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EUROPEAN CENTRE FOR NATURE CONSERVATION

COMMUNICATING THE PAN EUROPEAN ECOLOGICAL NETWORK

AN ANALYSIS OF THE IMPLEMENTATION AND COMMUNICATION PROCESSES FOR ECOLOGICAL NETWORKS IN EUROPE



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CONTENTS

	Page
Executive Summary	4
1. Introduction	7
2. Ecological networks and support for PEEN in policy making in Europe	9
2.1 European Level	9
2.2 Estonia	13
2.3 Germany	17
2.4 Greece	22
2.5 Netherlands	28
2.6 Norway	32
2.7 United Kingdom	36
3. Overall Assessment of the challenges and opportunities for ecological networks in Europe	44
4 Recommendations for a PEEN Communication Strategy	52
5 References	55
Annexes	55
Annex I: Methodology	56
Annex II: Desk Study of Policy Documents	59
Annex III: Executive Summary of Communicating PEEN Phase I	85

Executive Summary

In 2003, ECNC published a first study into the topic of awareness and support for ecological networks, 'Communicating PEEN Phase I: 'Support for ecological networks in Europe: an indicative social map'. The current report builds upon this work and analyses the implementation of the ecological network concept on a national, regional or local level in a number of European countries (Estonia, Germany, Greece, the Netherlands, Norway, and the United Kingdom), and of the awareness of and support for the concept of a Pan European Ecological Network in these countries and at the European level. The report also pays attention to activities undertaken in these countries to promote communication about ecological networks with relevant stakeholders and looks below the surface to attempt to establish the motivations within different countries for implementing ecological networks or indeed, for deciding not to apply the concept.

The study combined desk research and interviews with representatives of various stakeholder groups involved in ecological networks, including non-conservation stakeholders. As the ultimate aim of the study was to contribute to a communication strategy for PEEN, the desk study also specifically identified which role Communication, Education, Participation and Awareness (CEPA), played within policies.

Based on information concerning the European countries analysed in this study, awareness of ecological networks can be seen to be growing. However, actual implementation may be carried out in different ways with differing concepts and methods. For example, the UK has officially only gone so far as implementing the Natura 2000 Network, but there is an increasing amount of work by government nature conservation agencies and NGOs in the UK working on the development of a wider ecological network concept. Stakeholders, including non-conservation stakeholders, also have awareness of what an ecological network means and what the implications are for them. Countries such as Norway who have no plans to create an ecological network, still take actions at the national level to consider issues such as defragmentation and migration routes. At the other end of the scale, countries that have been involved in the ecological network concept at a national level for a while, such as the Netherlands, are now spending increasing amounts of time to look at how they can increase this network across borders.

This study clearly highlighted the need for strong national policy support for an ecological network strategy that involves decentralized implementation. Countries such as Estonia and The Netherlands – and more recently Germany - have successfully applied or are developing a national ecological network through having a strategy at the national level and then implementation being carried at a more local level (this may be a regional level or a level even more localised than this e.g. a municipality.) The importance of strategy development at the national level is to ensure that the different regions are coordinated so that the national ecological network is applied to a comparable standard in all areas, and that regional networks inter-connect. Secondly, the national level can play an essential role in providing technical expertise to the local level, in creating opportunities for regional and local level communication, and in setting up knowledge sharing forums, which can aid the linking together of the ecological networks. There is, however, a clear need for political will and resources to be available at all of the levels involved in the development of an ecological network, national, regional and local. The study also reflects the fact that ecological networks that are embedded in spatial planning are often successful.

There appears to be considerable motivation in all countries analysed as part of this study to take on cross border initiatives for nature conservation. In all of the countries such cooperation indeed exists, frequently organised between the different regional authorities or different municipalities and often conservation NGOs on either side of the border. The analysis indicated that whilst it is vital that the regional and local level implement cross border cooperation, it will be more successful if such cooperation is supported at the national level, particularly through a national ecological network on either side of the border.

Researchers involved in European research of the PEEN concept stressed the importance of widening the involvement of other knowledge areas, especially economy and social sciences, in order to ensure successful implementation of PEEN. This is considered important due to the fact that PEEN goes beyond the concept of protection of specified areas only and ventures into the wider landscape. This not only means

involvement of a variety of stakeholders, but also that a variety of societal issues become relevant, for example, the economic value of land, dynamics of conflicts over land use, attitudes and perceptions of non conservation stakeholders towards land and towards the ecological network concept. PEEN requires understanding of factors that extend beyond the ecological, and requires the incorporation of nature and society.

The study has shown that countries taking an interactive approach to policymaking methods in order to implement ecological networks are more likely to be successful. Top-down, non-participatory approaches appear to cause resistance or alternatively lack of implementation action at the local level. The level of interactive policymaking and communication will largely depend upon the culture of policymaking within a country. For example, whilst Norway does not implement ecological networks, the national project on ecological mapping was a bottom-up approach with data and mapping being carried out by local level stakeholders. A participatory policymaking approach that goes this far has not been considered in any of the other countries analysed but could be highly relevant for further implementation of PEEN and ecological networks in general.

The overall aim of the ECNC project 'Communicating PEEN' is to create a communication strategy that will aid in the effective implementation of a Pan European Ecological Network (PEEN). Based on the challenges and opportunities identified in the previous chapter, a number of conclusions can be drawn as to nature and scope of such a strategy:

- The importance of style and choice of language in communication of a concept such as PEEN was highlighted in the interview analysis. This means that at the regional and local level it will require a different language style and explanation than that provided at the international level.
- In order for PEEN to be more than just a strategy it needs to be communicated as a flexible concept that can be compatible with the differing national and regional ecological network initiatives. It also needs to ensure that it does not impose models for ecological networks.
- PEEN may be more successful if it is promoted as more of a forum for discussion and creativity in the promotion of ecological networks and less of a formal policy instrument.
- When PEEN is communicated as a bottom-up approach it needs to ensure that the awareness and knowledge of the wider concept is still supported and understood. .
- The awareness of international policymakers, the EU policymakers and policymakers of other European and international governments needs to be improved.
- PEEN should encourage national level support of cross border cooperation. Current and future cross border cooperation that exists between countries should be encouraged and supported by PEEN.
- It is important to widen the involvement of other knowledge areas in order to ensure implementation of the PEEN strategy, such as economy and social sciences.
- Interactive policymaking is essential for successful ecological networks, support for this type of policy-making should be communicated in a PEEN.
- Whilst non-conservation stakeholders may not always have a current high awareness of PEEN, they do have an interest in the PEEN concept and becoming involved, and therefore there should be increased focus on the engagement of these stakeholders.
- The PEEN Communication Strategy needs to focus upon clearly identified target groups at the different levels that it needs to reach.
- Communicating PEEN requires the understanding and awareness of the fact that different stakeholders have different perceptions and interpretations as to what an ecological network is.
- There is also a need to consider the nature conservationists as a target group for PEEN in view of the current differing opinions between the 'traditional conservation approach' and the wider landscape approach that PEEN follows.
- PEEN should link into the current trend of policy approaches such as wider landscape protection approach and the sustainable development of all areas not just high nature value etc...
- Potential drivers for PEEN could be climate change and the EU Water Framework Directive. The communication strategy should focus on increasing synergies with these process.
- There is a need to work more closely with the EU (for the Birds and Habitats Directives), also with the Bern Convention (Emerald Networks) and the Ramsar Convention.

- The study has highlighted the general willingness of conservation and non-conservation stakeholders to be kept informed and involved in the ecological network concept. Therefore a PEEN contacts database of ALL stakeholders reflecting representation from the varying levels of policymaking and the varying stakeholder sectors, should be created and managed in order to create a communications network.
- A research database of PEEN projects should be kept in order for the research information to be further evaluated and used in practical policy implementation of a PEEN process.

The last and final step in the Communicating PEEN process will be to prioritise actions and develop them into a Communication Strategy. This will be done in consultation with the Committee of Experts for the Establishment of the Pan-European Ecological Network.

1 Introduction

The concept of ecological networks is gaining interest in Europe, and the number of networks actually being developed is steadily increasing. However, there is still the potential for a greater awareness and uptake of the concept, especially by promoting the involvement of crucial stakeholders, including non-conservation stakeholders. Acceptance by stakeholders is certainly important for the implementation of the ecological network concept at the higher international level. This is recognised in the Kyiv Action Plan for the establishment of a Pan European Ecological Network (PEEN), which prioritises action to increase the involvement of stakeholders in PEEN. Furthermore, in April 2004, the PEEN and People seminar, held in The Hague, Netherlands, aimed to support and raise awareness of the Kyiv Action of increased involvement of stakeholders in PEEN.

In 2003, ECNC published a first study into the topic of awareness and support for ecological networks, *'Communicating PEEN Phase I: Support for ecological networks in Europe: an indicative social map'*. (The executive summary of this report is included as Annex III). The current report builds upon this work and analyses the implementation of the ecological network concept on a national, regional or local level in a number of European countries, and of the awareness of and support for the concept of a Pan European Ecological Network in these countries and at the European level. The report also pays attention to activities undertaken in these countries to promote communication about ecological networks with relevant stakeholders and looks below the surface to attempt to establish the motivations within different countries for implementing ecological networks or indeed, for deciding not to apply the concept.

The overall aim of the ECNC project 'Communicating PEEN' is to create a communication strategy that will aid in the effective implementation of a Pan European Ecological Network (PEEN). This report contributes to this aim by:

- providing greater insight in the role of non-conservation stakeholders in ecological networks e.g. transport sector, agricultural sector, hunting sector, regional and rural planners, and also considering organisations with an interest in ecological networks at the European level;
- analysing how the concept of ecological networks is taken up in national and international policy documents ;
- determining how important stakeholders – traditional conservation and biodiversity issue stakeholder as well as groups not traditionally associated with these issues – view the concept of ecological networks and particularly, what their views are on PEEN;
- reviewing the conclusions on challenges and opportunities for the implementation of PEEN provided in the 2004 report (phase I) in the light of new insights obtained, and amend or expand on these conclusions where necessary;
- setting the framework for a communication strategy for PEEN, to be presented to the Council of Europe's Committee of Experts for the Establishment of PEEN for discussion.

Desk study

The study set out to achieve its objectives through a combination of desk study and interviews. In order to analyse the current national and international policies that support the concept of PEEN, or of ecological networks in general, research reports and policy documents were reviewed. As the ultimate aim of the study was to contribute to a communication strategy for PEEN, the desk study also specifically identified which role Communication, Education, Participation and Awareness (CEPA), played within the policies. (The full results of the desk study are attached as Annex II.)

Country selection

As it was impossible to incorporate all the countries of Europe within the framework of this study a number of countries were selected in order to get a fairly balanced representation of the various regions of Europe, and of EU Member States and Non-Member States. Furthermore the countries were chosen to reflect varied interest and involvement in PEEN and the concept of national ecological networks. The differences in national institutional processes and political approaches to nature conservation and planning have also been taken into account in the selection methodology.

Netherlands	NW European country, EU Member, with well developed interest/involvement in ecological networks
Estonia	Central Eastern European country, EU Member, with a well developed interest/involvement in ecological networks
Norway	Nordic country, non EU, with limited to no interest or involvement ecological networks
United Kingdom	NW European country, EU Member, with a growing interest in (regional) ecological networks
Germany (federal structure)	NW European country, EU Member, with a growing interest in (regional) ecological networks
Greece	Southern European country, EU Member, with limited interest/involvement in ecological networks

At the international level, the study very much focussed on the European Commission and on several EU level non-conservation stakeholder groups or associations with a (potential) interest in ecological networks.

Interviews

Interviews were carried out in the selected countries and at a European level to get more detailed insight into the implementation and communication of the ecological network concept, including the support for - or opposition to - ecological networks. Contact was made with the selected countries in order to identify and select interviewees. The selection was based on target groups who may have an interest or who could be affected by the ecological network concept:

- European policymakers, national policymakers (environment sector, agricultural sector, forestry sector, transport sector, planning sector)
- National and regional policy implementing authorities or policy advice agencies (environment sector, forestry sector, transport sector, planning sector, regional/local government authority)
- Researchers and scientists
- Conservation NGOs
- Non-conservation NGOs representing land owners (e.g. foresters, farmers, hunters)

In total thirty-eight interviews were carried out between October and December 2004.

Analysis

Once the results of the desk study and interviews had been analysed, the conclusions drawn in the report on Phase 1 of the Communicating PEEN project were reviewed, reassessed and where necessary amended or added to. Combined with the new information from this study this leads to a full overview of the challenges and opportunities for implementing PEEN. The final step in the process was to provide recommendations for a communication strategy in support of PEEN. The methodology of the report is fully explained in Annex I.

Limitations

Whilst the methodology aims to ensure a balanced representation of views, in some countries it was not possible to interview all identified target groups. The project also set out to analyse six countries and the European policy level with limited resources, and therefore it was not possible to provide an extensive study of each area. Furthermore, the use of interviews as a data source carries certain limitations: firstly the representation of the 'facts' by the interviewees and secondly the interpretation given to the interviewees' statements by the researcher, can be less than 100% objective. The interview analysis is based on qualitative interviewee material and interviewee opinions. These limitations should be acknowledged when reading the report.

2 Ecological networks and support for PEEN in policy making in Europe

2.1 The European level

Policy framework

Although there is no international legislative framework which is aimed exclusively at the creation of a Europe wide ecological network, consisting of core areas, corridors, stepping stones and buffer zones, a number of international legislative instruments can be seen as directly or indirectly supporting this process. From a legal point of view the Natura 2000 network has the strongest basis for the creation of a European ecological network as it is based upon the EU Habitat and Birds Directives, and therefore is 'hard law'. However, the Natura 2000 network is limited to EU countries and does not involve non-Member States. Furthermore, the concept of corridors is not fully integrated into Natura 2000, although the issue of connectivity between sites (i.e. linking the core sites to each other) is included in the Habitat Directive. Whilst the Natura 2000 Network can be seen as a driver for enabling the establishment of a European ecological network, especially with regards to the identification and protection of core areas, its restricted geographical scope and limited attention to corridors will not on its own suffice to create a European ecological network. The Emerald network (based on the Council of Europe's Bern Convention) has a wider geographical scope and includes the concept of corridors, but this Convention is described by the Council of Europe itself as 'soft legislation' and non-compliance has less consequences than failing to meet the requirements of the EU Directives.

