmaa valmistelleen työryhmän alkuperäinen esitys

5 metrin suojakaistoista muuttui 3 metriksi ohjelmavalmisteluun viime metreillä. Suojavyöhykkeiden leveydeksi määriteltiin 15 metriä.

Kenttäkokeista saatujen tulosten perusteella suojavyöhykkeiden kyky vähentää eroosiota ja ravinteiden kulkeutumista on aina suhteessa siihen paikkaan, jolle vyöhyke on perustettu (Uusi-Kämpä & Kilpinen 2000: 39–44). Toisin sanoen vyöhyke tulisi perustaa ja mitoittaa pellon ja maaston muodon, vesistön läheisyyden, viljeltävien kasvien ja viljelymenetelmien mukaisesti. Oikealle paikalle perustettuna suojavyöhykkeet vähentävät tehokkaasti eroosioaineksen ja ravinteiden kulkeutumista valumaveden mukana vesistöön; leville käyttökelpoisen liuenneen fosforin pidättäjinä vyöhykkeet näyttävät toimivan heikommin.

Suojakaistojen ja -vyöhykkeiden yleisellä leveysnormilla on siten hyvin vähän tekemistä itse ympäristövaikutusten kanssa. Poliittisten ohjelmien yhteydessä käydyt kiistat kaistojen leveydestä voidaan ennemminkin nähdä kamppailuna maatalouden ympäristöongelman hallinnasta ja suojakaistan poliittisesta symboliarvosta. Hallinnonin kannalta 3 metrin yleistä leveysnormia on helppo valvoa ja se kohtelee kaikkia maataloja tasa-arvoisesti. Symboliselta kannalta kyse on

myös siitä missä määrin maataloustuotannolle varattu tila on suojattava – tai eristettävä – ympäristöstään kaistalla.

Yleisestä normista paikalliseen soveltamiseen

Ympäristötuen toimeenpanoon osallistuvat sekä maatalous- että ympäristöviranomaiset. Alueellisten ympäristökeskusten tehtäväkenttään kuuluu neuvonnan lisäksi erityistukikohteiden tilakohtainen ja alueellinen suunnittelu, lausunnonanto sekä valvonta. Alueellisten TE-keskusten toiminta on keskittynyt ympäristötukipäätöksiin ja -valvontaan. Myös Maaseutukeskuksilla on merkittävä rooli ympäristötuen viljelymenetelmien viemisessä maataloilille. Maaseutukeskusten neuvojat ovat tehneet suurimman osan tilakohtaisista ympäristöhoitosuunnitelmista, auttaneet viljelijöitä maanäytteiden otossa ja viljelysuunnitelmien teossa sekä opettaneet ympäristötukiehtoja viljelijäkoulutuksissa. Neuvojat ovat myös tehneet erityistukisuunnitelmia esim. suojavyöhykkeistä tai maisemanhoidosta. Viljelijöiden kannalta merkittävässä asemassa ovat myös kuntien maataloussihteerit, joiden kautta tukihakemukset lähtevät eteenpäin TE –keskuskille päätettäväksi. (Ks. tarkemmin Kaljonen 2002: 32–48.)

Ympäristötuen toimeenpano on lisännyt yhteistyötä ja selkeyttänyt työnjakoa etenkin alueellisten ympäristö- ja maatalousviranomaisten välillä. Yhteistyön lisääntyminen on piirre, jota molemmat osapuolet arvostavat. Vaikka yhteistyömuotoja kehitettiin aktiivisesti jo 1990-luvun alussa (esim. MMM 1991; YM 1992), Niemi-Iilahden ja Vilkin (1995) mukaan alueelliset toimijat pitivät monia poliittikan tavoitteita tuolloin epämääräisinä tai sisäisesti ristiriitaisina, viranomaisten muodollista valtaa rajallisena sekä vastuusuhteita epäselvinä.

Haastattelujen mukaan sekä maatalous- että ympäristösektorin edustajat näkevät ympäristötuen tehokkaana välineenä viedä ympäristöasioita eteenpäin maataloudessa. Ympäristötuki on onnistunut linkittämään ekologiset, taloudelliset ja sosiaaliset tavoitteet siten, että perinteisesti hyvinkin eri lähtökohdista maatalouden ympäristöongelmaa tarkastelleet maatalous- ja ympäristöhallinto ovat pystyneet kääntämään politiikan tavoitteet omaa toimintaansa tukevaksi (ks. myös Jokinen 1995; 2000). Tuki on mahdollistanut maatalouden toimijoiden vaatimukset kustannusten korvaamisesta; toisaalta ympäristöhallinto on saanut lisää välineitä edistää omia tavoitteitaan. Eräs ympäristöviranomaisen kiteytyi muutoksen seuraavasti:

...Ympäristötuki muutti kauheesti tätä toimintaa ja yhteistyökuvioita. Sitä ennen se oli enempi pelkkää neuvontaa, että saahaan jotenkin tätä tietosuutta, että maatalous kuormittaa. Tähän käytettiin se aika, eikä siihen mitä me voitas tehdä asian eteen. Sit' kun tuli rahaa (...) sit' ruvettiin käymään keskustelua siitä, et' miten sitä tukea voidaan täällä hyödyntää ja kenen kannattaisi.

Ympäristötuen myötä keskustelu on siirtynyt maatalouden ympäristövaikutuksia koskevista periaatteellisista kysymyksistä ympäristötuen hyödyntämismahdollisuuksiin. Käännös on siirtynyt ympäristönhoidon tavoitteiden ja keinojen määrittelyn paikallistasolle.

Suojavyöhykesuunnittelun ekologiset ja sosiaaliset ehdot

Erään Lappajärvi-projektin työntekijän kuvaus toimeenpanon edellytyksistä tavoittaa hyvin ne ongelmat, joiden kanssa paikallistasolla joudutaan työskentelemään:

...Se vaikeus on tietenkin, jos on epävarmuutta että mikä on oikea menetelmä, niin miten sitä lähtee viemään eteenpäin viljelijälle. Kun viljelijät kuitenkin kysyy, että: "mitäs hyötyy tästä on". Täytyy olla aika hyvä, joka pystyy tuomaan oikealla tavalla sen tiedon, että: "kyllä tästä on hyötyä, vaikka tuntuu ettei tämä näy missään, että pitkällä aikavälillä tulee olemaan hyötyä vesistön kannalta". Sitten vaaditaan: "rehkää, tehkää nyt näitä suojavyöhykesopimuksia". Sitten kuitenkin ei oo rahaa. Se on jotenkin, että petetäänkö tässä viljelijöitä. (...) Se tekee paljon halua tässä työssä kun ei ole sitä varmuutta.

Toimeenpano hallinnollisena toimintana pyrkii yleistettävyyteen ja ennustettavuuteen. Hallinnan kohteet eivät kuitenkaan tunnu tottelevan. Ensimmäisten vuosien kokemusten perusteella vapaaehtoisten tilakohtaisten erityistukisopimusten, kuten suojavyöhykkeiden, markkinointi on osoittautunut haasteelliseksi tehtäväksi (Juntti & Potter 2002; Soini & Tuuri 2000). Toimenpiteiden ympäristövaikutuksista ei ole varmaa tietoa ja ne vaihtelevat paikallisten olosuhteiden mukaan. Samoin ympäristötukiehdot ovat muuttuneet usein ja rahoitus on ollut epävarmaa kun varojen riittävyys on jouduttu tarkistamaan valtion budjetissa aina vuosittain.

Ympäristötuen toimeenpanossa neuvojat ja viranomaiset joutuvat ottamaan huomioon yhtä aikaa maatalouden taloudellisen tilanteen, paikkali-

sen viljelykulttuurin sekä rahoitusta ja ympäristövaikutuksia koskevat epävarmuudet. Epävarmuuksien hallinta on luonut tarpeen uudentilaisille toimintamuodoille paikallistasolla. Etenkin ympäristöviranomaiset korostavat, että nyt kun ensimmäisten vuosien opettelujakso on ohi, olisi panostettava toimenpiteiden alueelliseen kohdentamiseen ja pitkäjänteiseen suunnitteluun. Suojavyöhykkeiden tilakohtaisesta markkinoinnista olisi siirryttävä pitkäjänteisempään valuma-aluekohtaiseen suunnitteluun.

Suojavyöhykesuunnittelun ekologiset ehdot pohjautuvat maataloudelle ominaiseen hajakuormitukseen. Toisin sanoen yhden suojavyöhykkeen perustaminen yhdelle peltolohkolle ei välttämättä riitä, vaan niitä olisi perustettava laajalti vesistön varteen ja ravinnevalumiin kannalta kriittisille rantapelloille. Kohteiden tunnistamisen lisäksi ympäristöviranomaiset näkevät suunnitelmat tärkeinä myös luottamuksen ja maatalouden ympäristönhoidon sosiaalisten ehtojen rakentamisessa. Suojavyöhykesuunnittelu vaatii heterogeenisten elementtien liittämistä yhteen.

Lappajärven valuma-alueella yhteen liittäminen toteutettiin käytännössä seuraavalla tavalla. Pohjan työlle loi vuonna 1995 Ähtävänjoen alueelle (johon siis Lappajärvi kuuluu) tehty suojavyöhykesuunnitelma, joka oli ensimmäinen laatuaan Länsi-Suomen ympäristökeskuksen alueella (Savea, Louko & Heinonen 1995). Tämä suunnitelma jäi kuitenkin melko yleiselle tasolle ja tietoja haluttiin tarkentaa ja päivittää. Lappajärvi –projektin olemassaolo loi tähän mahdollisuudet. Lappajärven valuma-alueen kriittiset pellot arvioitiin maasto- ja karttatyöskentelyn pohjalta. Osa pelloista inventoitiin lohkokohtaisesti ja samanaikaisesti kiinnitettiin huomioita myös maisemahoidollisiin näkökohtiin (Simolin 2001). Lopputulos materialisoitiin valuma-alueen kattavaksi kartaksi rantalohkojen suojavyöhyketarpeesta (Polso 2001; ks. kuva 2).