At the level of international policy frameworks, the ambition to establish an ecological network for Europe is much more firmly anchored, than in international law. In 1995 the European environment ministers endorsed the Pan-European Biological and Landscape Diversity Strategy and its Action Theme to establish a Pan-European Ecological Network. This goal was reinforced at the Kyiv ministerial conference in 2003, which produced a PEEN action plan. The Pan-European Ecological Network has, technically speaking, the broadest scope because it covers not only network elements such as core areas, but also network elements such as corridors and buffer zones, which are lacking in almost all other international conventions. However the potential weakness of these policy instruments lies in their implementation, as this is entirely dependent on voluntary national support and there are no sanctions for non-compliance.

PEEN - a Europe wide ecological network

During the 3rd 'Environment for Europe' Ministerial Conference In 1995 up to 54 European countries endorsed the action to establish the Pan-European Ecological Network. It was agreed to establish this ecological network within 20 years.

The Pan-European Ecological Network (PEEN) aims to ensure that:

- a full range of ecosystems, habitats, species and landscapes of European importance are conserved;
- habitats are large enough to place species in a favourable conservation status;
- there are sufficient opportunities for the dispersal and migration of species;
- damaged parts of the key environmental systems are restored;
- the key environmental systems are buffered from potential threats.

The Pan-European Ecological Network will be built up of core areas, corridors and buffer zones. Restoration areas will be identified where it is considered necessary.

The underlying philosophy of the establishment of the Pan-European Ecological Network is to promote synergy between the existing nature policies, land use planning and rural and urban development. The Pan-European Ecological Network offers a framework that will build on and benefit from the existing agreements, programmes and initiatives in the field of nature conservation.

Kyiv Ministerial Conference 2003 Highlights

- The "resolution on biodiversity" was born. The resolution includes the requirement for the implementation of a PEEN and a statement that all countries agree to the PEEN targets.
- A target that by 2006, the Pan-European Ecological Network (core areas, restoration areas, corridors and buffer zones, as appropriate) in all States of the pan European region will be identified and reflected on coherent indicative European maps, as a European contribution towards a global ecological network.
- A target that by 2008, PEEN guidance will apply to all major national, regional and international land use and planning policies, as well as to the relevant economic and financial sectors

The EU Water Framework Directive, the Convention on Biological Diversity (CBD), the Ramsar Convention, the World Heritage Convention, the Bonn Convention and the Helsinki Convention are to a lesser extent also relevant to the implementation of a European ecological network. Especially in the framework of the Convention on Biological Diversity attention for ecological networks is growing, with the 7th Conference of Parties accepting a work-program for protected areas that specifically also asks the parties to take into account issues of connectivity and ecological networks.

Challenges and opportunities for a PEEN

In the course of this study interviews were held with individuals involved in European policymaking, these included policymakers in DG Environment, but also representatives of European level non-conservation stakeholder associations. Researchers involved in European research on PEEN were also interviewed. A first conclusion can be that the policymaking respondents, who were working at the European policy level in Brussels, would mainly consider a European ecological network in the form of networks created in EU Member State countries by conforming to Natura 2000 of the EU Habitats Directive. The issue of corridors between sites did not feature strongly in their understanding, nor did ecological network initiatives developed under the PEBLDS and Kyiv process. This is largely because Natura 2000 and the underlying EU Directives area their main policy priority when considering ecological networks.

Within the European Commission the concept of PEEN is not necessarily taken up as Natura 2000 is seen as its equivalent within the EU, and the Commission would prefer to continue with Natura 2000 than take on any other initiative. Whilst it has been argued that Natura 2000 is not an ecological network due to the lack of connectivity, interviewees at the Commission consider Natura 2000 to be better because it focuses on identifiable and specific areas rather than trying to cover "everything and therefore nothing at the same time". Their perception was that the method in Natura 2000, by focusing upon the designation of areas, was more pragmatic. It was also thought that concepts such as PEEN and PEBLDS needed to be

more clearly defined and not so open ended. However interviewees at the Commission also acknowledged that with new Member States entering the European Union the perception of the concept of ecological networks in general may change. Ecological networks are applied in many countries in Central Europe and some of the new Member States have questioned certain elements of current EU nature protection legislation.

Research on Biodiversity and Ecological Networks at the European level

Projects have been carried out on a European level for ecological networks. An example of an effective link between research and policy can be seen in the European LIFE-ECONET project, which involved researchers working with policymakers in order to see how the ecological network concept could be brought down to the national and local implementation level. The European researchers who have been investigating ecological networks at a more international level had a wider concept of ecological networks in line with that of the PEEN strategy as promoted under the PEBLDS and Kyiv process. They are aware of the fact that ecological networks and their long term benefits can be very complicated to understand in the traditional concepts and structures of nature conservation, which is largely based upon protecting specific areas and species. Therefore they acknowledged the difficulty in changing the mindset of some nature conservationists about the meaning of the protection of nature in a wider context. Working at the provincial level on PEEN is seen as important by European researchers as it provides good opportunities to implement the theoretical concepts and learn further from this more practical level. There was the opinion that more European research projects should have a greater focus on evaluation so that the use of the results benefit policy more than they do at present. Researchers highlighted the importance of ensuring that the PEEN concept is clear about what is actually meant when talking about ecological networks, and using a language that is understood at the European and also at the more local level. The need to work with politicians as well as other stakeholders was highlighted. It was also stressed that any ecological network model should never be imposed upon a country; whilst models were useful to understand ideas it was important to take into account ecological and cultural differences in countries as well.

Potential for the further development of a PEEN

Some researchers and policy makers acknowledged the value of agri-environmental schemes as an instrument for the implementation of the ecological network concept. Climate change policy is seen as a driver for national ecological networks, for a PEEN and for biodiversity protection overall, by researchers and policy makers at the European level. Climate change is drawing attention to potential changes in land, habitats and species. There is trend in research towards more integrated projects, where networks of researchers focus on several issues in conjunction; it is thought that this trend will continue with integrated research on issues such as biodiversity, climate change and energy becoming more popular. This may offer further possibilities to take on board the concept of ecological network in research activities.

Conclusion

The main legislative and policy frameworks policies supporting ecological networks, aside from the PEEN action plan under the PEBLDS and Kyiv processes, are the EU Habitats and Birds Directive (Natura 2000 Network) and the Bern Convention (Emerald Network). Whilst the PEEN action plan is recognised as having the greater potential for ecological networks since it incorporates corridors, buffer zones and stepping stones as well as core areas, Natura 2000 with its almost exclusive focus on core areas currently has the greater influence in EU Member States due to its obligatory legal status. The fact that European Commission tends to not get involved in the PEEN process in the framework of PEBLDS and the Kyiv process as it concentrates its resources on the Natura 2000 Network creates a challenge for PEEN, if it is to receive wider acknowledgement and acceptance in Europe. It is considered a possibility that with new Member States joining there may be some changes in the approach to EU nature conservation policy.

Climate change policy was identified as an opportunity for the promotion of ecological networks and for the protection of habitats and species in general. PEEN was seen as a wide concept, some would argue that it is too wide. Therefore it was considered important to be clearer in the communication of PEEN, maybe breaking it down to focus on specific areas for specific sectors to enable the strategy to be more easily understood.

Experiences at the EU level, regarding Natura 2000 implementation, stress the need of adequate communication in international ecological network projects. The Natura 2000 process can be seen as a steep learning curve in the communication of EU policy. Currently, there appears to be adequate communication at the EU level with regards to the communication of Natura 2000. EU Commission policymakers, EU level NGOs and EU level non-conservation stakeholders expressed a general satisfaction in the communication that they have with each other. With regards to PEEN, respondents spoke of the need to engage politicians and policymakers particularly those at the EU level. The need to translate the international policy language of a PEEN concept to enable acceptance at a more local level, was also seen as vital for raising awareness of the PEEN strategy.

Research exists at the European level on the concept of ecological networks. European projects such as LIFE-ECONET have shown how research and policy can be integrated. There is a thought that more of the research carried out on this issue should be evaluated and developed further so that it can aid in the practical implementation of ecological network policy on the ground. Research in Europe continues to focus on the formation of networks in order to try and integrate research sectors and also policy applicability, this research could provide opportunities for the promotion of the PEEN concept.

Communication for ecological networks: experiences in Natura 2000 as a case study

Natura 2000 represents the European Commission's contribution in relation to pan-European and global commitments regarding ecological networks. Natura 2000 is an instrument that requires input from DG Environment and DG Agriculture and other departments such as those in charge of transport and infrastructure. There are two committees specifically associated with Natura 2000, Ornis Committee (Birds Directive), the Habitats Committee (Habitats Directive), however other committees, for example the Forestry Committee, also deal with Natura 2000. Interviewees at the Commission considered that there was adequate communication between the different services in the communication for the implementation of the Natura 2000 Network. The Nature Protection and Forest units of the Environment DG have recently published a report on Natura 2000 and Forests. This report explained how Natura 2000 has been taken up by forestry sectors in the Member States. The drafting of the report involved a consultation process with the Member States and with stakeholders in which they were invited to submit comments on a draft, including informing the Commission of their own experience of the Directives. The Commission were pleased with the feedback received from the report and consultation process.

The Transport and Energy DG of the Commission appears to have little interest in Natura 2000 policy despite their potential impact. Their main focus on the environment is through the Environmental Impact Assessment Directive and therefore there is little interest in other environment policy activities such as the DG Environment's Natura 2000 work. It was acknowledged that whilst there were always possibilities to work together it was indeed sometimes difficult to influence infrastructure planning policy. However, the advantages of continuing to try and include this sector were clearly recognised, as a very small part of the budget for infrastructure works could go a long way in carry out nature protection measures.

There has been European level communication between the Commission and European level stakeholders during the Natura 2000 designation process. This has involved specific meetings on Member States proposed lists of sites Natura 2000, with specific stakeholders sectors, and has involved bio-geographical seminars that included numerous stakeholders and Member State representatives.

It was apparent that Natura 2000 has been a learning curve in communication. EU level stakeholders recognise that there was poor communication on this issue between the Commission and stakeholders in the beginning but things have changed. It was also acknowledged that Member States took their decisions too late and this meant that it was often too late to involve stakeholders adequately, which caused resistance. European level stakeholder respondents were satisfied with the level of communication that they have with the EU Commission, it was stated that generally stakeholder meetings on Natura 2000 will normally include agriculture and hunting stakeholders, conservation NGOs and Commission representatives, who may often be dealing with issues related to a specific stakeholder group.

2.2 Estonia¹

Introduction

The national ecological network or the 'Green Network' as it is known in Estonia, follows the concept of ecological networks according to the PEEN definition and goes beyond the definition outlined in the EU Habitats Directive. The Green Network is promoted in Estonia as a concept of 'sustainability' rather than 'preservation'. Scientists at the national level have created the strategy of the Green Network, based upon the same theoretical concepts that form the basis of the Pan European Ecological Network. Implementation is legislated for through spatial planning and implementation action is the responsibility of the regional and local level authorities. However national policies provide the overall strategy for the national ecological network concept, including the designation of protected areas, which has been designed by experts in this field. At a national level there is a national monitoring programme. This programme has eleven sub programmes, one of the sub programmes is landscapes and biodiversity, which has a further forty-six sub programmes, three of those sub programmes are dedicated to landscape monitoring. The national monitoring programme started in 1995 and so with this year as a baseline, future results will be able to evaluate effectiveness of policy measures. This clearly reflects the fact that physically the ecological network has been planned and structured and is controlled at the national scale and the monitoring programme will allow for review in future years.

Estonian policy and legislation strongly support the development of a national ecological network. At a national level, policies of particular importance are the Estonian National Environmental Strategy and the Estonian Environmental Action Plan. Both of these policies are oriented towards the concept of ecological networks. On a more practical level the spatial planning legislation is a main instrument for the implementation of an ecological network through the Act on Planning and Building 1995. This Act provides the legal background for the implementation of ecological networks to be carried out in spatial planning at a county level. Whilst policies documents do not provide specific details on the way in which the Green Network should relate to PEEN, in some national policy documents PEEN is referred to.

There is a strong link between research activities and scientists involved in ecological network research and the implementation of the Estonian Green Network policy. This Network has been influenced and steered by the scientists' expertise.

The Green Network Implementation Process

At a national level the Minister of Internal Affairs is responsible for spatial planning (and therefore ecological networks) the former Ministry holding responsibility was the Minister of the Environment. There are three or four key ministries who were identified by respondents as important actors who should cooperate with each other, Ministry of Environment, Ministry of Agriculture, Ministry of Internal Affairs and Ministry of Transport. There is evidence that some form of cooperation exists, for example the Ministry of Agriculture plays a role in a national Commission set up by the Ministry of Internal Affairs to act as a monitoring committee for the Green Network. This Commission approves or rejects areas designated by the counties. Initial coordination of the ecological network came from the Ministry of the Environment who evaluated the county plans and worked on methodologies and then requested improvements from the county level, where necessary, before giving their approval.

The legislation for ecological networks sets out implementation of the network so that it is to be done at a local, county level. The respondents highlighted the advantages and disadvantages of this policy process. A disadvantage can be that there may be large differences in the way that different counties implement the network. This means that not only may there be a difference in quality of implementation but

¹The Estonian interviews took place in Tallinn, Tartu and Hiiumaa. Interviewees included representatives from the Ministry of Internal Affairs (Spatial Planning Department), Ministry of Agriculture, Research Institutes, Forest Association and a Local Government Authority. Estonia was selected as it is a Central Eastern European country and is well advanced in developing a national ecological network.

there may also be huge variations in approach. For example one area, Hiiumaa, included the continuation of the ecological network into areas in the sea that belonged to their county. However it also reflects the potential for variation in implementation and the fact that the counties must be well coordinated at a national level in order to ensure comparable standards. This also underlines the fact that effective coordination between counties could provide opportunities for counties to learn from each other. Some respondents thought that the counties do not coordinate themselves very well and therefore there was a perceived need for a stronger national guidance to encourage coordination and communication activities between counties to take place.