Suunnitelmaa on pyritty siirtämään suunnittelijan työpöydältä maataloilta monin eri tavoin. Suunnitelmasta on tiedotettu laajasti ja järjestetty tupailtoja, joissa viljelijät ovat voineet täydentää ja kommentoida suunnitelmaa. Suunnitelma on jaettu myös alueen kuntien maataloustoimistoihin, jotta viljelijät ja viranomaiset voisivat käyttää niitä suunnitellessaan suojavyöhykesopimuksia. Tämän lisäksi maataloilta on lähetetty lohkokortti, jossa on kerrottu tilan peltöjen suojavyöhyketarpeesta.

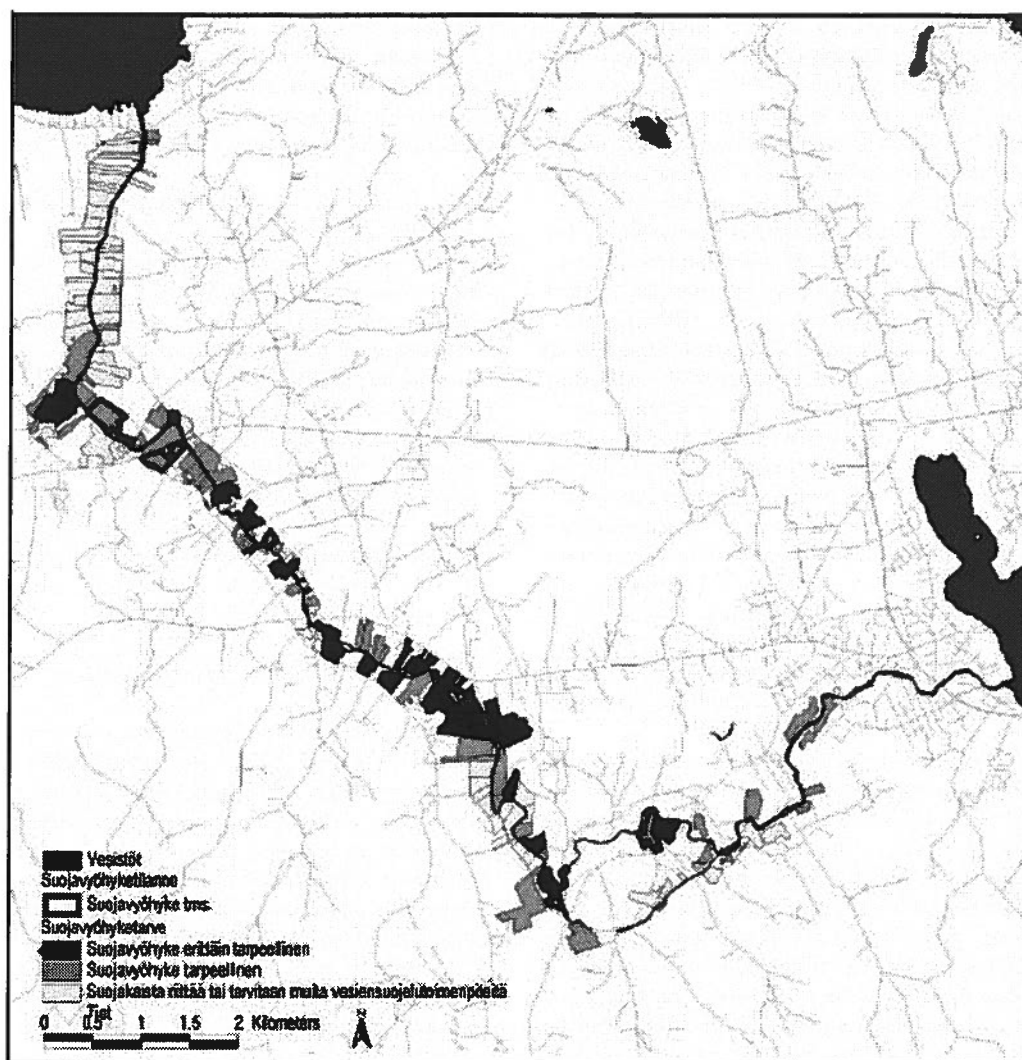
Sosiaalisten ja ekologisten elementtien yhteen liittäminen suojavyöhykesuunnittelussa on vaati-

nut myös kompromisseja yhteistyön nimissä. Tämä tulee selvästi esille mm. kriittisen alueen ja suojavyöhyketarpeen määrittelyssä. Eräs ympäristöviranomainen kertoi suunnittelun aikana tehtävistä käytännön valinnoista seuraavasti:

...Tällaisella alueella, jossa ei oo kauheesti kaltevuutta, ni paljon se on tulkitsijasta itsestään kiinni, että miten se kokee sen vähäisen tarpeen, otetaanko se mukaan. Kyllä se vähäisellä tarpeellakin otetaan mukaan ja suosittelen, koska se kuitenkin vie asiaa eteenpäin. Jollakin tiukemmalla tulkinnalla kun halutaan vain laskea fosforitehokkuutta ja maan pidättyvyyttä, paljonko se milloinkin saa talteen, niin ei varmaan mitään ihan hirveitä saada pelloilla aikaiseksi.

Suojavyöhyketarpeen määrittelyssä on siten aina kyse tapauskohtaisesta harkinnasta, johon vaikuttavat luonnon olosuhteiden lisäksi myös sosiaaliset tekijät sekä ympäristötuen reunaehdot. Viranomaiset joutuvat tasapainottelemaan epävarmuuksien kanssa ja yrittävät luoda luottamuksellista suhdetta viljelijöihin. Tämä on erityisen herkkä alue, kuten Natura -luonnonsuojeluohjelman toimeenpano on opettanut (esim. Oksanen 2003). Kokemukset viljelijöiden kanssa ovat osoittaneet, että jos ympäristöviranomaiset ja neuvojat haluavat edistää ympäristönsuojelua, heidän täytyy antaa hieman periksi sekä ympäristöhoitomenetelmien täydellisestä toteutuksesta että tukiehtojen tiukasta tulkinnasta. On aloitettava jostakin. Tässä suhteessa myös suunnitteluun liitetyt maisemalliset elementit ovat mielenkiintoisia: maataloustuotantoa ei nähdä yksin ympäristön saastuttajana, vaan myös ympäristöhyötyjen tuottajana.

Suojavyöhykesuunnittelun avulla ympäristöviranomaiset ovat voineet venyttää ympäristötuen vuosittaista hallinnollista rytmää vastaamaan paremmin maatalouden ympäristönhoidon pitkää aikajännettä sekä laajentaa ympäristönhoidon kohdetta peltolohkolta valuma-alueelle. Suunnittelun avulla yleiset ympäristötukiehdot on voitu kääntää paikallisiksi ympäristönhoidon tavoitteiksi ja konkreettisiksi toimenpiteiksi maataloilla. Erään Lappajärvi –projektin työntekijän mukaan suojavyöhykesuunnittelua tarvitaankin helpottamaan juuri ”*kitkaa EU:n etäisten ja hankalien systemien välillä*”.



Kuva 2. Kurejoen lohkoittainen suojavyöhykesuunnitelma (kartta: Juha-Matti Markkula.)

Figure 2. Riparian zone plan for the watershed of the river Kurejoki (map production by Juha-Matti Markkula.)

Suojavyöhyke maatalan reunalla

Suojavyöhykesuunnittelun tavoitteena on ollut lisätä viljelijöiden kiinnostusta ympäristötuen tarjoamiin mahdollisuuksiin. Miltä tilanne näyttää maatilalta katsottuna?

Suojavyöhykkeen perustaminen ei vaadi kovinkaan suuria muutoksia tilanhoidossa. Viljelijä perustaa pellon reunavyöhykkeen nurmelle ja siirtää sen pois aktiivituotannosta. Tämän lisäksi on investoitava muutamia työtunteja niittoon, korjuuseen ja vyöhykkeen hoitoon. Vyöhykettä voi hoitaa myös laiduntamalla tai istuttamalla maise-mapuita maata sitomaan. Koska suojavyöhykkeitä

ei saa myrkyttää, rikkaruohojen torjunta pellolla vaatii myös omat konstinsa.

Maatilalla suojavyöhykkeen perustaminen tuntuu tulevan ajankohtaiseksi silloin kun viljelijällä ei ole mahdollisuuksia rantapellon täysipainoiseen viljelyyn. Eräs nuori isäntä, jota haastattelin, kertoi perustaneensa suojavyöhykkeen pellolle, josta hän ei ollut saanut juuri lainkaan satoa. Taloudellinen tuki vaikutti siten houkuttelevalla vaihtoehdolla; suojavyöhyke helpotti myös hankalan ”jokiryömy” hoitoa. Tässä tapauksessa kyse oli yhdestä huonosti tuottavasta pellosta. Haastattelin myös useita pienten kasvinviljelytilojen omistajia, jotka eivät enää täysipainoisesti panostaneet täl-

sin maatalouteen. He näkivät suojavaöhykkeen perusteltuna sekä taloudelliselta että ympäristölliseltä kannalta. Näin he voivat saada parhaan mahdollisen tuoton mahdollisimman pienillä panoksilla. Toisin sanoen he voivat tuottaa maataloustuotteiden ohella myös ympäristöhyötyjä; ympäristötuki tekee siitä myös kannattavaa.

Vaikka vyöhyke perustetaan kirjaimellisesti pelon laidalle, siihen liittyy myös symbolisia merkityksiä. Monen eteläpohjalaisen viljelijän mielestä suojakaistat rumentavat alavaa viljelymaisemaa: *”jos kaikki pikkulirut, piiriojat ja penkat pitää jättää viljelemättä, niin kyllä nämä on vähän ajan päästä sellasia tupsuja nämä pellot, ettei niitä kukaan kato.”*

Hyvin hoidetut pellot ja siistit nurkat ovat talonpoikaisia hyveitä, kun taas hoitamattomat pienaralueet ja pusikot kertovat peltojen heitteille jättöstä ja tehottomasta tuotannosta. Suojavaöhykkeiden perustamisessa on siten kysymys paljon muus-takin kuin vain vesiensuojelusta tai peltopinta-alan pientenytymisestä (ks. myös Silvasti 2001). Ne tuovat myös uusia tapoja käsitteellistää tilaa maatalouteen: jokirantapelloista on tullut kriittisiä alueita niin ravinnevalumien, rikkaruohojen, maiseman kuin tukiehtojenkin kannalta.

Suojavaöhykesopimuksen teko vaatii myös panostusta paperityöhön sekä uudenlaisten pelisääntöjen opettelua. Maatalouden tukipolitiikka on luonut tilanteen, jossa viljelytaito ei yksin riitä tämän päivän viljelijälle. On osattava täyttää tukihakemukset, seurattava alan kehitystä ja oltava oikeassa paikassa oikeaan aikaan, jotta pystyy hyödyntämään erilaiset tukimahdollisuudet täysipainoisesti. Ympäristötuen paperisota on saanut monet viljelijät kääntymään pois luukulta. Ympäristöä voi hoitaa myös ympäristötuen ulkopuolella; ilman valvojan katsetta voi toimia omien tarpeiden ja sääntöjen mukaan.

Sopimuksenteko vaatii myös, että viljelijä on osa oikeita verkostoja. Monet erityistuen olivat viljelytoimenpiteet ovat vielä verraten uusia, eikä pitkän aikavälin tai eri luonnon olosuhteissa testattua seurantatietoa ole saatavilla. Uusia viljelymenetelmiä vasta ajetaan sisään, jolloin sopimuksenalaiset pellot toimivat koekenttinä – ja sopimuksen tehneet viljelijät kokemusten levittäjinä.

Lappajärvellä on pitkät alueellisen yhteistyön perinteet maatalouden ympäristöasioissa. Tämä on tukenut myös suojavaöhykesuunnittelun käytäntöä ja viljelijöiden kiinnostus asiaa kohtaan on lisääntynyt (Kaljonen 2002: 28, 40–41). Vuoteen 2001 mennessä Lappajärven alueella oli tehty 91 suojavaöhykesopimusta, joka on lähes kolmasosa Etelä-Pohjanmaalla tehdyistä sopimuksista (Etelä-

Pohjanmaan TE -keskus 2002; Rautio 2003: 69).

Ylipäätään viljelijät näkevät suojavaöhykkeet *”ihan järkevänä”* vesiensuojelua edistävänä toimenä, kunhan ne perustetaan *”pahalle paikalle”*. Eräs viljelijä kertoi mielipiteistään seuraavasti:

MK: *Mitä mieltä ootte suojavaöhykkeistä, onko ne mielestänne tehokas keino?*

Isäntä: *Kyllä se tietysti on. Tietysti pitää aina katsoa mikä on järkevää (...) Eikä se, jos ihan rantaan asti kyntää, käy järven kääntämässä – kyllähän sen hyvin ymmärtää ettei siinä ole mitään järkeä. Jo oikeastaan ennen tätä EU-aikaa se oli käytössä. (...) Ei se varmaan kaikkein hylmön puoli tässä ole. Järkeväähän ne on ihan, jos on oikein pahalla paikkaa. (...) Tuolla kun oli se tilaisuus [suojavaöhykesuunnittelusta, MK] niin isännät muutti niitä paikkoja; että heillä on pahempia paikkoja. Sehän joustikin siinä, se on semmonen henkilö joka on vaan kahtonu ite, isännät toki ite tietää mikä on pähin.*

Samassa yhteydessä hän jatkaa valvonnasta:

... sitten on nämä suojakaistat, ne ei saa mennä yli kolmen metrin. Se piti niin tarkasti määrittää ja piirtää kartalle se asia. Sitten tarkastajat kävi siellä mittaamassa joillakin. (...) Miten hemmetissä teet pellolla justin niinku karttaan piirretään ja kuinka teet sen sentilleen. Kokoajan jotenkin se oletus, että isännät tahallaan koettaa mahdollisimman paljon tehdä väärin. Koko ajan kuin mikäkin suurrikkonainen, ettei nyt vain vedä liian pitkälle auroilla, taikka jotakin. Meillä on hirveän vähässä ne isännät jotka toisissaan haluaa tehdä vilppiä.

Viljelijän mielestä suojavaöhykesuunnittelussa on pystytty hyödyntämään viljelijöiden paikkakoh-taista ja kokemusperäistä tietämystä. Viljelijät ovat myös voineet välittää eteenpäin käytännön ko-ke-muksia suojavaöhykkeen hoidosta. Viljelijä kertoi samassa yhteydessä myös suojakaistojen valvontaan liittyvistä ikävistä piirteistä: tarkastajista, tarkoista leveysnormeista ja satelliittikartoista.

Haastatteluissa viljelijät toivat kerta toisensa jälkeen esiin, että ympäristöpolitiikan *”periaate on hyvä, kun ois vaan sitä maalaisjärkeä ja joustavuutta”* ja ympäristönhoitoa koskeva keskustelu lukkiutui helposti tukiehtojen ympärille. Maatilalla ympäristöpolitiikan tavoitteet konkretisoituvat byrokraattisten käytänteiden kautta. Ympäristöpolitiikan tiukentuminen yhtäaikaan maatalouden rakennemuutoksen kanssa on vahvistanut tunnet-

ta ylhäältä alaspäin ohjautuvasta päätöksenteosta.

Viljelijät peräänkuuluttavat oikeuksiaan luonnonvarojen käytön hallintaan. Viljelijöiden mielestä ympäristöpolitiikan tulisi paremmin ottaa huomioon tilanhoidon kokonaisvaltainen luonne sekä paikallisesti vaihtelevat ympäristövaikutukset. Tarkkaan määritellyt suojakaistojen leveyden tai suojavyöhykkeiden hoidon yleiset tulkinnot ovat ristiriidassa viljelijöiden paikkakohtaiseen ja käytännön kokemukseen perustuvan tiedon kanssa, joka korostaa maatilanhoidon liittyvää epävarmuutta ja vaihtelevuutta niin maalajien, kasvien, sään kuin maataloustukienkin suhteen. Käytäntö ja kokemus ovat opettaneet kuinka monimuotoisuuden kanssa eletään ja ”peltoa asutaan”. Se on itsestään selvyyttä, eikä sitä voi luokitella tai koodata standardeiksi (ks. myös van der Ploeg 1993).

Samat konfliktin elementit ovat nousseet pintaan aina aika ajoin maatalouden ympäristönsuojelun yhteydessä. Ympäristötukea koskevat ristiriidat heijastavat siten ehkä vain pienempää siirtymää viljelijöiden ja ympäristöhallinnon välisissä suhteissa. Viljelijöiden kritiikki on tulkittava tietyn kulttuurin vastauksena toiselle kulttuurille ominaiseen tapaan toimia (ks. myös Wynne 1996: 67). Toinen ei ole siis oikeassa tai toinen väärässä, toiminnan mittakaavat vain ovat erilaisia (Latour 1987: 210–212).

Suojavyöhyke rajakohteena?

Lappajärven valuma-alueen suojavyöhykesuunnitelma ei ole yksittäinen erikoistapaus. Samankaltaisia suunnitelmia on tehty monilla muillakin alueilla Suomessa (esim. LoS 2002; UYK 2003). Suojavyöhykkeitä on kannustettu myös kansallisella tasolla. Monissa vesiensuojeluohjelmissa suojavyöhykkeet on määritelty yhdeksi tehokkaimmista keinoista vähentää maatalousperäistä ravinnekuormitusta (esim. YM 2000; VN 2002). Myös tukeen liitetty taloudellinen kannustin on noin 10 % suurempi kuin muissa sopimuksissa ja sopimuksiin on saanut tukea lähes koko ohjelmakauden ajan. Ympäristö- sekä Maa- ja maatalousministeriö ovat myös julkaisseet oppaan suojavyöhykesuunnittelun edistämiseksi ja käytäntöjen yhtenäistämiseksi (Salme 1999; ks. myös MMM 2003).

Latourin (1987: 219–256) mukaan olennainen osa toimivan verkoston synnyssä on sen kyky tuottaa elementtejä, joiden muoto ei muutu liikuteltaessa niitä paikasta toiseen tai ajan kuluessa. Nämä liikuteltavat elementit ovat olennainen osa tiedollisten sulkeumien synnyssä, jossa paikallinen muuttuu globaaliksi ja ylipaikallinen hallinta

tulee mahdolliseksi.

Suojavyöhykesuunnittelu voidaan nähdä yrityksenä hallita hajakuormitusta jakamalla ympäristötoimenpiteet pienempiin osiin ja määrittelemällä kustannus-tehokkaimmat menetelmät ravinnevalumien estämiseksi. Suojavyöhykesuunnittelu soveltuu myös ympäristöviranomaisten vesiensuojelun suunnitteluperinteisiin. He ovat totuneet työskentelemään valuma-alueittakaavassa sekä kartoittamaan kriittisiä alueita, joilla vesiensuojelutoimia olisi tehtävä. Suojavyöhyketarpeen määrittämiseksi luotu kriteeristö ja suunnittelukäytäntöjen yhtenäistäminen tekevät paikallisesta ilmiöstä yleistettävää.

Suojavyöhyke on suhteellisen helppo perustaa ja varioida erilaisten maatilojen tarpeisiin ilman, että se vaatii vallitsevien tuotantotapojen kyseenalaistamista. Jos tekee analogian teollisuuden ympäristöpolitiikkaan, suojavyöhykkeitä voi pitää pellonlaitateknologiana (vrt. piipunpääteknologia). Pellonlaitateknologiassa maatalouden ympäristöongelma käsitetään luonnonvarojen hoitona tietyllä kriittisellä pellolla, joka määräytyy luonnonolosuhteiden, ei niinkään tuotantotapojen mukaan. Toisin sanoen kukaan ei joudu luopumaan liikaa. Yhtäläillä pellonlaitateknologiaa on helppo kontrolloida: suojavyöhyke joko on tai ei ole. Vastaavasti esimerkiksi luonnonmukainen tuotanto vaatisi tuotantoperiaatteiden syvällisempää uudelleen arviointia.

Pellonlaitateknologiana suojavyöhykkeet ovat mahdollistaneet sekä erilaisten sosiaalisten maailmojen autonomian että kommunikaation. Ne toimivat rajakohteena, jonka ympäristötuen toimeenpanon reunaehdot ovat luoneet ja jota ympäristöhallinnon ja viljelijöiden toimintatapojen yhteen liittäminen on vaatinut.