Structure of the process and levels of implementation

The Planning Act that implements the ecological network requires the county government to have a plan about land use and environmental issues, it is then passed down to the local government authorities for implementation. Some respondents thought this was an area of the implementation process that caused problems. The explanation for this is that these respondents felt that there was no specific guidance from the county level as to how implementation should be carried out at the local level. The county plans were normally set up by experts who specialise in ecological networks, producing technical documents, therefore it was felt that more practical guidance required at the local level was missing.

Underneath the county plan there is the local comprehensive plan that should take the county regulations and plans into consideration. Several respondents had the perception that in practice this is easier said than done, *"It is rather vague, in the county planning they don't set conditions, they just say there is a green corridor and try to preserve it. But how it has to be done is not really said and it makes life difficult."* Another respondent, at the local level, also stressed the fact that the legislation behind the ecological network was perhaps not strong enough to provide sufficient support for implementation at the local level, *"they [ecological networks] are not so well regulated for us, because we are the ones in local government and we have to implement freely and to avoid building in those areas."* A further comment was made that indicates that at the local level there was a feeling of lack of support from the higher, county and national levels, *"... people's awareness has risen and they hire lawyers to represent them and we need to have very strong arguments [for ecological networks], but right now our legal arguments are not so very strong"*. However an opposing viewpoint was that the planning law was strong enough and it was maybe more a problem of lack of will to use the law, at the local level, rather than the tools not existing to support the local level. Whichever viewpoint is believed, there is an issue with regards to the perceived effectiveness of implementation levels and there is a clear need for communication between the different levels to resolve this.

Integration with other policies

The need for integration of policies was considered to be important, however as one respondent confirmed, if spatial planning is used correctly the different policies, measures and programmes can be included at the local level, so integration should not be a problem. At a national level the integration of policies such as the EU Water Framework Directive were seen to be important in being compatible with the Green Network.

Involvement of stakeholders

Whilst the ecological network was designed by technical experts at the national level, the more local policy levels implement it through planning legislation and therefore this process provides a requirement for the involvement of stakeholders. Spatial planning is seen as a key way to involve stakeholders and local communities in the ecological network process, *"we are happy that spatial planners have started to implement this concept [ecological networks] in Estonia as this automatically gives the stakeholder involvement and the local communities are therefore very important, whereas often it can be only the nature protectionists involved working in the capital and not really knowing what is going on at the local level."* Actual involvement of stakeholders was seen to vary depending on county and local governments. One respondent thought that in some counties the ecological network was communicated to stakeholders but only in a technical or formal way. Therefore as there was no extra awareness building involved to explain the concept in a language that was understood it did not engage the local stakeholders.

As there are different levels to the Green Network (national-county-local), there are different types of stakeholders at those different levels. An important point was made that if concepts such as a Pan European Ecological Network (PEEN) or even the concept of a national ecological network, are going to be targeted at local stakeholders then there is a need to communicate this by translating the international/national policy and the language used into concepts and language that stakeholders at the more local levels can identify with. Stakeholders identified as being important to ecological networks included forestry stakeholders, particularly at the national level, the National Forest Management Centre due to its activities and involvement in day-to-day forest management. Developers were also identified as being important as it was thought that they needed to be made more aware of the influence they have on the environment.

Some respondents thought that the level of awareness of local stakeholders concerning the Green Network as well as the communication with these stakeholders about the Network could be improved if the task was shared between the county level and local level, *"... I think that it would be effective if the county and local level do it [stakeholder involvement] together, because they [county level] do have some wider knowledge than local governments, but the local governments have better knowledge of stakeholders, where the problems are etc. and that is important to know too."*

Cross border cooperation and PEEN

Cross border cooperation for nature protection exists in Estonia with Russia and Latvia. The level of cooperation depends on the issue, it may be just exchanging ideas on an issue that affects both areas. With Latvia it has been done on the regional level. Often cross border communication on nature protection has been initiated by specialists in the field. Also workshops on ecological networks have been held between countries to learn about effective ways of implementation.

At a higher level in the ecological network process in Estonia there is reference to and consideration of PEEN. For example it is included in the national ecological network methodology and is used in higher-level texts. Several respondents mentioned seeing PEEN and the National Ecological Network as different things. PEEN is seen as very much a theoretical process, which cannot be related so clearly to actual implementation of ecological networks on the ground. There appeared to be uncertainty amongst some respondents as to the value of the PEEN concept at the more local level. At this level whilst PEEN may not be mentioned specifically in planning law, the national green (ecological) network will be referred to. With regards to communicating PEEN there were some comments regarding the need to improve communication in international strategies such as PEEN to the more local levels, *"Sometimes there is too little communication between the international level and the local levels that are implementing it."*

Opportunities or challenges for ecological networks

- Decentralized implementation

Some respondents thought that implementation at the local level could mean varying levels of implementation between regional levels, unless there was a stronger coordination centrally at the national level.

Conclusion

The Estonian National Ecological Network is theoretically and conceptually closely linked to PEEN and is seen as part of a national strategy for sustainable development. It is a part of national policy strategies and implemented through legislation on spatial planning, which takes place at the regional and local levels. There is evidence of integration of government departments at the national level on the ecological network policy. The advantage of the network being implemented at the regional and local level is that it provides a framework for involvement of stakeholders, however a disadvantage can be seen as variations in implementation standards across the regions. Some interviewees also highlighted the need for ongoing support on implementation through guidance information for regional and local levels from the national level.

Integrating sectors and policies were highlighted as important this included integrating ecological networks with the EU Water Framework Directive. With regards to involvement of stakeholders, due to the decentralized implementation, it was acknowledged that levels of stakeholder involvement would depend

on the effectiveness of implementation in various regions throughout Estonia. In order to develop the concept of a PEEN, or a national ecological network, the importance of translating international or national policy into language that is identifiable at the regional and local level was highlighted. The fact that there needs to be better communication of PEEN from the international to the local level was also stated. Involvement with other countries was reflected through ongoing activities in cross border cooperation. With regards to research activities on ecological networks in Estonia, there was evidence of strong links between ecological network researchers and the policymakers involved in national implementation.

2.3 Germany²

Introduction

National ecological networks have become part of German law through the Nature Conservation Act 2002. Germany is a progressive country on ecological networks, having the ecological network established in national law. This took place after the implementation of Natura 2000. There is a motivation for ecological networks internally and also for creating cooperation with neighbouring countries externally. However it was also acknowledged that whilst a national law exists, the Länder regional policy on ecological networks can vary greatly and if there is no political will and/or no resource at this level then the ecological network may not get implemented to the extent that was initially intended at the national level. There is no limit or timescale within the legislation with regards to how implementation is carried out; this is a matter of how much political will there is to do so in the different Länder. The Ministry of Environment and Nature Protection aids this process by the funding of ecological network projects.

In general, there was a positive attitude towards the concept of the physical structure of the national ecological network amongst interviewees, and the value of it above the Natura 2000 Network was recognised. Other requirements such as those laid down in the EU Habitats Directive are considered to be covered by the National Nature Conservation Act. With regards to the implementation of the Habitats Directive through the Natura 2000 Network, it was thought that whilst Article 10 of the Habitats Directive allows for connectivity, it is not as effective as the National Nature Conservation Act, "Ecological Networks will have the force and power to implement something that is much more than the Habitats Directive." Some respondents perceived that the problem with the Natura 2000 Network was that it takes the best of what there is to protect, whereas the concept of the national ecological network provides for the necessities of the species of the habitats, considering the whole landscape.

The National Ecological Network

Following the inclusion of ecological networks in the Nature Conservation Act, there was a process to analyse what it meant in practice for actual implementation of a network. This included assessment of existing nature reserves and the establishment of minimum requirements for core areas in relation to size, which could vary depending on type of habitat. This minimum requirement is recommended rather than mandatory, however a working group was created that involved the nature conservation agencies from the federal states and therefore there is a good chance that the guidelines created will be applied. The criteria that has been set up provides for the identification of gaps and the evaluation of implementation.

The plan for the ecological network exists in spatial planning at the state level, regional level and local level. The rate of introduction of these plans can vary between federal states and the level of detail in the inclusion of ecological networks in spatial planning may also vary between states. States with special natural conditions are more likely to go into greater detail, for example, those bordering the Rhine or northern German States that are special areas for migrating birds. The respondents highlighted the fact that the Act does not necessarily guarantee that an ecological network will be formed. It is written in such a way that a state could identify the protected areas so that they fit the requirement of, '10% of the area must be protected', without necessarily having to consider linkages. Evidence is available to show that states (Länder) are implementing an ecological network, for example, in Bavaria they have a planning system called the Species and Habitat Protection Plan, the ecological network concept is included and there are projects happening on the ground to implement it.

Policy Aspects of the National Ecological Network

The National Conservation Act 2002 requires ecological networks to be implemented at a federal state (Länder) level. The Act does not provide specific details as to how this should be carried out and therefo-

² *The German interviews were carried out in Bonn, Oppenheim and Berlin. Interviewees included representatives from the national nature authority, forestry and agriculture associations and federal state level authorities. Germany was selected as it is a North Western European country with a growing interest in ecological networks; it is also interesting to analyse as implementation takes place at the federal state (Länder) level.*

re the working group involving national and federal state representative experts created guidelines and criteria for implementation. Decentralized implementation was seen by some respondents to hinder the implementation process of ecological networks due to the difficulty of coordinating the federal states centrally.

The German policy documents reflect clear support for the concept of ecological networks, the national nature authority (Bundesamt für Naturschutz) is also involved in working towards cooperation with other countries to support the Pan European Ecological Network (PEEN) concept. Two federal states recognised as being particularly proactive in implementation of ecological networks are Schleswig-Holstein and Rheinland-Pfalz. At the time of interviewing, the federal states (Länder) were starting to establish ecological networks within their jurisdiction. The Act requires each 'Land' to cooperate so that a national ecological network is formed. However, if they do not adhere to this requirement there appears to be little power to force them to do so. The Ministry at the national level has only a requirement in their planning to coordinate the Länder, but if the Länder do not accept the Ministry's coordination recommendations, then there is little that can be done by the Ministry.

Connecting national work on policies such as the EU Water Framework Directive to the implementation of the national ecological network was seen as necessary, and it was recognised that there has to be cooperation between the different national and federal state level departments to ensure that this happens.

Research activities

The Ministry of Environment and Nature Protection carries out research projects on ecological networks. These research projects are generally aimed at practical implementation of ecological networks at the regional level or the national level coordination of ecological networks. These projects may also look at economic feasibility for stakeholders at the more local level.

Research carried out by Universities and NGOs may often be looking at specific species in an ecological network concept. These can include the European Otter, Wildcat, Lynx and Red Deer, including studies on interaction and behaviour. Research has also included the transportation of seeds and insects. This species research is not necessarily coordinated but rather carried out in single projects only.

Involvement of stakeholders

In Germany, stakeholders were not involved in Natura 2000 until later on in the process, when maps had been drawn up and when most did not know what Natura 2000 meant. This contributed to a negative opinion of Natura 2000, as did the restrictions that it created such as cancelling of building or construction projects. As a result this had not helped in the promotion of the National Ecological Network. However in the last few years there appears to have been a change in attitude of people, this can be seen through the generally favourable response to the designation of national parks. "A lot of people have recognised that national parks also means mid-term investigation in economics, so that means development of them could change in the next few years, so we hope that will also be the case for ecological networks."

Conservation NGOs generally have a greater involvement in ecological networks in Germany than organised non-conservation stakeholders such as farmer associations. For scientists and NGOs in Germany the concept of ecological networks is not new. The main actors for ecological networks are seen to be the nature conservation and agricultural administrations of the government as they have the influence on the land and institutional processes. NGOs are seen to have an important supporting role in this. Government planning departments were also identified as key to the concept of ecological networks.

On a more local level, awareness can vary from Land to Land. As with implementation levels, levels of stakeholder involvement depend on the individual states. It can also depend on whether NGOs are active in a particular state; it has been shown that in states that have NGOs carrying out projects, the level of stakeholder awareness is greater. For example, in Rhineland-Palatinate and Bavaria there have been projects on ecological networks where communities have been involved and the awareness of the ecological network concept is greater. An interesting point was made by one respondent who suggested that a result of

decentralized implementation was that whilst this may mean awareness of the network at the regional level, there is likely to be less awareness of the concept of an overall national ecological network.

Some stakeholders interviewed felt that they were not adequately involved in the ecological network concept in some of the Länder. Whilst it was evident that there is a general support for the national ecological network concept amongst non-conservation stakeholders, the lack of information from some of the Länder creates fear and scepticism. As one non-conservation stakeholder organisation representative said, *“we want to show that using nature and protecting nature are part of the same thing, but I think that there is a lot of work that has to be done to really bring this into a reality.”*

On a national level forestry and agricultural associations help members via the provision of general advice on legislation and more practical advice, particularly in cases where areas are to be protected that affect members. These organisations at the Länder level would like to see their members be more involved in activities that impact upon their members land, ideally their national level organisation representatives would like to coordinate this.