Ympäristötuki on koonnut eri intressitahot yhteen. Tämä ei kuitenkaan tarkoita, että toimijat olisivat löytäneet yleisesti hyväksytyn tulkinнан hyvistä viljelymenetelmistä. Suojavyöhykesuunnittelukäytäntöjen lähempi tarkastelu on osoittanut, miten hyvien viljelymenetelmien sisältöjä luodaan eri toimijoiden sekä paikallisten luonnon olosuhteiden, viljelykäytäntöjen ja toimeenpanon reunaehtojen välisenä vuoropuheluna. Tässä käänösprosessissa erilaiset tiedon lajit – ns. paikallinen ja universaali – muodostuvat tärkeäksi resursiksi identiteetin määrittelyssä. Paikallista ja universaalia tietoa ei tule kuitenkaan pitää erilaisina *a priori*. Eroavaisuudet ovat hyvin löyhiä ja tuntuvat tarkentuvan vasta kun erilaiset tiedon lajit joutuvat kontaktiin toistensa kanssa (ks. myös Clark & Murdoch 1997).

Saatujen kokemusten valossa vaikuttaa siltä, että suojavyöhykesuunnittelussa on pystytty hie-
man lieventämään kitkaa yleisten ympäristötuki-
ehtojen ja paikallisuuden välillä. Se toimii raja-
pintana erilaisten sosiaalisten maailmojen välillä,
keskustelujen ja käytäntöjen linkittäjänä. Suun-
nittelukäytännöt ovat muotoutuneet tarpeeksi
joustaviksi vastaamaan sekä maatalouden välittö-
mästä luontosuhteesta että maanviljelijöiden kult-
tuurisesta identiteetistä juontuviin tarpeisiin. Ne
ovat tarjonneet lähtökohtia myös *paikalliselle op-
pimiselle*. Valuma-alueen suunnittelu on autta-
nut samanaikaisesti sekä huomioimaan paikkali-
sesti vaihtelevat luonnonolosuhteet että hyödyn-
tämään viljelijöiden kokemuseräistä ja paikka-
kohtaista tietoa, joka keskeisesti määrittää heidän
luontosuhdettaan. Suojavyöhykesuunnittelu on
tuonut ympäristöviranomaiset pellon laidalle tar-
joten myös viljelijöille väylän vaikuttaa.

Suojavyöhykesuunnittelussa paikallisuus on
otettu ympäristöpolitiikan lähtökohdaksi. Ympä-
ristöviranomaiset ovat viime vuosina panostaneet
yhä enemmän erilaisten paikallisten yhteistyömuo-
tojen kehittämiseen ja erilaisia ympäristöprojekteja
on syntynyt tukemaan ympäristötuen toimeenpa-
noa (ks. myös Kaljonen 2000; Palviainen 2001).
Valvoja on saanut rinnalleen neuvottelijan.

Lopuksi

Suojavyöhykkeet ovat pellonlaitateknologiaa; yk-
sin niiden merkitys maatalouden ravinnekuormi-
tuksen vähentämisessä on siten melko marginaali-
nen. Tapaustutkimus suojavyöhykesuunnittelun
käytännöistä on kuitenkin osoittanut, että ympä-
ristöpoliittisesti niiden rooli on merkittävämpi.
Ympäristöhallinnon ja viljelijöiden toimintatapo-
jen kulttuuriset erot ovat luoneet tarpeen erilaisil-
le välittävälle elementille ympäristöpolitiikan toi-
meenpanossa. Rajakohteina suojavyöhykkeet ovat
mahdollistaneet eri toimijoiden välisen yhteis-

työn. Valuma-aluekohtainen suunnittelu on voi-
mistanut paikallista ulottuvuutta suomalaisen
maatalouden ympäristöpolitiikan toimeenpanossa
ja siten tukenut ympäristönhoidon sosiaalisia
edellytyksiä.

Koska maatalouden ympäristövaikutukset ja -
arvot ovat riippuvaisia paikallisista luonnonolo-
suhteista, yleispäteviin standardeihin perustuvia
säädöksiä hyvistä viljelymenetelmistä on lähes
mahdotonta luoda (ks. myös Haila 1994). Seu-
rauksena on helposti kompromisseja, jotka eivät
vastaa tarkoitustaan. Tällöin päätöksenteon ulko-
puolelle suljetaan myös ympäristönhoidon kan-
nalta tarpeellinen tieto paikallisista viljely- ja
luonnonolosuhteista. Mikäli viljelijät syrjäytyvät
ympäristönhoitoon liittyvästä päätöksenteosta, on
heidän vaikea motivoitua toimenpiteiden toteut-
tamiseen.

Maatalouden ympäristönhoidon sääntelyn
haasteena on, miten EU:n yhteisen maatalouspo-
litiikan alla saadaan vältettyä tekninen ja pilkottu
käsitys maaseutu-ympäristönhoidosta sekä sisälly-
tettyä niin paljon alueellista ja paikallista jousta-
vuutta kuin mahdollista. Maatalouden ympäristö-
politiikan olisi tarjottava ehdot, joiden sisällä pai-
kalliseen oppimiseen perustuvat kollektiiviset ko-
keilut sekä jatkuva uudelleen arviointi olisi mah-
dollista. Paikallistasolta saadut kokemukset osoit-
tavat, että luottamus viljelijöiden ja ympäristövi-
ranomaisten välillä rakentuu parhaiten käytännön
tekemisen kautta.

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Bringing Back the Lost Biotopes: The Practice of Regional Biodiversity Management Planning in Finland

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ABSTRACT *In this paper, I tell a story of the making of a regional biodiversity management plan. The plan is one example of the new modes of operation that are being tried out in order to build linkages from individual to collective action in the implementation of agri-environmental policy in Finland. I argue that in order to understand the role of these management plans in the policy process, we need to reinstate the practices that have produced them. In this article, I analyse experiences gained from Vehmaa, Southwest Finland. I analyse the planning process as a collective experimentation and systematically examine how human and non-human elements associate together in a policy process. By following the actors involved, I analyse how they create associations between heterogeneous elements and create the linkages between individual and collective action. I show how it is the mutability of the plan and its ability to move across the different scales that makes it a powerful device in agri-environmental policy. I argue, however, that regional planning has not been able to challenge the boundary between productive space and nature created by the modern intensive agricultural systems. Although the aim of the planning was to blaze a trail for biodiversity, the associations created around ecologically valuable sites ended up enforcing the rather limited interpretation of biodiversity offered by agri-environmental policy and offered only little capacity for farmers to act. I close the article by situating the case study within a wider context of rural sustainability and discussing possible other ways of associating agriculture, rural livelihood and biodiversity.*

KEY WORDS: Agri-environmental policy, biodiversity, policy practices, performativity, case study

Introduction

In this paper, I write about the efforts of agri-environmental policy to convert the overgrown meadows back to traditional biotopes in the service of global biodiversity. I will describe how the field-level bureaucrats in charge of implementing this

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policy have in practice tackled the linking of individual actions of farmers to a collective good. My story is about a planning tool that performs this linkage.

The relationship of agriculture to nature is direct: the processes that utilize nature are the same as those that produce it. Traditional agricultural practice based on extensive grazing and mowing has created an exceptionally rich biodiversity in semi-natural biotopes, such as leas, meadows or pastures (e.g., Pykälä, 2001; Soininen, 1974). Now, as these practices have been taken over by more intensive production methods, farmland biodiversity has come under threat (e.g., Luoto *et al.*, 2003; Peltonen, 2004; see also Benton *et al.*, 2002; Krebs *et al.*, 1999). The Red Data Book of Finnish Species has estimated that approximately 28% of the threatened species live primarily in the biotopes produced by traditional agricultural practices (Rassi *et al.*, 2001).

At the moment, the most important policy measure for fostering farmland biodiversity in Finland is the agri-environmental programme (MAF, 1999; 2006). The programme consists of general protection schemes (GPSs) and special protection schemes (SPSs), which offer farmers economic support for covering the investment costs and loss of income caused by the environmental actions. The former is nationwide in scope and the latter consists of more focused actions for e.g., biodiversity management.¹ Largely due to the importance to farm income, some 90% of Finnish farms are contracted to GPSs (MAF, 2004, pp. 31–34). The implementation of SPSs has been more challenging.

The Finnish programme relies on the principles agreed within the Common Agricultural Policy of the EU (EEC 2078/92; EC 1257/99; EC 1698/2005; see also EC 2005). The European agricultural policy has undergone a major shift towards multifunctionality over the past 15 years (Evans *et al.*, 2002; Potter, 2004). In parallel with agricultural policy aiming at intensification of production, the rural and agri-environmental policies try to mitigate the change by widening the livelihood basis of rural areas and supporting the production of environmental services produced by agriculture and other rural businesses. This double bind creates a specific challenge for the protection of agricultural biodiversity and the practical implementation of agri-environmental policy.

The implementation of these policies has been a subject of numerous empirical studies. The findings of the studies highlight that the process through which the agri-environmental policy objectives are translated into practice is crucial for the outcome of the policy (e.g., Buller *et al.*, 2000; Burgess *et al.*, 2000; Curry & Winter, 2000; Juntti & Potter, 2002; Kaljonen, 2006). Although this translation process has been found critical, the tools and planning approaches the actors have developed to assist their work in practice have received less attention.

In Finland, the translation process has been institutionally ambiguous (see Hajer, 2003; 2006). From the point of view of biodiversity management, the ambiguity refers to several processes. Firstly, the main emphasis of the Finnish programme has been on water protection, and biodiversity is only slowly gaining more attention (Jokinen, 2000; Yliskylä-Peuralahti, 2003). Secondly, the biodiversity management contract areas have been sporadically distributed in an otherwise intensively farmed landscape. This has not allowed conditions for the dispersion of populations from one area to next (Kuussaari *et al.*, 2004), which is a key condition for the recovery of biodiversity (e.g., Luoto *et al.*, 2001). The contracts should be allocated to ecologically valuable areas and to a large enough group of farms. Resolving these ambiguities calls for collective action and the re-assessment of scale in the implementation of policy. As a response to

these problems, more than 50 regional biodiversity management plans have been carried out throughout Finland (Härjämäki & Kaljonen, 2007). The idea has been borrowed from riparian zone planning, which has aimed to reduce the nutrient loads from cultivated fields (Kaljonen, 2003).

In this paper, I state that in order to understand the potentials offered by these kind of planning tools, we need to open up the practices that have produced them. The understanding of practices in analysing policy processes and outcomes has been increasingly emphasized by several authors (e.g., Flyvberg, 2001; Foucault, 1991; Hajer & Wagenaar, 2003). In particular, the study of policy practices has been found critical when investigating environmental policy processes since they, as a rather new policy field, are often novel, unpredictable and ambiguous (Haila & Dyke, 2006; Hajer, 2003). A focus on policy practices directs attention to the linkages between environmental knowledge and power relations, thus revealing how the world is negotiated within the policy process. It presupposes that individuals gain knowledge about the world through action, and that, while negotiating a particular situation, the actors are always aware of their position in a larger network of relations and obligations.²

This viewpoint implies that the setting in which policy implementation takes place and the planning tools that are used matter: they perform the policy outcome. Latour (2004) takes this notion of performativity even further with his concept of collective experimentation. For him, the collective serves as a metaphor to describe how humans and non-humans co-produce each other as they co-participate in an event. Likewise with experimentation, he draws attention to the process of building the collective. He argues that it is, first and foremost, the form of the process that determines the quality and durability of the collective. He points out that a good experiment is “not one that offers definitive knowledge, but one that has allowed a researcher to trace the critical path along which it will be necessary to pass so that the following iteration will not be carried out in vain” (ibid., p. 196). This implies also that the collective will never be stable, nor closed, it relies on its continued enactment and re-enactment in situated practices, a point pressed in particular by feminists such as Mol (2002) and Law (2004). These same principles hold as well for policy as for research.

In this paper, I use a case study from Southwest Finland to show how biodiversity is performed by regional management planning. I analyse planning as a kind of collective experimentation and situate it within the wider context of multi-functional agri-environmental policies. I start with some methodological remarks and then move on to empirical narrative. By following the relevant actors, I examine how they create the associations between heterogeneous elements and create linkages between individual and collective action. I show how it is the mutability of the plan, and its ability to move between the different scales, that make it a powerful device in agri-environmental policy. I conclude the article by evaluating the tightness of the associations that have been constructed between key actors and the conditions this kind of a collective experiment has allowed for biodiversity management.

The Case of Vehmaa

For this study, I have followed the making of a regional biodiversity management plan in Vehmaa and Taivassalo in Southwest Finland (Härjämäki & Pakkanen, 2006).³ A case study allows an in-depth understanding of how policy is performed

in a particular setting. It is the most suitable method for studying novel and ambiguous environmental policy practices (Flyvberg, 2001; 2006; Haila & Dyke, 2006). I chose Vehmaa as a critical case of regional biodiversity planning (Flyvberg, 2006, p. 232). The planning was carried out by the Southwest Finland Regional Environment Centre, which has been one of the pioneers in developing this kind of a planning approach and participated in the preparing of national guidelines. Focusing on their practices allows me to examine how this kind of a planning regime has gained momentum in the implementation of agri-environmental policy in Finland.

I followed the planning in Vehmaa throughout 2005. I interviewed all the actors involved in the planning: people from the agricultural and environmental administration (municipal and regional), the regional Rural Advisory Centre, the regional Farmers' Union and the regional cultural landscape organization. The interviews were thematically structured and concerned the details of planning in Vehmaa as well as the role of planning in the wider setting of agri-environmental policy and biodiversity management. I also spent one day in the field with the surveyors and observed their inventory practices. I participated in the meetings organized at the municipality council chambers and observed the encounters between different actors. In order to assess the role of this particular case in a wider national setting, I interviewed people from the agricultural and environmental ministries, the national Rural Advisory Centre, the national Farmer's Union, environmental NGOs and research institutes. I also studied the related policy documents, planning guidelines and policy evaluation reports.⁴

The structural changes in agricultural production create a particular context for biodiversity management in Vehmaa. Agriculture has been an important source of livelihood and shaper of the rural landscape in the region. However, the changes in the agricultural production structure have led to a situation where, in Vehmaa, for example, the cows that used to graze the pastures have been replaced by pigs that are kept inside the piggeries all year around. In 2004 there were some 48,000 pigs, 98,000 broilers or chickens, 280 beef and dairy cattle, 30 sheep and 28 horses (MAF, 2007) in the region. Now there are only a few grazing animals left and the pastures have been turned into fields for fodder production. The number of farmers has also diminished. In 10 years the number of active farms in Vehmaa has fallen from 264 in 1994 to 160 active farms in 2004 (i.e., by 40%).

In 2005, in Vehmaa, there were five farms that had an SPS contract for biodiversity management. I visited these farms and interviewed the farmers on their understandings of biodiversity, how they had associated biodiversity management to their farming practices and their experiences of planning. The interviews were thematically structured. I also interviewed farmers who participated in the planning meetings. In order to widen the scope of the farm-level analysis, I used data from a survey gathered by Heliölä and Mäki-Kahma which evaluated biodiversity management actions carried out on the farms (Heliölä *et al.*, 2004; Mäki-Kahma, 2003). The survey was sent to 601 active farmers (of whom 36% responded) in four regions with different kinds of agricultural production. Furthermore, I utilized a study by Schulman *et al.* (2006) in which they examined the quality of management practices at circa 250 SPS sites throughout Finland. On the basis of this material, I constructed four farm examples in order to elaborate how farmers have associated biodiversity management with their farming practices (Boxes 1–4). The examples are by no means exclusive, but rather point out

some common features in biodiversity management in a region with only few grazing cattle.

I needed all this diverse empirical material in order to trace the critical path the Vehmaa plan had travelled at various locations. In what follows, I will open up the path and re-construct a narrative of what happened. The narrative is in essence rather detailed (Roth, 1989). The detailed narrative allows me to examine how different actors at various places enact biodiversity management by building associations between heterogeneous elements and how these associations affect different actors' capacities to act. At this point, I want to emphasize that the narrative in itself is a collective experimentation in which I as a researcher participate in the enacting of biodiversity management as well as environmental policy research (see also Law 2004). The narrative method has enabled me to listen to some of the actors more carefully; while some I did not perhaps hear at all. I will address this question again in the conclusion as I discuss the outcome of the collective experimentation and evaluate what the Vehmaa case was really a case of. But first, let me narrate the story.

The Making of a Plan

Setting the Stage at the Municipality Council Chambers

It was the Regional Environment Centre that initiated the idea to start up biodiversity management planning in Vehmaa. Before Vehmaa, it had carried out eight similar plans, the first in 2001. The previous plans had taken place mainly in archipelago areas or river valleys. Now they wanted a region representative of the more common type of rural landscape in their region. Furthermore, only few SPS applications had been submitted from that region.

They tried out the idea first with a municipal rural official and a local representative of the Farmers' Union (MTK). As the feedback was positive, the Centre decided to proceed with the planning. They convened a steering group consisting of agricultural and environmental officials (regional and municipal), the Farmers' Union (regional and local) and the regional Rural Advisory Centre. The Environmental Centre associated planning purely to administrative activity: except for the Farmers' Union, all those invited were officially involved with the implementation of agri-environmental schemes.

The steering group sent an invitation to each farmer in the region to attend an informative meeting at the municipality council chambers early in the summer. Before the meeting, rumours of a *new Natura*⁵ had spread around the region. Farmers encouraged one another to attend the meeting in order to safeguard their rights as landowners. Some 40 farmers and other interested parties came to the council chambers.

At the meeting, some landowners expressed their doubts towards the environmental officials. They asked for explanations and were afraid that the Centre would impose restrictions on land use. There was also another group of farmers who were genuinely interested in biodiversity management. They wanted to know more about the planning and how biodiversity could be managed, and had suggestions regarding potential sites. The farmers also stated that they would like to join the surveyors on the field visits.

The environmental officials, for their part, tried to convince the farmers that they are not '*Natura* people' and that the planning had nothing to do with *Natura*.

On the contrary, this time they were offering money based on voluntary actions, which might also have a positive impact on the rural landscape. The planners had also brought along topography maps from the late 19th century, which rendered visible the changes in land use and the sites where traditional agricultural practices had been in use. They had also invited people from the National Board of Antiquities to talk about the values of the cultural landscape in Vehmaa. In addition, a regional agricultural official was present and ready to answer the farmers' questions about SPS funding. The local rural official, by his presence, brought familiarity to the meeting.

In this manner the Environmental Centre succeeded in convening the different actors at the municipality council chambers and set the scene. Together the rhetoric of valuable rural landscape, money offered by the SPS contracts, the voluntary nature of the actions and the maps from the past managed to somewhat allay the fears and suspicions of the farmers. The actual inventory could now begin.

Inventory of Plants: Thinning of Biodiversity

The inventory was carried out in the summer of 2005 by two planners, one trained in biology and the other in agro-ecology. During the inventory, the planners practically went through the whole region seeking traces of grazing. They used a two-phase method. They called the first phase the *car window method*, in which they drove through the whole area seeking potential sites and marking them on a map for a later visit. To facilitate their work, they already had a map with information on the previous inventories of the traditional biotopes, the protected areas, the *Natura* sites and the valuable cultural landscapes. During the car window phase, the trained eye of the planner discerned the edge of a forest and looked for meadow patches or diverse compositions of a forest stand. In this phase the surveyors paid attention to general features and the openness of the landscape.

In the following phase, the planners went through the sites on foot and entered the information required on a field form. The form asked them first to describe:

- i) General characteristics of the site and the most common plant species
- ii) Noteworthy or endangered plants
- iii) Plants indicating luxuriant growth
- iv) Profusion of nectar plants
- v) Noteworthy or endangered birds, butterflies or mammals
- vi) Wild animals

The form is based on a national inventory of traditional landscapes (Lehtomaa, 2000; Pykälä *et al.*, 1994; Vainio *et al.*, 2001) carried out in the 1990s and authorized by the regional planning guidelines (Heikkilä, 2002) produced by the agricultural and environmental authorities and the Rural Advisory Centre. The form inscribes the current commonly agreed ecological knowledge on the biodiversity of the farmed landscape. According to this knowledge, the inventory of plants is the most practicable and easiest method for finding the sites where traditional agricultural practices have been in use. Furthermore, there is a lot of information on the indicator value of these plants, since many of them are endangered or regressive (MoE, 2000; Rassi *et al.*, 2001). In Vehmaa,

the surveyors found plants like dropwort (*Filipendula vulgaris*), hairy oat (*Avenula pubescens*) or field garlic (*Allium oleraceum*). All these plants are indicators of a good meadow (MoE, 2000, p. 39). For the planners, the plants act as spokesmen of the past land use. Compared to flora, the fauna is not as well known, its inventory is more laborious and the use of this information as an indirect indicator is more complicated (e.g., Pöyry *et al.*, 2005).