Cross border cooperation and PEEN

Cross border cooperation for nature protection appears to be well established in Germany. This includes cooperation with bordering countries on a practical implementation level (e.g. with the Netherlands, Austria). Work is also carried out to establish links between the national levels of different countries through workshops; these have included Turkey, Bulgaria and Russia. An example of practical implementation includes activities to create corridors across borders for red deer populations. This involved informal meetings with people working on the same issue in different countries, exchanging ideas in a forum. Other cooperation activities are being organised with France and Switzerland. An important workshop was held in November 2003 on identifying cross border connections between Germany and other countries *“International linkages of ecological corridors in Germany.”*

The National Nature Conservation Authority have discussed issues such as aid in the development of a western/central European map. The idea is to have a German map with nationally important corridors and core areas that can fit into a European system. The aim would be to have the data ready for 2006 this would include a database of areas, hot spot species etc., this would then be able to fit into a PEEN map. One respondent underlined the importance of cooperation, *“An important task will be identifying links of the network between federal states and to our neighbouring states.”*

There was awareness of the PEEN concept amongst the interviewees. One respondent felt that it was important to take the indicative PEEN maps of Eastern and Central Europe and see how they can be moved forward by the inclusion of the West, recognising the importance of Germany here, in being the link between East and West. At the national level there was a thought that they would like to be kept more informed on the international PEEN process, as what they want to avoid is a Central European map that differs from the German map, so they recognised the need to cooperate. However as is often the case, resource for involvement in international concepts such as PEEN is limited, as one respondent stated, *“We think that at the scientific level the process [PEEN] is an important tool, looking at the European scale we will try to contribute what we can with what resources we have.”*

Communication of the international PEEN strategy has been discussed with experts on ecological networks of federal states nature conservation authorities as recently as November 2004. In some states e.g. Rhineland-Palatinate awareness has existed prior to this date. However communication could be more fed down more sufficiently to the Länder level authorities or the stakeholders involved in ecological networks at this level.

With regards to the requirements of communicating PEEN at the international level, one respondent thought that in order to promote PEEN, there is a need for it to be better spread amongst policymakers of Member States.

Opportunities or challenges for ecological networks in Germany

During the interviews the interviewees specifically identified the following issues as opportunities or challenges for ecological networks in Germany.

- **Transport**

Pressure exists in Germany for developing rivers into channels for larger ships, which would be detrimental to nature conservation. There is also the issue of road construction. Germany is the main country of European traffic access, it is expected that there will be a 50% increase in large lorry travel, therefore motorway construction is a very prominent issue in German politics. Whilst for new road construction there will be possibilities to ameliorate the construction through the use of nature network tunnels and bridges, on existing motorways, there is thought to be little prospect for the construction of such nature protection infrastructure.

- **Political will**

Due to the history of the implementation of the Natura 2000 process, which caused confrontation and a negative image of nature conservation in Germany, there is thought to be less of a political will to establish ecological networks.

- **Cross border cooperation**

Cross border cooperation between Länder internally and between other countries externally can be difficult due to differences in institutional process structure or differences in levels of political will or interest in the issue. However Germany appears committed to initiating cross border cooperation for ecological networks.

- **Lack of resource or instruments available**

Resource available for implementation of ecological networks varies between Länder. Some do not have the money to spend on the ecological network concept, there may also be a State that has restrictions on the purchasing of land and therefore no instruments available for it to implement the network even if there is the political will to do so.

- **Decentralized implementation**

This was seen by some respondents to hinder the implementation process of ecological networks as it was seen to be difficult to coordinate the States at the central level and ensure a balanced level of implementation between States.

Conclusion

The German national ecological network follows the wider concept as defined by PEEN and is provided for through a national law on conservation. However there is a degree of flexibility as to how stringent this law is applied. The actual implementation is decentralized at the federal state (Länder) level. The fact that a law has been established and details of activities on ecological networks reflects a motivation for the internal implementation of the national ecological network as well as an external motivation to provide for a PEEN through cooperation across borders. There was also a common agreement that the national ecological network afforded a much greater protection than that provided by the EU Natura 2000 Network.

The advantages of decentralized implementation are shown in the ability to involve local stakeholders by implementation at this more localised level. However the disadvantages of lack of control and variation in standards of implementation are reflected. It was clear that if there is no resource or political will at the federal level then the standard of implementation would be low. Whilst awareness and involvement of stakeholder associations at the national level appeared quite high, it was stated that awareness of local stakeholders was very much dependent on the level of implementation in the individual Länder regions. Another interesting point to note about decentralised implementation was the perception that understanding at the regional level of an ecological network could often mean less awareness as to how the concept contributed to an overall national ecological network.

The national ecological network is provided for in several federal states through spatial planning at the regional and local level. At the national level guidance is provided through projects focusing upon ecological networks in regions and through stakeholder groups coordinated at the national level to provide guidance notes and information on the creation of ecological networks.

Specific opportunities or challenges identified in Germany for a national ecological network included: the pressure of increases in transport and transport infrastructure; difficulties in cross border cooperation in dealing with different country institutional processes and policies for the implementation of ecological networks in the different countries; lack of political will and lack of resource at the Länder level. Opportunities included the motivation for the implementation of an ecological network internally and externally through cross border cooperation.

With regards to the involvement of stakeholders main actors are seen to be nature conservation and agricultural administrations, scientists and nature NGOs. There is the potential to be more inclusive with non-conservation stakeholders such as farmers associations, in the ecological network process.

At the national level, there is a high awareness of an international PEEN strategy, however this is not necessarily translated down sufficiently to the Länder level. Research projects generally focus on national projects aiding implementation of ecological networks at the Länder level or projects carried out by universities or research institutes on specific species or habitats. These types of projects are not necessarily coordinated in any way.

2.4 Greece³

Introduction

A national ecological network is implemented in Greece only so far as the establishment of the Natura 2000 Network for the implementation of the EU Habitats Directive. Greece is still developing and implementing the Natura 2000 Network and most efforts are concentrated in this area. Scientists, researchers and national NGOs interviewed were generally aware of the concept of ecological networks and the PEEN strategy. However the respondents from these sectors clearly stated that at this point in time the focus is on the implementation of the Natura 2000 Network and due to the challenges this has brought none of the policy actors have considered extending the concept of the network to an ecological network as defined by PEEN. The following paragraphs provide information on the process of establishing Natura 2000 to the extent that this information can be considered relevant for assessing the feasibility of developing a national ecological network in Greece (of which the Natura 2000 sites would very likely be the core areas), or for participation in Greece in a PEEN.

The general consensus amongst interviewees was that the main driver for the national government for activities on Natura 2000 has been pressure from the EU. However this is not reflective of the opinion or drivers for the other actors involved in the Natura 2000 policy implementation in Greece. The scientists and national NGOs have a strong motivation and have worked extremely hard in trying to set up the Natura 2000 network. The strategy that has been designed in Greece, primarily through the work of these actors, is forward thinking for Natura 2000 policy implementation, as it is intended to provide interactive policy making, involving stakeholders at the regional and local level. Other challenges to the implementation of the Natura 2000 network also play a significant role in the current state of affairs, these include government changes and resultant institutional process issues. Whilst this may have diverted priorities for the national government nature department, conservation and non-conservation stakeholders interviewed, stressed the need for the national government to rejoin the Natura 2000 network implementation process. Unfortunately, at the time of interviewing, following the general election for a new government and the resultant change in government the national Natura 2000 network implementation has been put on hold.

Physical Aspects

The Greek Natura 2000 Network includes sites that were under national designation prior to the introduction of Natura 2000 such as national forests, or RAMSAR wetland sites. The structure is organised and there is a legal framework for management and protection. However one respondent argued that this is as far as the concept of an ecological network goes in Greece, *“We have a lot of ecological sites in Greece that in fact constitutes something like a network, but it was never handled as a network from the Government, or perceived as a network by the people, even ecologists would rarely form a network.”* A map has been created for the national Natura 2000 Network showing all of the protected areas. However from the responses of the interviewees it appears that detailed maps at a local level with specific boundaries have not been identified and buffer zone boundaries also appear to be unclear.

The concept of connectivity, even to the limited extent necessary to comply with the requirements of Article 10 on connectivity in the Habitats Directive, is still an aspect that needs to be worked upon. One respondent acknowledged that there are connecting aspects such as rivers etc. in the network but they have not been formally established. There are also buffer zones in core areas that offer a varying amount of protection but there are no connecting areas or formal corridors. The concept of connectivity is seen as the next step to be dealt with in the implementation of the national Natura 2000 ecological network.

³ *The Greek interviews took place in Athens and Thessaloniki. Interviewees included representatives from the following sectors, national NGOs, environmental media, research institutes/scientists, local implementation authorities, hunting association, transport sector. It is important to be aware of the fact that it was not possible to interview the national government nature department in Greece. Greece was selected as it is a Southern European country with limited interest and involvement in ecological networks.*

As mentioned above, there are a lot of ecological sites in Greece, however they have never been handled in a network, even the ecologists would rarely form a network. *“Most people see the Natura 2000 Network as a restriction on development.”* Another reason is scientific because few people in Greece have the scientific background that supports work on ecological network issues, such as population dynamics and landscape ecology. They are not so familiar with the concept of fragmentation. Another important consideration is the fact that the concept of ecological networks, including contact at the EU level and cross border level, is mainly driven by NGOs and the research community of scientists and universities, and not necessarily taken up at a national policy strategy level.

Research activities on Ecological Networks

Whilst research projects and activities exist relating to the Natura 2000 network, no research relating to ecological networks as in the definition of PEEN was highlighted by the respondents.

Policy Aspects

The Natura 2000 network is legislated for through the national Master Plan for the Protection of Nature. This national legislation incorporates the requirements of the EU Birds and Habitats Directives. The Plan covers areas that are part of the national protected areas network and also areas that are of regional and local importance. The policy structure of the national Natura 2000 (ecological) Network was planned to provide for implementation from the national to the local level. This involved setting up Management Authorities for those protected areas that would require management. The Management Authority would also consist of a representation of stakeholders relevant to a protected area. The funding of these Management Authorities were on a basis that the government would give an initial amount of money to set up the Management Authority and the Natura 2000 Strategy in the protected area, after that it was considered that the Management Authorities could be self financing, for example via funding from projects. The law also provided for a Natura 2000 Committee to work at the national level that would coordinate all of the Management Authorities of protected areas. The Committee was established in 2003 and would include members of Universities, NGOs, several Ministries and public services.

The Natura 2000 policy structure has a clear strategy for interactive policymaking and the involvement of stakeholders, by allowing for implementation from the national to the local level using committees and groups of stakeholders to be involved in the process. Generally the respondents were pleased with the interactive policymaking concept, however there are two factors that the respondents identified as having challenged the success and delayed the implementation of the Natura 2000 Network policy process. Firstly, the money to be provided by the government was perceived by many respondents to be inadequate in respect of the amount secondly, in respect as to what it could be used for. It was also unclear how the Management Authority would self-finance after the initial three-year implementation period or how personnel in these areas would be funded on a more long-term basis.

The concept of the Management Authority was that there would be a president who according to the law would be a scientist or a relevant person experienced in nature conservation. Some respondents acknowledged the fact that in some protected areas presidents were not chosen according to this criteria but chosen for political reasons. This was perceived to create a barrier for the effectiveness of the Management Authority. Furthermore whilst it was a requirement to include stakeholders to be members of the Management Authority it was not made explicit as to those who should be involved.

There was a perceived lack of integration between government departments. The Forestry Services and the Ministry of Environment did not cooperate until recently, therefore this could have been a major barrier for the Ministry of Environment in implementing Natura 2000 in a forestry area managed by the Ministry of Forestry. It was acknowledged by respondents, that relationships have improved at a national level between the Ministry of Environment and Forestry Services and also at a local level in forestry areas, but it still required attention. It was highlighted that in forestry areas where NGOs had been working, relationships between the forestry and environment personnel had improved.

Whilst the legal framework for management and protection of nature through a Natura 2000 network was initially set up at a national level there have been delays in driving this policy forward. Firstly there was a change in Government which meant that the Natura 2000 Network process and funding came to a halt. Other priorities for the new government have overshadowed many other government policies. Significant country priorities included, for example, holding the Olympic Games in 2004. The current situation has meant that NGOs, scientists and other services have been doing a lot of the work and trying to play the role of the authorities and it was recognised by interviewees that this was not sustainable and could not continue.

Some respondents felt that there was a lack of political will due to the low priority of nature protection in Greece. They stated that it is as if the only motivation for the government so far for doing anything about nature and Natura 2000 has been due to pressure received from the European Commission. Having said this it is clear from the respondents that there has been a huge amount of work carried out by the NGOs and also the scientists in the research community in Greece in order to motivate the government and move the implementation of Natura 2000 forward. There is clear evidence of the establishment of a network between these stakeholders and a lot of effort, at times at an individual's own personal expense, to try and operationalise the National Natura 2000 strategy. As one respondent commented, *"I think it is a challenge not a problem, these challenges are mainly administrative. I think that there are a lot of opportunities, shifting attitudes, shifting qualities, shifting change of views of the public, for getting different agencies with different backgrounds to work together."*

Involvement of stakeholders

The challenges of the integration of government departments for effective communication are highlighted by the fact that respondents acknowledged that the Forestry Services, as the manager of a large amount of state owned land, had not been included in the identification of sites or the formation of the Management Authorities (although they are included on the Authorities). This could be a disadvantage to the Ministry of the Environment as the Forestry Services District Departments have a lot of contact with stakeholders at the local level in these newly protected areas. They will have established networks, and formal and informal communication processes that the Ministry of the Environment could benefit from in order to communicate their Natura 2000 Strategy to the local level.

With regards to other national level stakeholders the respondents did not highlight any representation of the spatial planning department in the Natura 2000 Strategy, despite the fact that the Ministry of Environment is part of the Ministry of Environment, Physical Planning and Public Works. One respondent acknowledged that the concept of spatial planning is relatively new in Greece in application (not in theory), so this process is very slow. Another agency working with the ministries but not directly connected with Natura 2000, is the Highways Agency. The Highways Agency have an environmental strategy, are aware of Natura 2000 and actively work with conservation NGOs on nature projects connected to roadways. However they acknowledged that communications on nature protection with the Ministry of Environment, Physical Planning and Public Works could be improved.

Some non-conservation stakeholders, such as the hunting sector, felt that they had not been sufficiently involved in the creation of the Natura 2000 national ecological network. Therefore they are now trying to become involved in alternative ways by making their own networks and communicating and participating directly with conservation NGOs.

Conservation NGOs also acknowledged that whilst they may have been involved in the Natura 2000 Strategy, the creation of the strategy was not a true participatory process. As one respondent said, *"... the Natura 2000 Network was not a product of consultation in Greece it was we take the criteria, we need a little financial interest and then we come up with a map saying these are the areas and I mean even now there are a lot of local communities who do not understand Natura 2000, they do not understand the network of protected areas, they do not understand that it is an obligation because it has come from an EC Directive, they see it as a group of restrictions or they see it as a funding mechanism [for continuing existing activities]."*

It was felt by some respondents that the Natura 2000 Strategy had been misinterpreted as being only about restrictions without any explanation about the fact that some activities are acceptable in protected areas and some nature protection activities can even be a benefit to the local population. Natura 2000 has also on occasions been misinterpreted as an eco-tourism tool rather than being seen for what it really is, a nature protection law.

Involvement at the local level

A few Management Authorities had been in the process of being set up and implemented at the local level when the national funding for Natura 2000 was frozen. For example a Management Authority was set up in a protected area in Axios. The implementation process involving local stakeholders had begun. This protected area was not easy as it belonged to three regions with ten municipalities involved, however the stakeholders, even after a relatively short time, were finding ways to communicate and negotiate. This indicates the potential success of implementing an ecological network with an interactive policy process structure. Unfortunately stakeholder attitudes in this protected area are now becoming negative, this is because projects started and then as money was not received from the government the projects are not continuing. This leaves people in these local communities not taking the project leaders seriously and as one respondent reflected, *"they don't take you seriously, they see it as a storm that goes away now."*

Another communication issue of the Natura 2000 Network can be the misinterpretation at the local level. As one respondent remarked, "it is seen by some as a tool to obtain some EU money". An example can be seen where an area had been designated and local people contacted NGOs to enquire how they could get some money, without really understanding what the purpose of Natura 2000 was for. Other negative attitudes regarding Natura 2000 at the local level can include feelings of imposition by a far-away institution as one respondent said, *"At the local level a lot of people believe that Natura 2000 is the decision of the European Union and they say that nobody asks us."*

At the more local level farmers are recognised as important as stakeholders where they own land and also as they may use state owned land for agriculture, this is seen as important in buffer zones. Landowners have reacted negatively to the Natura 2000 Network concept, particularly in Zakynthos where there is private farmland in identified core protected areas. Hunting associations also stated that they would have liked to have been involved in the identification of protected areas. They think that they could have collaborated with other organisations and have offered help in the management of areas. Some hunting association regions in Greece do provide wardens in areas to protect against illegal hunting, carry out some activities that aid conservation of nature e.g. cultivating land, feeding seeds to birds, feeding birds in winter, help with forest fires etc. Forestry services are also identified by respondents as key people in helping implement the network at the local level.

Some respondents highlighted the differences in attitude of people and the fact that this impacts upon the acceptance of nature conservation policies. Differences were identified between the attitude of people living in city areas and those in rural areas. In the cities people are interested in nature as a concept but they are not necessarily directly affected by it. In rural areas they see things differently, attitudes change slowly and there is a conservative attitude towards nature, so they act cautiously.

Cross border cooperation and PEEN

Whilst there was no evidence of a national strategy for cross border cooperation it was clear that NGOs and researchers were highly involved in carrying out projects on nature protection over borders. Cooperation has included Bulgaria, Turkey and communications with northern Cyprus on Natura 2000 sites. There has also been cooperation with the Former Yugoslav Republic of Macedonia, Albania, Serbia, Bosnia and Herzegovina. These co-operations have been initiated mainly by Environmental NGOs. As one respondent stated, *"We know that we have common issues and common eco-systems with the borders and we have a chance to play a special role in cooperation with Balkan countries."* This indicates a further incentive to have a national strategy so that collaborations can be created at the national level between countries in order to strengthen links and improve communications.

Whilst conservation NGOs were involved in or aware of PEEN, in general it is not considered as a priority in Greece. One respondent thought that the concept of PEEN was important to Greece due to the large amount of protected areas that it has, however acknowledged that implementation of the Natura 2000 national network already takes a large amount of resource and already provides a large amount of challenges.

Opportunities or challenges for ecological networks

During the interviews the respondents specifically identified the following issues as opportunities or challenges for ecological networks in Greece, this applies to both to Natura 2000 or a network going beyond Natura 2000, following the PEEN concept.

- **Public Awareness**

One respondent stated that the public's motivation towards the environment has lessened. People are talking about the environment as if it is far away and they are not connected to it. This provides less motivation for action at the national level for initiatives to protect nature.

- **Advisory services and support**

A respondent highlighted the fact that for stakeholders groups such as farmers there is little support in respect of advice and information to help them think about alternative futures that involve protecting nature. For example using Common Agricultural Policy second pillar funding to fulfil Natura 2000 obligations. Therefore lack of information on Natura 2000 can be a negative thing and prevent opportunities.

- **Non-conservation stakeholder communication/environmental projects**

Some stakeholders groups, other than the conservation NGOs and research community are carrying out various projects to communicate to their members or specific target groups, the importance of the protection of nature. For example the hunter associations in some regions have programmes for education and provide wardens to police against illegal hunting. The Highways Agency are also working with NGOs on environmental projects alongside highways for the public, this reflects the willingness of conservation and non-conservation stakeholders to work together in networks. Cross border cooperation projects have also taken place on nature protection and reflect the opportunities for stakeholders to work on ecological networks on a cross border level. These stakeholders also appear to have good relations with the wider European Commission community and the relevant funding bodies.

Conclusion

The Natura 2000 Network is considered to be the Greek National Ecological Network. The Natura 2000 Network is included in national policy strategy through the National Master Plan for the Protection of Nature. The policy is based upon the concept of interactive policy making with a national Natura 2000 Committee and appointed Management Authorities for protected areas designated under Natura 2000. There is a map at a national level that identifies protected areas.

There have been some challenges in the implementation of the Natura 2000 National Ecological Network due to changes in national Government, lack of political priority and uncertainty of resources. However there is a strong motivation by researchers, scientists and conservation NGOs to ensure the successful implementation of the Natura 2000 Network. Non-conservation NGOs interviewed also showed motivation to become involved. Researchers, scientists and NGOs have a strong motivation to communicate cross borders in nature protection issues. There is a need for the strategy to have a greater priority and to be lead at the national government level. As the stakeholder network already has some type of structure much could be achieved in respect of communication and implementation with government support.

Aside from the need for support by the national government, other specific challenges included the lack of motivation by the 'general public' in their support towards the environment and nature protection. A further issue identified was the need for more advisory services and support for those non- conservation stakeholders such as landowners who will need to make changes on their land including the orientation of their farms in order to ensure nature protection. A clear opportunity was the momentum that has been

gained by the work of the NGOs, scientists and researchers in trying to get the Natura 2000 Network Strategy up and running.

Scientists, researchers and NGOs may have an awareness of the PEEN Strategy however there is a general opinion that the current priority is to concentrate on the implementation of the Natura 2000 Network before considering a wider approach to the ecological network concept.

2.5 The Netherlands ⁴

Introduction

The National Ecological Network in the Netherlands is implemented through national nature and planning policies and has been a main element in Dutch nature policies since 1992. The National Ecological Network remains a high priority for the Government and that policy is evaluated to ensure that it is successfully implemented. The shift away from compulsory purchase of land to the use of management agreements with landowners, reflects the shift towards more interactive policymaking in the implementation of the National Ecological Network. The challenges of achieving interactive policy making are highlighted as some stakeholders interviewed felt that they should be more involved in decisions on the ecological network. In general there is a motivation for ecological networks internally and also for creating cooperation with neighbouring countries externally, to contribute to a Pan European Ecological Network.

Physical Aspects of the National Ecological Network

The National Ecological Network is based on spatial planning and brings together existing and new nature areas. It aims to solve the problems of fragmentation and quality loss of nature in the Netherlands. The area is set to be approximately 730 000 hectares of countryside and will involve expanding individual nature areas, restoring environmental quality in areas and creating coherence by connecting areas. The major parts of the network are woodland and nature areas, however it will also consist of sea and wet natural sites such as lakes, rivers and estuaries. The network is based upon core areas, connection zones that enable expansion, migration and exchange of plant and animal species between areas and buffer zones. Buffer zones are situated around core areas in order to protect them against adverse external influences.

Policy Aspects of the National Ecological Network

Ecological networks are supported in Dutch policy through the policy strategies, 'Nature for People' and the 'National Environment Plan 4 (NMP4)', it is expected that the National Ecological Network will be implemented by 2018, quantitative and qualitative measures have been established for evaluation purposes. The concept of a national ecological network is also taken up in planning in the National Spatial Strategy (Nota Ruimte). A large part of the national ecological network is designated in accordance with the EU Habitats and Birds Directive.

The relationship of the National Ecological Network to the PEEN is highlighted in government publications. The Dutch Government actively supports the establishment of a PEEN through supporting projects such as PEEN mapping, hotspot identification and projects promoting the interaction with PEEN and policies for other land uses. The Netherlands also promotes support for Governments and NGOs in Central and Eastern Europe. There is a Document of Understanding with Hungary, Poland, Russia and the Ukraine and multi-year agreements with international organisations and NGOs. The Netherlands also takes part in cross border cooperation, for example the establishment of the Wadden Sea International Park with Germany and Denmark is being explored. There are aims to strengthen ecological functions of transboundary river basin areas of the Rhine, Schelde, Maas and Ems through cooperative agreements.

The aim of the Dutch National Ecological Network is seen as being "the sustainable preservation, restoration and development of important national and international ecosystems." It is being implemented at the provincial level. Therefore there is a decentralized implementation structure that differs according to province, with the national level providing more of a guiding role. Provinces and the various authorities responsible at this level determine the borders of the National Ecological Network in provincial regional plans. The local councils execute the policy within the framework of the state, the province, and within their own local policies. Managers of protected areas also play an important role. These managers can vary from individual landowners and farmers to large organisations such as Staatsbosbeheer (National Forest Service) and Natuurmonumenten (Dutch Society for the Preservation of Nature) and the twelve provincial

⁴ *The Dutch interviews included representatives from research institutes, hunting and farming associations. The Netherlands was chosen as it is a North Western European country with a well -developed involvement in ecological networks.*

nature conservation societies (Provincial Landscape Organisations). Therefore there is a large involvement of a variety of stakeholders in the national ecological network process. An important shift in policy that has developed over a number of years has been the shift from compulsory purchase by the Government of protected areas to the support for management for protected areas by private parties. It is acknowledged that this type of policy requires interactive communication and cooperation between the government and stakeholders, and between stakeholders themselves. This shift in policy provides more opportunities for stakeholders to become involved in the National Ecological Network process.

Whilst the government is promoting this more interactive type of policymaking for the implementation of the National Ecological Network, some stakeholders interviewed from the agricultural community still felt that the policies used to implement ecological networks are based solely on an ecological considerations and do not take agricultural activities into account. As one respondent said *"It is presented that nature is the most important objective and there is no consideration for other actors."* Another respondent also echoed the feeling of inflexibility in policy implementation, *"... I do think that in some cases the freedom is limited unnecessarilyit [the ecological network] does not take other interests into consideration, the interests of farmers or of other people who have been involved in the areas for their whole life."*

One respondent thought that the current process for the implementation of ecological networks was too legal in approach with too much focus on spatial planning, and it needed to be more active. He thought that a better combination of agriculture with reconstruction of nature could achieve more with less effort.

The involvement of stakeholders

A respondent highlighted an advantage of the decentralized implementation of ecological networks in the Netherlands, was that it enabled involvement of regional and local stakeholders. This means that at the regional and local level they can see a real issue that has to be dealt with rather than a national policy that is implemented without their participation. This avoids the potential result of having less awareness and less ownership of stakeholders who should be involved in the process. However it was also acknowledged that along with decentralized implementation comes the difficulty in ensuring that there is coherence between the different regions.

At the regional level communication may often be via meetings between stakeholders such as the water authorities, local councils and NGOs, to consider what can be done. These types of organisations often have a very practical view as to how to implement concepts such as ecological networks.

As explained above, in recent years policy instruments have shifted from compulsory purchase of land to more interactive discussions and agreements reached with land managers. Whilst this method clearly involves stakeholders, particularly non-conservation stakeholders, to a greater extent some respondents thought that this involvement should be initiated with stakeholders when ecological targets were being set and not afterwards when they need to be implemented. They felt that the stakeholders should be present at the negotiations for the creation of the policy and also for the creation of the maps. They thought not being involved at this stage means that stakeholders can automatically feel negative about the policy and that it reflects a lack of respect about their opinions. Some non-conservation stakeholder respondents also felt that there should be a better evaluation of implemented EU policies or European concepts at the national level and that stakeholders should be represented in this evaluation. As one respondent said, *"A country can always implement EU directives more stringently than is mentioned in the text, and we feel that the Dutch government went too far in protection [in implementing the Habitats Directive]..."*

A respondent acknowledged the differences when communicating ecological networks in the raising of the awareness of urban and rural citizens. The fact was noted that when dealing with rural issues an 'urban attitude' was often taken, due to the high urban culture and population density in the Netherlands, which means that rural communities, identities and way of life are much less known and less understood.

Cross Border cooperation and PEEN

There is a high motivation for cross border cooperation in the Netherlands and practical implementation takes place in the Netherlands with Germany and Belgium. The difficulties that can occur in coordinating this cooperation was acknowledged. The common problem being the different institutional processes, levels and organisation used in the differing countries, particularly when a cross border cooperation involves more than one province or district on each side. It is vital that cooperation is organized. The need for willing civil servants with vision to coordinate this was recognised as being important.

Awareness of PEEN

As detailed above there is a high awareness of PEEN in the Netherlands and the connection with the National Ecological Network is understood. The challenge of PEEN was recognised as achieving international cooperation through local implementation. With regards to the connection of PEEN to Natura 2000, one respondent thought that Natura 2000 is an important part of ecological networks but felt that Natura 2000 lacks vision, as protected areas are isolated from each other. It was felt that they could be embedded in regional ecological networks, however the challenge of bringing Natura 2000 and PEEN together was acknowledged. The respondent felt that whilst the idea of connectivity is included in Natura 2000, it is not taken up.