The form provides built-in methods for condensing and transforming data. It disciplines the planner by providing lines that need to be filled in, giving a structure for accomplishing the next step in the translation. The form is an embodiment of conservation ecology: it ensures that an ecologized traditional biotope will be represented by those who examine it (see also Lee & Roth, 2001, p. 325). During this process, the natural entity of a rural landscape undergoes a material transformation as it becomes represented as a scientific inscription. The biodiversity of the rural landscape is thinned into plants. However, thinning does not just mean reduction; the properties of the entity are transformed so that they embody the relevant theoretical context (Latour, 1999, pp. 69–79). The thin form becomes weighty due to its relations. By making the rural landscape thinner as the planners work through the form, the representation becomes weightier in terms of its impact.

Visiting a Farm: Thickening of Biodiversity

However, the plants alone cannot express all that has happened on the site and is relevant for the biodiversity to recover. According to field experiments, the continuity in a particular land use practice, especially grazing, is a key factor for the restoration of biodiversity (e.g., Pöyry *et al.*, 2005). Hence, the field form also asks the planners to describe:

- vii) Past and current land use
- viii) Noteworthy construction work or ancient monuments
- ix) Management recommendations and goals
- x) The best possible SPS contract or other funding options

In order to obtain information on these items, the planners need to listen to landowners, who usually have the best access to the history of their land. As was also pointed out at the municipality council chambers, farmers also want to have the opportunity to talk with the surveyor.

The surveyors saw farm visits as one of their main tasks. The visits are not only about searching for ecological potentiality, but also about eliciting the potentiality from the farmers. In the surveyors' experience, the farmers do not necessarily know all the opportunities offered to them by the SPS contracts. The information is easily drowned under the piles of other agricultural support policy applications and guidelines (see also Kaljonen, 2006). Farmers also tend to think that SPS funding is offered only to outstandingly beautiful, traditionally farmed landscapes. On their visits to farms, the planners tried to open the eyes of the farmers to see the more mundane aspects of biodiversity and encourage them to manage it accordingly.

While visiting SPS sites, the planners often encountered practices that in their eyes appeared to be bad management: the thickets had not been sufficiently cleared, the meadow had not been mowed or there were too few grazing animals. In the planners' experience, the current management practices are not

satisfactory and the need for advice is great. This view is also endorsed by the many evaluation reports (Kuussaari *et al.*, 2004; Schulman *et al.*, 2006). In fact, the SPS contracts do not provide very specific rules on *how* to carry out the biodiversity management (MAF, 2005). This is partly due to the fact that the value of a particular habitat is always related to its surrounding environment, as well as the former land use. No standard management practice can be universally applied, nor has research provided strict management guidelines. The impacts of different management practices on the restoration of biodiversity are uncertain (e.g., Hellström, 2004; Pöyry *et al.*, 2005). As mentioned before, the continuity of land use—in particular grazing—seems to be the key factor, which further stresses the importance of site-specific planning.

For the planners, the key ecological goal of the management is to attain a negative nutrient budget by removing organic material from the site (MoE, 2000, pp. 52, 61). The fertility of the soil should be allowed to decrease in order to create favourable conditions for plant diversity to recover. This may then eventually have a positive effect on insect populations, for example.

In practice, biodiversity management means imitating the farming methods of the past. By the same token, this is also the most challenging part. The farmers that I interviewed recognized the value of the traditional agricultural practices and the landscape these have produced. They remember meadows, fields of flowers, forest pastures and birdsong in their childhood. Farmers have a distinct sense of continuity (Silvasti, 2003): changes in the landscape do not go unnoticed (Herzon & Mikk, 2007; Soini, 2007). Biodiversity speaks to them through the histories of their own farms and the changing livelihood conditions of rural areas (see also Kaljonen, 2006; Soini, 2007). I also met farmers who had left some corner of their lands untouched as a sort of farm heritage landmark to remind them of the olden days. At the same time, farmers also acknowledge that maintaining these traditions within the modern agricultural system is more than challenging. Technological momentum⁶ propels them in the opposite direction. Biodiversity tends to be ascribed to the past and knowledge of traditional practices is forgotten.

It is in this squeezed space that the management of traditional biotopes should find its niche. According to my interview results, the ways in which the sites are associated with farming activities is critical to farmers' capabilities to manage the sites and to help the biodiversity to recover. The active farmers, who are investing intensively in production, have difficulties in associating the management of the sites and traditional practices with their farming activities (Boxes 1 and 2). In contrast, those who have been able to associate biodiversity with bringing direct added value to their businesses have also succeeded better with the management (Boxes 3 and 4).

It is also this precise squeezed space that the planners try to address on their visits to the farms. They try to widen it by creating new associations between the present and the past, environmental management and rural livelihood, the Euros and the EU. For this purpose, money acts perhaps as *the best consultant*, and the planners make full use of it. On the visits to farms, money, in fact, took pride of place. It was easier to talk about the money offered by the schemes than the complex issues behind the biodiversity loss or the aching effects of agricultural change. This way, farmers and planners did not have to touch upon the differences in their understandings of biodiversity and its management.

Box 1. Horse pasture in farm margin.

The Kukkola farm is specialized in poultry production and has some 120 ha in cereal and oilseed cultivation. They have a special protection scheme (SPS) contract for the management of a traditional biotope. The biotope is an old pasture on a 2-ha piece of land rented in the 1990s. They had rented the land in order to enlarge their manure spreading area according to the legislation of that time. Before they had rented the land, it had either been grazed by sheep, cultivated or left fallow depending on the prevailing agricultural policies.

The family made the SPS contract in 1998, on the advice of a neighbour. They had found that the plot was too curvy and stony for today's machinery. In addition, it had several good-looking juniper islands. They also needed a pasture for their horse. At the moment, the daughter-in-law (who has a job in town) takes care of the pasture and the horse. The grazing pressure of one horse is too low for the restoration of biodiversity and they need to mow the pasture yearly.

During the 6 years of management they have witnessed a slowing down of the growing of grass and a decrease of fertility of soil. Last year they reviewed the pros and cons of having the management contract. The paperwork required for the few Euros felt too laborious; on the other hand, if they would like to take the pasture back into cultivation, it would need to be cleared. Consequently, they decided to continue the contract for another 5 years.

On this farm, the horse makes possible the biodiversity management of a field that is not suitable for intensive cultivation. Biodiversity management is demarcated outside the active agricultural production. It is a hobby on a small farm margin. The associations created for long-lasting management are not very tight.

Altogether, in Vehmaa, the encounters between the planners and the farmers went fairly smoothly. One of the surveyors had grown up on a farm, which made the conversation even smoother. Some negative encounters did, however, also occur. As a result of one such negative encounter, some potential sites were excluded from the final plan. The planners also added some less valuable sites to the plan on the farmers' suggestions.

Planners do not deal with biodiversity management as an abstraction, but rather as something to be defined with reference to a particular farm. On the visits to the farms, the theoretical assumptions of the restoration of biodiversity come into contact with the actual situation on the farm. During this event the thin inscription of plants becomes embedded in a locally thick description. Thickening does not merely entail a retracing of steps along a chain of representation, going back from less to more situated, but rather employs an entirely new set of associations built around human and non-human elements. This is where the co-presence of environment and people leads to the emergent co-design of biodiversity management as it should appear at a particular site.

Speaking Through the Map: from Ecologically Valuable Sites to Rural Landscape

In Vehmaa, the planners found a rich variety of *ecologically valuable* or *restorable biotopes* to be managed. Due to the focus on pig breeding, expectations were at a much lower level. In the plan, some 200 sites were described within an area of 12,000 hectares. The surveyors had decided to include in the plan all the restorable sites found. In this manner, they would have better chances of having at least some of them restored. They were able to distinguish two kinds of biotopes. First, the

Box 2. Clearing and mowing of meadows on a pig farm.

The Isotalo farm is run by a young couple who took over their two-family farms 10 years ago. They have specialized in pig breeding and enlarged their production volume intensively. They have had a special protection scheme (SPS) contract for an old pasture. The contract was made in 1997, just after funding became possible. At that time, they wanted to make use of all of the funding options at hand. Since they have no cattle, they agreed to mow the meadow. During the first year they cleared the meadow a little, and mowed it perhaps once. After the first year's excitement, practically nothing has happened on the site. Taking care of the farm, the piggery and children has taken all their available time. Last year they decided to withdraw from the contract: mowing appeared too laborious in practice.

They have also some forest clumps in their fields. Last spring they cleared the stones from some of them in order to enlarge the field area. However, they did not dare to clear all of the clumps or the finest junipers. They had a sense of value for these places, but at the same time the squeeze of agriculture forces them to clear all the possible land for production. They also thought about making a contract on these small sites, but the money available felt too little to cover the costs and time spent on mowing and paperwork. For the moment, the management of these islands practically means clearing the bushes and willows every now and then, when there is time.

On this farm, biodiversity is managed through some mundane everyday practices. They tried mowing one old pasture, but did not succeed in associating it to other farming activities. The associations created between SPS, money and moving were only temporary.

coastal meadows, where reed infestation had slowly taken over as grazing had ceased. For the management of these sites, the planners recommended clearing of the reeds and grazing (Box 4). The second type was the juniper-intensive forest clumps and boundary zones between forest and field, which characterize a typical rural landscape of Southwest Finland. In the old days these areas were used for pasture; now their restoration would require major clearance and mowing (Boxes 2 and 3).

All these site descriptions, and management recommendations, were transmitted to a GIS database—which already included information on the nature conservation areas, valuable cultural landscapes and the SPS contracts—and printed on a map (Figure 1). The map with the coloured site and management descriptions was again brought to a public meeting at the municipality council chambers. This time some 25 farmers attended the meeting. In addition to environmental officials, both regional and municipal agricultural officials were present.