When asked about how the PEEN could be better promoted and communicated respondents saw the main actor in this role being the Council of Europe. However, it is acknowledged that there needs to be more momentum by other means and by other groups in order for it to gain weight. One respondent referred to recent meetings in Germany, which considered frameworks for the PEEN concept in North West Europe to be very important for the PEEN concept. It was also thought by a respondent that the EU needed to become involved in PEEN in order to ensure a standardization of method and coordination of frameworks for PEEN and Natura 2000. However it was also acknowledged that the lack of involvement of the EU would not necessarily prevent different regions in Europe progressing their work on the concept of PEEN. One respondent thought that the lack of EU involvement could mean an important, missed opportunity for them, in developing nature policies such as Natura 2000.

Research activities on Ecological Networks

Due to the high interest and motivation in ecological networks and PEEN, there is a lot of research carried out in Netherlands. Researchers working at the European scale are considering policy- focused research, such as, how do you coordinate between partners, countries or regions? What instruments are available? How do the instruments of different countries and regions match each other to get a coherent network? Within the Netherlands the importance of other sciences to become involved is recognised, that is those sciences other than the natural/ecological, for example the role of the economic and social sciences in ecological networks.

Opportunities or challenges highlighted for ecological networks

During the interviews the interviewees specifically identified the following issues as opportunities or challenges for ecological networks in the Netherlands.

- **The strength of the National Ecological Network**

One respondent thought that the concept of ecological networks provides the opportunity to balance social, economic and environmental aspects, “you can find a balance between urban, ecological and agricultural activities that is what we can do with ecological networks.”

- **Integration of other policies**

Several respondents acknowledged the importance of the connecting the National Ecological Network with European Directives, such as, the Habitats and Birds Directives and the EU Water Framework Directive and International Strategies such as PEEN.

- Local level support for international policies

One of the respondents observed that the attitude of the policy makers of the different regions can be a constraint to international cooperation, accepting the fact that whilst it may not be the task of a local authority to get involved in international concepts, the problem is that their work remains focused on the local level with very little interest in the wider international cooperation level, which is needed for processes like PEEN.

- Arguments against the ecological network concept

Arguments against the concept of ecological networks have been raised on issues such as animal health or food safety. For example one argument is that ecological corridors will spread animal diseases. Other arguments state that the concept is not viable for an equal balance between economy and ecology or that people do not want wild animals reintroduced back into areas. The argument with regards to reintroduction of species, particularly potentially 'dangerous' wild animals, is difficult for society. However this is where the integration of other scientific disciplines, such as the social sciences can help in the implementation of the ecological network concept.

Conclusion

The National Ecological Network is well established and considered a priority by the government in the Netherlands. It is established through national nature and planning policies and is implemented by the provinces at the regional level. In recent years policy direction has changed from compulsory purchase of land to be included in the ecological network to more interactive policymaking with landowners through management agreements. This has provided more opportunities for involvement of stakeholders in the national ecological network process. The ecological network is based on core areas and connection zones and large parts are designated under the Natura 2000 Network legislation.

Decentralized implementation provides for greater involvement of stakeholders where decisions by the various stakeholders can be made at the regional level, however the disadvantage of coherence between regions via decentralized implementation was also acknowledged. Whilst communication and involvement increases via decentralized implementation some non-conservation stakeholders thought that they were not involved early enough and thought they should be involved at the policy formation stage and not only at the later stages of implementation. There is a high level of cross border cooperation on a practical level. On a policy level there is also a high level of motivation for working across borders through implementation of a PEEN process. The Netherlands supports PEEN through its inclusion in national ecological network policy and also through the external support that the Government gives for the establishment of PEEN, particularly in Central and Eastern European countries.

Specific opportunities and challenges highlighted in the Netherlands, included the need to ensure integration of policies with the national ecological network, particularly the EU Water Framework Directive and Habitats and Birds Directives. There is a need to ensure that implementation at the local level of the ecological network across borders is done in a way that incorporates the international PEEN policy. This reflects the fact that local level implementers need to see beyond the local level, to the international level, to ensure that PEEN is truly effective. Reasons given for ecological networks being a negative thing included the increased possibilities for the spread of diseases and the problems that surround the reintroduction of species.

There is a high awareness of the PEEN concept in the Netherlands and generally it was thought to be a positive concept that goes above and beyond Natura 2000, which was seen as lacking vision, as it remains restricted to specific protected areas. Some respondents thought that the EU involvement in PEEN should be encouraged as it provides opportunities both for PEEN and for Natura 2000. There is a considerable amount of research in the Netherlands on ecological networks due to the high awareness and involvement of the government, at the national level, in the PEEN concept.

2.6 Norway ⁵

Introduction

Norway has no current policies that cover the concept of a national ecological network. However Norway is an interesting country to analyse, firstly due to the perceived differences between this country and other European countries. Secondly it has recently gone through a process of mapping ecological areas as part of a government project. This was done in a unique way, compared to all of the other countries that have been considered so far in this report. This is because this government project used an interactive policy-making process, with full participation at the local level in the data collection and actual mapping of ecological area. This is in direct contrast to the other countries analysed, who have used mainly advice from scientists and experts in the first mapping stages of the ecological network policy process and then involved stakeholders at the later stages. The process of mapping in Norway was promoted as an information gathering exercise to enable monitoring of nature in future years.

Fragmentation was not considered to be a big issue by some respondents and this was thought to be the case even in agricultural areas. This was explained as being due to the fact that farm holdings are usually small and many farms are no longer in production. These respondents thought that the main issue was the loss of agri-environment species as old agricultural land turns into forest.

Respondents from the forestry sector described a process called the “Living Forest Process”, this forestry sector initiative, involved environmental mapping to develop a scientific basis for analysing species ability to spread. Respondents advised that this process found that red list species were not connected to specific areas, they could be found all over the forest area. This directed some forestry stakeholders to conclude that red list species are not specifically rare but rather species that are hard to find.

It is important to remember the context of Norway when considering the interview analysis. It is a country with a large amount of wilderness areas compared to many other European countries and with a relatively low density of population. There are large amounts of forest and much of the land is privately owned, often by family businesses.

National ecological mapping project and nature protection

The ecological mapping project that was set up at the national level in Norway looked at migration routes and defragmentation issues. One of the aims of the mapping was to combine some of the national parks in the central mountain ridge and also to take into account agricultural landscapes in landscape structure and corridors. The mapping was not an all-encompassing ecological network map. Another of the project aims was to identify wilderness areas in order to assess reduction in size. DirNAT (Directorate for Nature) coordinated this process at the national level. Once mapping had been completed, databases were set up in order to enable the monitoring of these areas. Otherwise nature reserves and national parks are protected under the Nature Protection Act. Hotspot mapping is carried out to identify game animals and migration routes. Some respondents saw the physical concept of ecological networks as a difficult process to map in Norway, due to the large biogeographical variation within the country.

Policy Aspects

There is no legislation or policy for the implementation of a national ecological network that is similar to the concept of PEEN and as Norway is not part of the EU, it also has no obligations to the legislation for the implementation of the Natura 2000 Network. There are national instruments to protect nature e.g. species or specific areas, through the Nature Conservation Act, the Wildlife Act, the Planning and Building Act and National policy guidelines for coordinated land-use and planning. Because of the specific character-

⁵ *The Norwegian interviews took place in Oslo and Trondheim. Interviewees included representatives from the following sectors, national nature authority, farming association, forestry authority, forestry association and local authority. Norway was selected, as it is a country with little interest in the concept of ecological networks.*

ristics of the Norwegian landscape, including the relatively high percentage of wilderness areas compared to other European countries and its relatively low population density, the concept of ecological networks was deemed as irrelevant by many people interviewed.

There was a requirement by a White Paper for the ecological mapping project to take place. Initially it had to be complete by 2003, but this was considered to be an ambitious goal. Whilst it was coordinated at the national level, by the national nature Directorate (DirNAT), the local communities were responsible for collecting the data and mapping and used hired consultants where necessary to complete the work. DirNAT provided guidance manuals on how to produce maps from data, how to collect data etc., but then it became the responsibility of the communities to initiate.

Whilst the mapping was not carried out to form a national ecological network, it was acknowledged that the mapping enabled the bringing together of the central mountain ridge into one big park and this, to some extent, would act as a corridor and a network. However there is no systematic approach to take care of habitat fragmentation. The data from mapping and monitoring will provide valuable information and respondents acknowledged that this could be used to feed into policy decision making processes regarding nature protection in the future.

Respondents in Norway considered Norway to be very different to other European countries. Many of the respondents consider the Country to have a high amount of undisturbed nature and therefore it is considered to be obvious that there will be different methods towards nature preservation, compared to the instruments that exist in other European countries. Nature areas are currently protected to the extent that if they are wilderness areas they have no human impact. Also at a regional level there are requirements with regards to no infrastructure within 1 to 3 km of a special area.

Opinions of a National Ecological Network and involvement of stakeholders in the process

Non-conservation stakeholder respondents thought that if a national ecological network was to be implemented it would have to be formal and it would have to involve working together with the owners of the land from the beginning so that they had the opportunity to negotiate and accept such a concept. Ignoring traditions and cultures in these types of processes was seen not to be an option, as they appear to automatically be acknowledged as important in policymaking in Norway. The taken-for-granted need to consider the social aspect of policy and involving people was further highlighted when asking respondents about environmentally policy processes in Norway. It was clear that tradition, culture and social acceptance of political processes is considered to be of high importance. For example, when asked by the interviewer *“Do you think that the concept of Ecological Networks could develop in Norway?”*, a respondent replied, *“then we are talking about sociology and anthropology.”*

Therefore any policy process in Norway is immediately recognised as needing acceptance by the many stakeholders involved from policymakers to landowners, as one respondent said *“...if you want to build true corridors you have to reach agreement among lots of people. That’s maybe the problem in Norway.”* However this acceptance and understanding of the need to automatically involve all of these people from the beginning is a process where there are still gaps in other European countries. Some other European countries may not see this as a problem for Norway but think that it actually reflects an easier ability to understand the need for interactive policymaking to find solutions. This acceptance of interactive policymaking is further reflected in the community involvement of the ecological mapping where resource was provided nationally for the local community to organise themselves.

Communication

The idea of carrying out the ecological mapping project at the local level was to involve municipalities so that they would become involved from the start and therefore they would take ownership of the data. One of the main success factors of the mapping process from a communication point of view was that all data (except for some breeding locations of raptors) were open and transparent to the public via the Internet. The maps are now considered to be a powerful communication tool from national to local level.

Following the ecological mapping project there was an evaluation of the communication process and the main factors that have been identified are that in order for this type of participatory policymaking to work at a local level there needs to be a local, high-level, political figure to support the initiative. The provision of good information to be supplied to the main stakeholders by the municipality was seen as extremely important to the success of the process. Issues that were highlighted during the mapping process was the lack of knowledge at the local level in being able to translate the data into maps and also variations in the qualitative aspects of the data. The county governor was made responsible for the data and therefore involved in hiring consultants who were used when necessary and in evaluating competence of any consultancy used.

Whilst there may be considerable differences in approach to nature protection policy in Norway, respondents still identified many of the same issues that were considered important in the other European countries in the protection of nature.

- **Integration of government departments**

Several respondents highlighted the fact that nature protection policy would always be difficult as different ministries work for different goals and as long as there were different ministries for environment, forestry and agriculture it would always be difficult.

- **Conflicts between stakeholders**

Several respondents highlighted the fact that different groups involved in nature will have conflicting opinions and that whilst involving stakeholders and working together there will always be differing views. As one non-conservation stakeholder said, "It is sometimes frustrating for forest owners who have been managing their forest for five or six generations with the best future interests in mind to be told by some city-dweller, just-out-of-university that they know better how to manage your forest sustainably..... it is not credible from the local communities point of view."

- **Awareness of people**

One respondent highlighted the fact that a person's awareness of nature depended on whether they were an urban or rural dweller, "*Urbanisation leads to people being disconnected from nature and that leads to overprotection.*"

Cross border cooperation and PEEN

Cross border national parks exist between Norway with Sweden and Finland. The communication is often at a municipality level and was perceived by one respondent to not get much attention. There was no awareness of the concept of a PEEN and when it was explained to respondents, one significant response was that they failed to see how different European countries could have a common network that could be effective enough to take account of all of those differences and therefore they could not envisage such a concept in Norway.

Research activities on Ecological Networks

The Norwegian Research Council have funded projects on issues such as ecological corridors, the forestry department and large research institutes such as NINA also do some work on this issue.

Opportunities or challenges highlighted for nature protection

Whilst no respondents highlighted any specific opportunities or challenges for ecological networks, construction of roads and hydropower were perceived to be two major threats to nature protection in Norway.

Conclusion

There is no national ecological network in Norway, however there are nature protection laws and designated wilderness areas. Due to the high amount of natural areas and the low density of population, some participants considered national ecological networks irrelevant in Norway. It was interesting to analyse Norway as the recent national project on mapping of ecological areas reflected the fact that interactive

policymaking, involving stakeholders in nature protection, was embedded in this national project which feeds into national nature policy.

The mapping project reflected the fact that Norway carries out interactive policymaking. The project involved mapping the central mountain ridge area of Norway, so that on the map it formed one big park, this could be seen as a type of ecological network. This was a unique method compared to the other countries in this report, as local stakeholders created the collection of data and drawing up of maps. This type of policy formation and implementation has been carried out by 'experts' in other countries that are included in the report. The interviewees in Norway also automatically identified the importance of social knowledge in nature policy decision-making, something not so evident in other countries in the report.

Opportunities and challenges identified by respondents for development of an ecological network included the need for integration of government departments, the need to resolve potential conflicts between stakeholders with strong and differing opinions of nature and raising the awareness of people about nature and the need to protect it.

Cross border cooperation exists but generally only at the municipality level. Research had been carried out on concepts such as ecological corridors in Norway. With regards to awareness of PEEN there was generally a lack of awareness as to what it was and a lack of recognition of the need for a national ecological network in a country such as Norway, rather than any strong negative feelings against such a concept.