In the meeting, the environmental officials had decided to concentrate only on site-specific advice and to omit all general lectures on the topic. Farmers attending the meeting checked if the planners had coloured any of their lands and asked them their opinion on the values of these sites and for possible management recommendations. Some farmers also suggested new sites to be included in the plan or made corrections to the site descriptions. They also asked advice from the agricultural officials about the SPS funding options.

At the meeting, the map acted as a mediator between the officials and the farmers. Discussion through the map allowed a detailed and thick exchange of ideas of how one particular site could be managed and funded as well as a

Box 3. Traditional biotope at a tourism farm.

The Mäkelä farm has 35 ha of arable area cultivated with malt barley, sugar beet and fodder. They also have a few horses – mainly as a hobby. In addition to farming, they practise rural tourism. They arrange meetings and parties in a traditional wooden house and sauna. They have also developed other wooden products. These other branches are slowly taking over from agriculture.

On the way to the wooden house they have geologically interesting moraine banks. These banks were formed during the Ice Age when the melting ice piled up the soil in front of the edge of the glacier. In the old days the banks were often used for grazing. In Mäkelä, the banks were grazed until as late as 1985, but now bushes and trees are slowly taking over. These banks were designated as regionally valuable cultural landscape by the national inventory (Lehtomaa, 2000). Due to the designated status, the cultural landscape organization contacted the farm and proposed they start up management again. The organization carried out a management plan and the farm decided to enter an SPS contract in 2004. They have now slowly started clearing bushes and junipers. The old man of the farm has been appointed as landscape manager. He maintains traditional working methods, and the management task keeps the 80-year-old man in good condition. It is planned that they will build fences next year and the horses can start grazing the banks. In particular, they wish to restore the rich variety of flowering plants. Due to the recognized value of the site, the flora and fauna of the banks have been studied carefully. The farm has used this information directly in the stories told to the tourists e.g., by pointing out the tower mustard (*Arabis glabra*) to visitors, they can tell that this site was already inhabited in the Iron Age. The site has also got into a tourist guide on the cultural landscapes of Southern Finland. The banks bring direct added value to rural tourism. In this sense, the associations created seem firm and permanent, which is further increased by the acknowledged value of the site in various publications.

The same kind of moraine banks can also be found at the neighbouring Mellilä farm. The farm is owned by an old couple who had practised dairy production until they retired. Their cows grazed partly on the banks. On this farm the banks had been grazed continuously for centuries. Now as agriculture is no longer practised, the bushes are taking over. The cultural landscape organization wished that these banks could also be taken into management contract. Managing all the banks would give better chances for biodiversity to recover. However, they ran into problems with land ownership. Only active farms are eligible to apply for SPS.

broader perspective on the rural landscape. The old topography maps that the planners had again brought along enabled a look back in time.

The atmosphere at the meeting was positive and interested. Mainly farmers with positive attitudes towards biodiversity management attended the meeting. *Natura*, of course, came up again. Some of the farmers still wanted to ensure that their rights as landowners would not be affected. The answer from the Environmental Centre was clear: *no, these two processes are separate*. They also emphasized the voluntary nature of these actions and their positive impacts on the rural landscape. At the council chambers, the planners wanted to act as advocates of rural sustainability and well being—instead of mere advocates of plants. This allowed them access to a wider variety of rhetorical claims in arguing their case in public. The map allowed scaling between the sites and the landscape, and also the other way around. When the planners made a claim about the loss of farmland biodiversity, they could refer to the site descriptions (and further to the scientific knowledge of biodiversity behind the field forms) to validate their claims.

Box 4. Meadow meat from Natura sites.

The Havukka-aho farm is specialized in meat production. They raise several different cattle breeds, including highland cattle. The total headcount is now slightly over 100. The cattle graze on three different coastal meadows rather long distances apart. All these meadows are protected by the Natura 2000 programme. Before they started grazing, these meadows had been left fallow for decades and reed infestation had taken over. Now the situation is improving. The highland cattle are very suitable for grazing these areas since they are modest in their diet and accept even common reed.

The farm receives special protection scheme (SPS) support for covering the costs arising from the management of the pastures. Because of the large area of pasture, SPS funding provides significant income. The farm uses contractors for the cattle transportation and surveillance. They have also received help from the employment project run by the regional environmental NGO. The goal of the project was to employ a group of unemployed persons as environmental managers. On this farm, the environmental managers have helped in the burning-over and clearing of the reeds and the building up of fences.

Through the production of meadow meat, the farm has managed to build lasting associations for biodiversity management. The farm gets direct income from environmental management; they are producers of environmental goods in a true meaning the word. By using contractors and employing environmental managers they have contributed to the sustainability of rural development in a wider sense.

The local and regional media were also present at the meeting. They asked the farmers' opinion of the planning and the environmental officials, and tried to provoke farmers to criticism. However, the farmers present gave fairly positive feedback. One farmer, for example, stated that: *'building up a system here is not so*

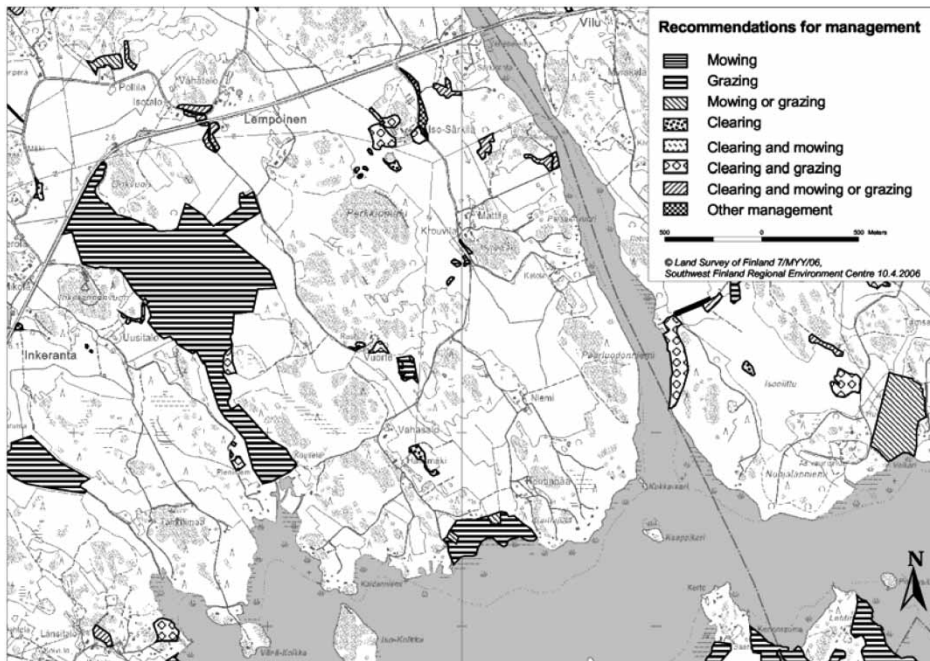


Figure 1. An extract of the plan.

bad. In contrast to Natura, this is voluntary. They try to impoverish agriculture on all fronts; it is good that at least in this we are given appreciation.' The following day, these comments and stories were available in the press for other local residents. The plants, meadows and surveyors became known by more people and the plan was more widely distributed throughout the community.

In the event space of council chambers, biodiversity, coloured spots on a map, management recommendations, traditional agricultural practices, Euros, EU, journalists and many other elements now began to associate themselves in new ways. The social-material relations of the farmed landscape became slightly transformed to include also the ecologically valuable sites that should be restored for the sake of rural sustainability.

At the Local Rural Office: Translations Multiply

After the meeting, the planners left the map in the office of the municipal rural official for further comments. Only after these comments and possible corrections could the site descriptions and management recommendations be compiled and published as a general plan. The final plan was posted on the wall of the local rural office.

The local rural office is a place where farmers take all their applications for agricultural support. The local rural official represents the lowest administrative level and operates closest to farmers. The rural official is also in a key position to suggest possibilities for biodiversity management when a farmer drops in for a visit. The officials have learned to know the farmers of their region and to know which farmer to approach on which issue—and in what manner. In Vehmaa, the local official estimated that nearly all of the biodiversity management contracts made had also been talked through at the local office. Like the planners, the local official has had the experience that farmers do not necessarily see the value of their everyday farming environment for biodiversity as such. Farmers had been surprised when he had suggested that they could get support, or *easy money* as he phrased it, for clearing bushes in a forest clump. He himself saw advising farmers as his main task: *'it is critical what is said at the municipality—the local rural official is the one who is trusted. If this position is held by someone who does not help the one who asks, the rural areas will decline. If you are an active person, you can make a difference in which direction the rural areas develop.'*

Enrolling municipal rural officials in biodiversity planning is critical for the success of the planning. According to a nationwide evaluation, the way in which the local official presents the issue to farmers can directly be seen in the number of contracts made in that particular municipality (Härjämäki & Kaljonen, 2007). Farmers are dependent on the information the local rural officials possess, but at the same time their relationship has developed and become flexible enough to accommodate the farmers' own accounts of subjectivity and to soften the feelings of ambivalence that taking part in environmental conservation might have provoked (Kaljonen, 2007). At best, municipal officials have managed to integrate biodiversity management to agricultural production in such a way that has helped farmers see it as one way of diversifying their livelihood, keeping the landscape open and rural areas vivid. At worst, the bureaucracy entailed in the subsidy system is felt to be so devastating that the local official is left with resources for hardly anything else. The plan hanging on the wall allows both translations—and many more. While entering the local office, the plan starts to move

further away from the control of environmental officials—and the translations multiply.

Building Lasting Association from Regional to Site Management Plan

There is still one more linkage that needs to be built in order to ensure a lasting association from individual to collective action and back. It is the linkage between the regional and site management plan.

To identify an ecologically valuable site and to enter an SPS contract are not yet sufficient for biodiversity to recover; the sites should also be properly managed. As shown by the farm examples, the way in which this association is built and maintained is critical (Boxes 1–4). The planners had already started to build this association on their visits to the farms, but there are still more actors to be enrolled. This means first and foremost the advisors who assist farmers in drawing up the site-specific management plans required by the SPS contracts.