2.7 United Kingdom ⁶

Introduction

In the United Kingdom, the Natura 2000 Network is well established and further supported by policy strategies such as the UK Biodiversity Strategy, which involves the implementation of national and local Biodiversity Action Plans, to protect nature in the UK. Whilst Natura 2000 implementation is as far as ecological networks currently go in national legislation there is high awareness and strong opinion amongst most UK policymakers, scientists and NGOs about the concept of ecological networks. Whilst the concept of a National Ecological Network was generally supported by those interviewed, different stakeholders in the UK may have a different interpretation as to what they perceive as an ecological network. These different opinions and the fact that the concept does not have sufficient political priority at the moment, means that the process of creation and implementation of a network beyond a Natura 2000 Network is moving slowly. It was thought by many respondents that the concept of ecological networks will become a higher priority in nature policy in the future.

Physical aspects

The UK has implemented the Natura 2000 Network requirements, this includes the creation of maps. As the UK does have a high awareness of the ecological network concept it was of more interest in the interviews to not reflect too greatly on the physical aspects of the Natura 2000 Network and instead to concentrate on what further work has been carried out in the UK to create an ecological network, such as that defined by the PEEN.

The government agency that is responsible for implementing the concept of ecological networks in England confirmed that ecological thinking had evolved over the years into a sophisticated framework that incorporated landscapes in a hierarchical and geographical framework. This framework, supported by the government agencies, allows them to understand the differences in ecological processes and features across the whole of England in ways which relate to landscapes. Information can be inputted into the framework that enables consideration of the impact on different sectors and different issues. The framework can look at different wildlife and vegetation patterns and establish which different types of ecological framework would be required for a successful network. The government agency for nature has started to fund a series of projects at the landscape scale, engaging stakeholders, in order to restore more landscapes in line with this framework. Within the framework, ecological networks, corridors, buffer zones and stepping-stones play key roles. This framework can be known by the phrase the “Countryside Character Approach”, it is currently also used by other agencies, such as the Rural Development Service, for agri-environmental scheme work.

During the interviews, when respondents were asked whether the UK has any type of ecological network map, over and above the Natura 2000 requirements, there were a variety of differing opinions. This included differing opinions as to whether there was any type of ecological network map and some respondents questioned whether there was a need for such a map. One respondent thought that the ecological network ‘framework’ created by the government agencies’ “Countryside Character Approach” was more important than a map, as the ecological network is something that the government agencies want to develop within this framework. A map was not always considered to be as important by some respondents at this point in time. If a map were to be produced it was considered that the key aspects would be a spatial planning approach linking core areas at regional scale.

Other respondents thought that the Countryside Character Approach had created an area map and that was what they would consider to be the official documentation of the ecological network. However they doubted that the scale of this map would give sufficiently detailed information for an ecological network.

⁶ *The United Kingdom interviewees included representatives from the following sectors: the Government department representatives for national nature policy, farming association, woodland conservation NGO, researcher/scientist, national highways (transport) agency and the national agency for implementation of nature conservation policy. The UK was selected, as it is a North Western European country with a growing interest in ecological networks.*

Some respondents thought a map was vital in order to communicate what existed at present and to identify where the gaps were, to ensure easier promotion of the ecological network concept to the UK stakeholders. Others questioned the importance of having a map, in respect of whether it would really expedite any more action.

One thing that is clear is the need for communication between the variety of stakeholders at the national level in the UK, whether it is via a map, a framework or some other means. It was evident that currently there is confusion as to what exists, what should exist, and therefore how a national strategy on ecological networks should proceed. Some type of instrument such as a map can be important for communication purposes.

An issue to arise from the interviews was that there was seen to be a lack of modelling on a landscape scale, with basic site scale information, within the UK. This was seen as a problem as it means that there is a lack of evidence to support the concept of ecological networks by using modelling to determine important aspects of policy such as the potential socio-economic benefits of ecological networks.

As mentioned above there does appear to be confusion or a lack of clarity amongst UK stakeholders as to what officially exists on ecological networks. One respondent confirmed that, *“the concepts of ecological networks in the UK are very much at the conceptual stage, that is predominantly where they are in terms of implementation.”* All of the UK respondents agreed in principle with the known UK “Landscape Scale Concept” or “Wider Countryside Approach”, however the details as to what it actually meant differed between stakeholders. *“I think that you need to have a landscape scale approach and so in that sense the only thing which I have come across is the “Country Character Area Map”. ... “even at that scale I do not think we have any planning to show how the species in the South connect with those further up.”*

However some respondents would argue whether it really matters if there is no definite agreement on the detail of this concept, as one respondent asked, *“I think this was because of all these different agendas out there on landscape scale thinking. There is no real definite agreement although we all agree with the concept of ecological networks so does it really matter? I am not sure that it does.”*

Lack of clarity as to the concept of ecological networks amongst stakeholders could stem from lack of clarity by the differing government agencies working on this issue, as one respondent said, *“I think that it is still developing [the ecological network concept] there is not disagreement but understanding amongst the [government] agencies is not complete.”* Another respondent supported this comment, *“At a government agency level there is confusion as to whether they should focus on those areas most vulnerable, most fragmented....., or whether they should focus on areas that are most intact. There is confusion as to the extent of focus on physical connectivity compared to functional connectivity. There is confusion in terms of the science and also saleability of the idea to the public.”*

Depending on the different stakeholders being asked about ecological networks, the interpretation will vary according to their opinion of the concept and what actions they have been taking on ecological networks. For example the Highways Agency in England may argue that they have an official ecological network through their networks of road verges (what is known as the ‘soft estate’). This network of natural area is part of a management system, it is controlled and protected, and guidelines are provided as to how each part of the network is to be managed. Whilst this is clearly not a sufficient network for the whole of biodiversity in the UK (and some would argue that in fact it is the highway that has destroyed the linkages and the biodiversity in the first place), this network does however reflect how one agency tries to create and maintain a network, at this point it is not clear from the research as to whether this work by the Highways Agency was taken into account by the government agency responsible for nature in their ecological network framework.

If the farming stakeholders were asked about networks they could argue that the network of hedgerows that farmers in the UK protect, are a network that provides connectivity and protection to biodiversity. Furthermore the agri-environment schemes that promote aspects such as hedgerow protection could be

considered as a voluntary contribution to ecological networks from the farming community.

One respondent viewpoint was that the government should do a cost benefit analysis of the ecological network process to avoid money being 'wasted' on further bureaucracy.

Policy aspects

The UK implements the Natura 2000 Network, in order to comply with the EU Habitats Directive through the legislation, "The Conservation (Habitats, & c.) Regulation 1994." On a practical level it is implemented through Government's compulsory purchase of land or through the arrangement of management agreements with landowners. Furthermore the "Countryside and Rights of Way Act 2000", applicable to England and Wales only, protects nationally designated sites such as SSSIs – Sites of Special Scientific Interest and AONBs – Areas of Outstanding Natural Beauty. Whilst UK policymakers and other stakeholders involved in policymaking and nature research are well aware of the concept of ecological networks as defined in the PEEN action plan, there is no policy or legislation that requires implementation of such a concept at this present time. The UK also provides plans for species and habitats through the UK Biodiversity Strategy policy. This strategy aims to implement the requirements of the Convention on Biological Diversity (CBD). This involves national and local Biodiversity Action Plans (BAPs) for habitats and species.

The UK Biodiversity Strategy and the UK Biodiversity Action Plans (UKBAPs), described above are seen as a driver for a national ecological network. A recent review of the UK BAPs has provided evidence that traditional approaches to conservation, that is conserving species in specific protected areas, will not conserve species that are dispersed, these species were referred to by several respondents as 'landscape scale species' and fit into the UK's 'landscape scale approach' to ecological networks. UKBAPs were seen as a driver in respect of enabling organisations to join together to achieve policy goals. The UK Biodiversity Strategy is also considered a driver for ecological networks in respect of communication and involvement of stakeholders. The Strategy has taken a wider involvement approach including the commercial sector, this has enabled data on the benefits of the UK Biodiversity Strategy from an economic point of view. The UK BAP is coordinated centrally, at the national level, by the Department of Environment, Food and Rural Affairs (DEFRA). Action Plans are managed by Government Agencies and NGOs, involving a wide range of stakeholders.

The EU Water Framework Directive (WFD) is also seen as a driver for a national ecological network. It has similar principles as the Convention on Biological Diversity (CBD) in respect of the requirement for catchment scale (or in the CBD landscape scale) approaches to biodiversity protection. Several respondents acknowledged the potential of the WFD, as it is a Directive that requires catchment scale management and public participation and has a stronger legal power being a Directive. The philosophy of the WFD is to take a much more holistic approach to environmental management. However on the practical level there is scepticism that those government agencies implementing the WFD will not embrace this concept, including how it can be connected to other concepts, such as ecological networks. It is thought by some respondents that the government will look for the easiest ways to implement the WFD to ensure that it is economic, and to enable delivery within the Directive's timelines to ensure compliance. This could mean not taking a wide interpretation, not using the potential of participation and not ensuring integration of sectors and policies, such as ecological networks, as these activities can be time consuming and expensive. Ensuring minimum compliance with the Directive may be seen as the cheaper and easiest option.

Climate change policy is seen as a fundamental driver in helping shift the thinking in government agencies about biodiversity and the need for a policy to manage species protection with future climate changes. Modelling can be used to explain the need for species dispersal and mobility, ecological networks can be a tool to achieve this. As one respondent commented, *".... There is no point creating an ecological network that does not think about climate change"*.

The EU Common Agricultural Policy is also seen as an opportunity for ecological networks in respect of the newly incorporated environmental aims to reduce land use intensity and to target activities that buffer

semi-natural habitats. One respondent commented that, *“agri-environmental schemes are very good instruments for implementing ecological networks, in effect it is a type of voluntary network that exists already”*.

Integration of Sectors

As with interviewees in the other countries in this study, several respondents acknowledge that in the UK there is a lack of integration of differing sectors in biodiversity policies. Respondents stated that generally different sectors or professions stay within their own networks and this lack of integration of sectors hampers finding solutions in nature protection where integration of policies and therefore integration of sectors is required, *“academics, policy-makers and practitioners live in different silos, even different sectors within the same silos, so there are few who try to integrate and make links”*.

However Ecological Networks was seen by one respondent as an opportunity to integrate sectors, *“Ecological Networks, landscape thinking, is actually an integrating concept it can cut across these silos [sectors] of nature conservation work”*.

Linkage to the planning system was highlighted as a significant gap and regarded as a necessary requirement for an effective national ecological network by numerous respondents. The Office of the Deputy Prime Minister (ODPM) is the Government Department responsible for planning policy. There have been efforts by some respondents to involve this department, but without success. Again, as with other countries in the report, the need for integration of government departments was also seen as important in the UK. There will be a future change in England with the government agency structure of English Nature, Countryside Agency and the Rural Development Service merging. This integration was considered by a respondent as an opportunity to integrate the different responsibilities for the landscape and therefore it was seen as a favourable time for using the ecological network approach.

Changes in the ‘traditional conservation approach’

Several respondents highlighted the need for a change in the mindset of nature conservationists away from the ‘traditional conservation approach’, as this is seen to create a barrier to the national ecological network concept. Respondents spoke about the fact that the traditional approach of conserving specific protected areas can now be considered detrimental to overall biodiversity conservation. This was spoken about from a UK perspective, but actually considered to be a worldwide issue. Biodiversity could be described as having become an exclusive sector and this was thought to have pushed biodiversity to the margins and it is now thought that this is not a progressive way forward and biodiversity conservation must be seen as an integral part of sustainable development in order to ensure its’ protection. This new line of thinking could be seen as a threat to some in the nature conservation sector, who have relied upon and used the traditional approaches. General thought included the need for a major change of thought amongst the nature conservation Sector. *“We cannot afford to polarise land use, we want to see a general reduction in the intensity of land use between protected areas”*. With saying this, it was acknowledged that the UK, and the rest of Europe, would probably continue with the focus on designated sites, however it was still thought that taking on the new ways of thinking could target energy more effectively.

Ecological networks provide the opportunity of taking forward this new concept of the wider protection of nature as opposed to concentrating on protected areas, as one respondent stated: *“It is difficult to make people aware of that, nature conservationists, about the wider protection of nature not just concentrating on protection only.”*

Involvement of Stakeholders

Some of the large landowners in the UK, such as the National Trust, Water Companies and the Ministry of Defence, are perceived as having made progress in nature conservation and being receptive to the concept of a national ecological network. The Highways Agency (England) is also active in this area. However respondents still felt that major landowners and government agencies needed to be more aware and involved in the concept of ecological networks. It was thought that there needs to be greater legitimacy given to ecological networks, particularly by the government agencies, in order for it to gain further momentum.

There is evidence of an active dialogue between such government departments, government agencies, the landowners and NGOs. Several respondents acknowledged the fact that generally there is good communication between the majority of stakeholders, but that they could work more effectively together than they do now. There was optimism that if all of the relevant stakeholders “came to the table”, including the Government, then a solution or a way forward for implementation of Ecological Networks would be found and that a strength in UK policy was the ability to create effective partnerships, particularly at the local level.

Whilst on one level there is considered to be a lack of integration of sectors and a lack of integration of government departments, it is acknowledged by respondents that there are partnerships and links between organisations, particularly where day-to-day work of one organisation is directly affected by the other. Communication is lacking where there is less direct contact between organisations. Biodiversity Action Plans and Local BAPS have provided the opportunity for improvements in communication in nature policy, between organisations particularly at the ground level. One respondent supported current communication links, *“I think that in the UK the ecological network will emerge on the ground, we are good at creating partnerships.”*

Government agencies have involved stakeholders in projects that have happened on a local scale including their national representatives such as the National Farmers’ Union (NFU), generally when appropriate. The NFU respondent thought that there was an adequate dialogue between them and the government agencies and that when it was necessary the agencies would come to them. Relevant government agencies, with the responsibility for the environment, generally have good communication with those sectors such as conservation NGOs or farmers with whom they need to get involved to carry out policy deliverables, that are on their priority list, on a practical day-to-day basis. This includes communication not only on a “same level” basis but also communication on a less frequent basis, connecting to the higher level e.g. agency to agency communication on a frequent basis with formal, planned meetings involving agency government departments.