In Southwest Finland, if farmers want assistance in planning, they usually call in a private consultant. In other parts of Finland, the rural advisory centres dominate the markets (Härjämäki & Kaljonen, 2006). The site management plan is prepared at the farm, usually together with the farmer. In the plan, the general details of the site and its land use history and ecological value are described. The most important part of the plan is to decide upon a detailed restoration plan, to describe the yearly management actions and to outline a budget.

The environmental officials have tried to strengthen the linkage from regional to site management planning by acting on several fronts. Together with regional agricultural administration they have designed a standard site-level plan that the advisors should follow. This has proven a good way to govern the diverse group of advisors, harmonize the content of the plans and to smoothen the decision-making on the SPS contracts. In Southwest Finland, the Environmental Centre has also decided to visit each site when reviewing an SPS application. They see the farm visits not only as inspection visits, but also as having a strong advisory potential. They have also tried to integrate the regional planning to other projects that offer assistance for farm-level planning or management.

Through these means, environmental officials can try to ensure that the plan continues to perform the work they have envisioned for it. The boundary between regional and site-specific planning is, however, a delicate matter and has caused tensions between the advisors and environmental officials. Advisors argue that farm-level advice is their primary field of expertise: compared to environmental officials, they are closer to the farmers; they speak the same language and share the same cultural values. In some other regions in Finland, in fact, the rural advisory centres have taken a more active role in carrying out the regional inventories and village and site management plans (*ibid.*). When the inventories are carried out by the advisors, the cultural landscape and game management tend to receive more emphasis. In Southwest Finland, the Advisory Centre has not been notably active in biodiversity management. The Centre was represented at the steering group and it has carried out farm-level plans, but has, as an organization, invested little resources in this special area of work. This absence has further strengthened the Environment Centre's translation of biodiversity in the making of the plan. In this sense, the Vehmaa plan represents an extreme narrative of the influence of environmental officials on planning practice (Flyvberg, 2006, p. 231).

Grounded General Plan

The narrative from Vehmaa has shown how the regional plan can serve as a device through which biodiversity gets a voice and moves through various inscriptions to support the aims of the Environment Centre on different scales. The environmental officials themselves call the planning approach *jalkautuva yleissuunnittelu*, a term that illustrates their aims very well. In Finnish, the concept includes a notion of planners coming out of their offices into the field, while, at the same time, safeguarding the general interests of the region. In English, the approach could be called *grounded general planning*. It enables a flexible movement between the different scales.

As environmental officials have a marginal position in the farming community, they are compelled to create sound arguments to justify their actions, and to develop tools that enable co-operation between different actors. Grounded general planning has proven to be a powerful tool for this, the results of which can be directly seen in the numbers of SPS contracts made in the planning areas (Table 1; see also Härjämäki & Kaljonen, 2007). In 2005, some 20% of all of the biodiversity management applications in Southwest Finland were situated in areas with a regional biodiversity management plan. In Vehmaa, five new contracts were made in 2005. Whether more farmers will become inspired remains to be seen.

Regional planning brings consistency to the implementation and facilitates the complicated decision-making procedures of the schemes. It requires time to inspire farmers to engage in about voluntary biodiversity management. The planner's visit to the farm gives voice to biodiversity and coloured spots on the map make biodiversity visible in the region. The inventory helps with allocating the SPS schemes to the ecologically most valuable sites, giving, consequently, plants, insects and birds better chances to find habitats to live in. Furthermore, the inventory data, when digitized to GIS, can be used for other planning purposes. The map as an artefact remains: it can be revisited again and again.

Through the plan, the environmental officials can also show the other regions and the ministries what the state of agricultural biodiversity is in their region, how they have succeeded with the uptake of the SPS schemes, and for which areas they require more resources from the central government. The plan is capable of

Table 1. Number of special protection scheme (SPS) contracts in the regional biodiversity management plan areas in Southwest Finland

Regional biodiversity management plan	SPS contracts		
	>2004	2005	Total
Merikarvia, 2002–2004	27	10	37
Ahlainen, Pori 2004	5	1	6
Halikko, 2001–2004	22	9	31
Sauvo, 2003–2004	25	6	31
Kemiö, 2003–2004	15	2	17
Aurajoki (Oripää, Pöytyä, Aura, Lieto, Turku ja Kaarina) 2003–2004	45	19	64
Vampula, 2005		0	0
Vehmaa and Taivassalo, 2005		5	5
Total in the planning area	139	52	191
Total in the SW-Finland	575	250	825

moving from farm to regional administration and further, to national and European level. It has travelled as far as the European Commission under the label of *good practices* identified in the evaluation studies. The plan also allows the follow-up of SPS schemes and what has been accomplished with all the Euros devoted to agri-environmental schemes. In so doing, it contributes to the symbolic image of agriculture and rural landscape. In the political arena, the plan is weightier than a mute, overgrown meadow. The plan can evoke an entirely different set of effects than a physical landscape can because it travels and fits within the spaces where decisions are made.

Grounded general planning can be seen as an immutable mobile (Latour, 1987). It is capable of travelling virtually unscathed any place in the world and can also be circulated anywhere the actors want. A closer look at the planning practices has, however, revealed that what first may appear immutable can turn out to be a very changeable entity. A plan is not just a plan that says the same thing wherever it travels. In fact, it says a different thing depending on the other entities with which it is related. And even these other entities do not maintain their identity, but change once another entity is inserted. Thus, a meadow as represented by inscriptions is not interpreted by some other, but instead becomes part of a new collective that is different from what it was before the representation joined it (Lee & Roth, 2001, p. 316). The plan is more like a mutable mobile (*ibid.*, pp. 322–323; Laet de & Mol, 2000) that has a fluid, flexible and adaptive character.

It is this mutability of the plan and its ability to move across the scales that makes it a powerful mobile. The grounded general planning solves in practice the theoretical problem of how to link individual and collective action in environmental policy (see also Callon, 2002). The link is woven by the plan itself. The plan mediates between the different actors on the one hand and the collective on the other hand. The map is a mediator that makes actions and their unity compatible. In this manner, grounded general planning has somewhat elucidated the institutional ambiguities confronted in the implementation of the agri-environmental schemes.

Despite this potential, the capacities to act offered for farmers and plants have been rather limited. The collective experimentation is very much framed by the strict institutional setting of agri-environmental schemes and the inventory of the ecologically valuable sites. Through planning, the societal effects of changes in agricultural production come back to farms as ecologically valuable or potentially restorable sites. As the meadow becomes an ecologically valuable site, the farmer should accordingly rearrange his/her farming practices and create a new set of associations that enable the management of the meadow in a traditional way. However, as the farm-level analyses have shown, the more biodiversity is subject to management, the more it is demarcated from the sphere of agricultural production (Boxes 1–4).

Regional biodiversity management planning has not been able to challenge the boundary between productive space and nature created by the modern intensive agricultural systems (see also Soini, 2007). Although the primary goal has been the opposite, the associations built around ecologically valuable sites have perhaps even strengthened this boundary. Biodiversity can remain a feature of the past and be protected on the ecologically valuable sites, while agricultural production can continue and become more intensive elsewhere. In this sense, the collective induced by regional planning does not seem very durable.

Conclusions

Haila (1999) has argued that biodiversity management systems should be adaptive, reflexive and sensitive to local peculiarities. The most likely to realize this ideal are the people whose livelihood depends on the use of the resources in question, the ones who actually do the work. In a similar vein, Ingold (2000) has introduced a concept of *taskscape* to replace that of *landscape*. He suggests that interpretations of past, present and future revolve around the practices, the *tasks* of any physical environment. It is the *taskscape* that produces the social character of any landscape. Such a *taskscape* only exists as long as people actually engage in the manifold tasks and practical activities of dwelling within that particular landscape. Biodiversity should not be abstracted to landscape; it should find its place in the *tasks* of rural livelihood.

If regional biodiversity management planning wants to assist in making this happen, and in restoring the *tasks*, the strict interpretation of ecologically valuable sites should be broken. Planning should be more serious about associating with the other realities and enactments of biodiversity in order to build long-lasting collectives for biodiversity. This may even mean abandoning planning as such and searching for new avenues towards rural sustainabilities. The more transformations biodiversity allows, the more durable the collective can become. The very same applies for research. We, as social scientists, need to develop our craft and methods in order to understand how different 'matters of concern', in this case biodiversity, are enacted at various places and how these matters of concern overlap with one another. This means first and foremost listening to the tacit voices and seeing the surprising overlappings.

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Notes

1. A farmer contracted to the GPS has to follow set fertilization levels, take soil samples every 5 years, keep an annual cultivation plan and construct headlands and filter strips along the ditches. Some requirements for plant protection, biodiversity and landscape management are also included. In 2005, there were three kinds of SPS contracts for biodiversity management: (1) traditional biotope; (2) biodiversity management; and (3) landscape management (MAF, 2005). The first has been meant for the maintenance or restoration of biotopes created by traditional agricultural practices. Usually management consists of clearing trees or bushes, grazing and/or mowing. The second type has consisted of a more diverse group of management options in the forest clumps or boundary zones between forest and field, water meadows or small wetlands. The third contract type has focussed more directly on landscape management. At maximum, the support is 420 €/ha/year, the period of commitment being either 5 or 10 years. When a farmer has made an SPS contract s/he is compelled to draw up a management plan for the site and follow the agreed upon actions

- through the whole time period of the contract. Later, I will refer to these three types as though to one biodiversity management contract concept unless otherwise specified.
2. See Wagenaar and Cook (2003) and Hajer and Wagenaar (2003) for a scholarly overview of the understanding of practice in policy analysis.
 3. Later I refer to this as 'the Vehmaa plan'.
 4. I have chosen not to use too many direct citations from the interviews. If I have used some they are marked with *italics* in the text.
 5. The implementation of the nature protection policy of the European Union and in particular the Habitat Directive—in Finland known as *Natura*—has had a significant repercussion on the lack of confidence between farmers and the environmental administration (e.g., Hiedanpää, 2002). As can be seen here, this lack of trust reverberates easily also to other areas of agri-environmental policy.
 6. Hughes (1995) has used the concept of technological momentum to describe the technological and social aspects that maintain the stability of e.g., agricultural systems. He underlines that radical changes in technological systems are rare because technological momentum directs the development to take a certain path and decelerates any change of it.

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