The Forestry Sector (including the Forestry Commission and NGOs such as the Woodland Trust) is seen to have been active in the concept of ecological networks and have driven this concept forward through various research papers and policy work. Whilst much work has been done on ecological networks, this sector highlights the fact that the Forestry Commission, as a government department, is not as integrated as it should be with the Department of Environment, Food and Rural Affairs (DEFRA), the government department responsible for nature protection and environment. Therefore if government departments with similar responsibilities have barriers then it was recognised that reaching departments that are not so obviously connected e.g. Department of Transport or Health would be a much bigger challenge.

Government agencies may involve stakeholders by promoting their work on ecological networks through various types of instrumental communication such as brochures, leaflets, reports and also through exhibitions, telephone helplines and internet sites. All of the government agencies have formal stakeholder consultation processes where stakeholders can provide feedback on intended plans or protected areas or proposed developments.

Research Activities on Ecological Networks

It was considered that research projects that have been carried out on the implementation of ecological networks, for example, the LIFE-ECONET project in Cheshire, should be greater promoted and disseminated. It was thought that the results of projects such as these, when valuable to policymaking, could be used and further developed and that this was seen as an important next step.

This LIFE-ECONET project was carried out in numerous countries, including Cheshire (England), and implemented an ecological network concept at the local level, it is well recognised in the UK and was cited as an example by all respondents. However many respondents did not know how it would develop further, or had not been advised as to any potential next steps, even those that may have had some type of involvement in the project. This perhaps underlines the importance of communicating research effectively in order for it to be actively linked to policy development.

In Scotland, there is a lot of work based upon the concept of ecological networks through woodland corridors. Scottish Natural Heritage are heavily involved in the ecological network concept.

Research exists on specific biodiversity projects but less was evident on ecological networks. University research and research funded by different Government agencies from nature agencies to transport agencies had projects on biodiversity, however less existed that focused specifically on ecological networks. One respondent felt that research that focused on the UK rather than that which had a European perspective, is considered to be of a greater priority to funders and research institutes in the UK. With regards to government agencies, research is generally focused on solving current problems rather than investing in looking at future possible concepts or strategies, such as ecological networks.

A good example of involvement of participation of stakeholders in research at the European level could be seen by the Highways Agency who had been involved in the Cost 341 European project and thought this type of communication at the European level to be important and of benefit to them, as well as to other stakeholders.

Cross Border Cooperation and PEEN

Evidence of cross border cooperation could be seen in Ireland, where a network is considered for those birds and plants monitored in Northern Ireland and the transboundary connection with Southern Ireland. One area where cooperation has been seen to be effective between borders and stakeholders is in marine site assessment. This is because it requires looking at a marine area that connects to terrestrial areas and therefore is an ecological network that knows no boundaries.

Within the research community in the UK it is thought that the awareness of the concept of a PEEN is important, as it goes beyond borders, provides opportunities for cooperation and therefore provides a greater chance for the protection of nature. However the challenges of implementing such a network were recognised. It was considered important to ensure that when communicating a strategy such as PEEN, the concept of an ecological network is clearly explained using a common language that is understood by the stakeholders involved in the communication. The importance of working with a variety of stakeholders, farmers, politicians etc. was stressed.

Other comments from UK respondents included the fact that it was thought that the awareness of the concept of PEEN is increasing. On a species level the concept of networks is fairly common and understood, such as migratory birds etc. There is a network of government agencies and NGOs within the UK who ensure that the UK participation exists at the EU level in PEEN and then information is passed back down and amongst this network. The Joint Nature Conservancy Council (JNCC) coordinate the network. There is also an international policy team within DEFRA, who support and follow initiatives such as PEEN. It was evident that NGOs and policymakers were becoming involved in the ecological networks through links with their own European contacts. This reflects the fact that there is interest to know more or become more involved at the national level, European level policymaking on this issue.

The opinion coming from UK government agencies is that the UK fully support the further development of the PEEN concept, however interpretation of the term ecological network in the UK might be slightly different to other European countries. The UK opinion is that if you base the concept of biodiversity entirely on the concept of linking protected areas using corridors and buffer zones the wider countryside will be overlooked. The UK does not intend to overlook the wider countryside as it is thought that this is an integral part of sustainable development. Respondents in the UK also thought that PEEN focuses too greatly on the concept of core areas, stepping stones, corridors and buffer zones, when it should take a wider approach, which includes this wider countryside concept.

Stakeholders that are not involved directly in governmental processes, for example, land owner associations, may often not be aware of the concept of ecological networks and PEEN. However as the concept is still to be established and clarified at the national government level then there is an appropriate time to bring in other national stakeholders and local stakeholders. The timing of raising awareness of an issue to

a stakeholder is important, as once an issue is raised, if they can not physically do anything about it at the present time or foreseeable future, it may lead to a negative view of the issue being considered.

A further view point on the UK concept was that on the ground PEEN was seen as a set of mechanisms and that this was of more importance than having hard lines on maps. The UK has followed PEEN in the past, but may have been hesitant to becoming fully engaged due to the feeling that the PEEN policymakers did not support the UK concept of an ecological network. A recommendation from the UK for a communication strategy is to structure the PEEN strategy as more of a forum for sharing ideas, rather than a rigid strategy based on formal conventions. When formality is introduced national policymakers are less likely to become involved for fear of committing themselves to something that they cannot guarantee will be supported. If the strategy was opened up to be a forum, a more informal type of process, then it was thought that more national policymakers may be willing to become more involved in discussions.

Opportunities or challenges for ecological networks

During the interviews the interviewees specifically identified the following issues as opportunities or challenges for ecological networks in the United Kingdom.

- Other environmental policies as drivers

As discussed above the following are seen as opportunities for ecological networks, the UK Biodiversity Strategy/UK BAP, the EU Water Framework Directive, Climate Change policy. Barriers were also discussed and include the 'traditional conservation approach', lack of integration of sectors and government departments. Although it was acknowledged that ecological network policy could provide an opportunity to enable integration of sectors and government departments. A further barrier was seen as lack of modelling information. It was stated that in the UK there is a lack of landscape modelling information, at a site level. It was thought that this type of more detailed information would allow the potential socio-economic benefits of landscape scale approaches/ecological networks to be promoted in policies.

- Fragmentation

Fragmentation in the UK is considered to be a significant challenge as whilst there are a high number of protected areas, they are isolated by areas of intensive land use, preventing many key species from moving between these intensive land use areas.

- Imposition of an ecological network model

Specific potential barriers for the implementation of ecological networks include the imposition of an ecological network model. It was thought that if a model of an ecological network is promoted in such a way that it is thought to be imposed on a country, such as the UK, from the European level, then it will be ineffective in the creation of a network. It is important to realise that whilst all countries can learn from models; physical, political and societal structures differ between countries and therefore each country need their own model which is developed and built within that country.

- Regionalisation

Regionalisation can be seen as a barrier and an opportunity to ecological networks. It is a barrier in respect of biodiversity having a lower level of priority at a regional government level than at a national level. Therefore with increasing powers at the regional level, it could mean biodiversity and ecological networks taking an even lower priority than it has at present. However it can also be seen as an opportunity, in respect of regionalisation could encourage spatial planning at a regional level and this could provide an opportunity for the creation and operationalisation of ecological networks at the ground level.

Conclusion

The National Ecological Network in the UK goes so far as the implementation of the EU Natura 2000 Network, through national legislation. Protected areas are managed through management agreements with landowners or land is bought via compulsory purchase, and a map exists for the designation of Natura 2000 protected areas. Natura 2000 is an established part of nature protection legislation. The concept of a national ecological network reflecting the definition of the PEEN is well known in the UK amongst

policymakers, researchers, scientists, conservation NGOs and some non-conservation NGOs. However there is no policy strategy at present to implement such a concept. The UK Biodiversity Strategy and the implementation of Biodiversity Action Plans also provide for a greater protection of nature and involve stakeholders in the policy process.

The government agency responsible for nature protection has been working on a framework that takes on the concept of protection of landscapes over and above protecting specific areas. This is referred to as the “Countryside Character Approach”. This framework has involved mapping and specific projects looking at protection of the wider countryside and could be seen as the equivalent of creating an ecological network, however this is in its early stages. It was thought that there was a lack of modelling and basic site level information on socio-economic benefits in the UK at present for an ecological network to be developed. There is also confusion amongst government and stakeholders as to what data, processes and structures currently exist, which could be used for a national ecological network and what the network should actually be, or what it actually means. However it could be seen that, despite the present lack of clarity, there is common agreement amongst government and stakeholders that something more may be required for a national ecological network, than presently exists. Acknowledgement by these different actors can be seen as a positive thing.

Numerous opportunities and challenges were identified. Opportunities include the UK Biodiversity Strategy, EU Water Framework Directive, Climate Change Policy and the Common Agricultural Policy. Challenges identified include the need for integration of sectors, particularly the greater involvement of the planning sector, integration of government departments and the need for acceptance and change in the traditional conservation approach. Regionalisation was seen to provide opportunities and challenges. Opportunities such as regionalisation enable greater stakeholder involvement, however regionalisation can be a challenge, as it may mean lower political priority at the regional level.

There is an awareness of PEEN and the need for the UK to take part in the PEEN activities at the European level. However in the past the UK has kept some distance, this is mainly due to the perception that policymakers wanted to avoid having an ecological network concept imposed on them. If PEEN were more of an informal process, such as a discussion forum, there may be more acceptance for increasing involvement. There is research on ecological networks in the UK, particularly in the forestry sector, which appears to lead in this area.

3. Overall assessment of the challenges and opportunities for ecological networks in Europe, and for PEEN in particular

3.1 Introduction

This chapter details challenges and opportunities that have been identified for the establishment of ecological networks during the course of this study. It returns to the opportunities and challenges identified in the report⁷ on Phase I of the Communicating PEEN process, and explains how evidence from this study either supports or challenges these. In addition, the new opportunities and challenges identified during the study are of course also listed. As the current study largely focuses upon support, understanding and acceptance of ecological networks and PEEN at the national level; the opportunities and challenges identified are directed towards practical, 'on the ground' implementation. This is in contrast to Phase 1 of the project, where interviewee responses focused upon the more general understanding of the ecological network concept and actions at the international level.

3.2 Opportunities for establishing ecological networks in Europe, and for establishing PEEN in particular

3.2.1 Reassessment of opportunities identifies in Phase 1 of the project Communicating PEEN

The opportunities identified in Phase 1 are listed in *italics*.

Support at the international level:

There is an existing support from international governmental and non-governmental organisations for the PEEN concept (Council of Europe, IUCN, ECNC, EUCC). General support from Member States exists, although questions remain with regards to specific design and implementation issues.

The interview analysis in Phase II reflected the support from Member States highlighted in the Phase I report. Countries such as Greece and the UK, have not implemented an ecological network nationally that supports the PEEN concept, however they are involved and aware of what is happening in Europe on PEEN. With regards to International governmental support, whilst the European Commission may not support the PEEN concept, they do follow activities on PEEN that take place. They also do not rule out possible changes in EU nature conservation policy, as a result of changes in EU structure, such as the inclusion of new Member States who are already implementing an ecological networks in their own countries.

Public appeal:

PEEN can be easily explained to the general public and specific stakeholder groups in layman terms and with maps. The network concept can be used as a symbol of European and national unification and identity.

Some interviewees highlighted the importance of ecological network maps as a tool for communication; in the Norwegian ecological mapping project the value of maps for communication was stressed as being extremely important. The Norwegian approach was unique in this analysis as the stakeholders collected the data and helped in the preparation of the maps, a deeper level of interactive policymaking that was not used in any of the other countries analysed.

Profile:

PEEN is reasonably well known in European nature conservation, although the term EECONET is also occasionally used.

Whilst the majority of interviewees had heard of PEEN, there was considerable variation in levels of knowledge as to what it actually meant and knowledge as to what activities take place.

⁷ Phase I of the project is the publication, "Support for Ecological Networks in European Nature Conservation: An indicative social map", (2003 Rientjes and Roumelioti).

Experience and expertise:

Over the past decades expertise concerning the design and development of ecological networks on various scales and various bio-geographical contexts has increased considerably. A substantial number of countries have developed practical experience with establishing ecological networks.

Three out of the six countries had established ecological networks over and above the ecological network provided for through the Habitats Directive (Natura 2000). The UK provided an example of countries that may not have developed a national ecological network, as defined by PEEN formally, but had carried out a significant amount of work in project research as to how best to implement such a network. In the UK it was thought by policymakers and other stakeholders, that there would be an increasing awareness nationally of such a concept.

Funding:

European Union funds for regional development and interregional cooperation can be used to develop cross border cooperation for ecological networks. Research funds could be used to resolve some of the conceptual design questions.

All of the countries where interviews were held expressed motivation for implementing nature protection and ecological network actions across borders. Some of the countries have actually carried out actions for implementation of ecological network cross borders such as the Netherlands and Germany.

Timing:

Specific events such as changes of nature conservation and policy law and EU accessions provide opportunities for introducing the concept of ecological networks in countries.

The EU level policymakers highlighted the fact that newly acceded countries into the European Union were questioning the use of the Habitats Directive for ecological networks compared to other concepts such as the Emerald Network or the PEEN concept of an ecological network. Other issues to support the opportunity of 'Timing' include using other policies as drivers for ecological networks particularly Climate Change and the EU Water Framework Directive.

3.2.2 New opportunities identified in the Phase II Report

Motivation of NGOs and researchers

The interview analysis reflected the high motivation of NGOs and researchers to promote the ecological network concept, particularly in countries where ecological networks were less acknowledged through national policies and strategies such as in Greece and the UK. However this may be in contrast to the limited motivation of policymakers in some countries to become involved in the ecological network concept.

Motivation of non-conservation stakeholders through communication and carrying out of environmental projects

Some stakeholders groups, other than the conservation NGOs and the research community, are carrying out various projects to communicate to their members and target groups the importance of the protection of nature. For example the hunter associations in some regions in Greece have programmes for education and provide wardens to police against illegal hunting. The Highways Agency in Greece are also working with NGOs on environmental projects alongside highways, this reflects the willingness of conservation and non-conservation stakeholders to work together in networks. Cross border cooperation projects have also taken place and reflect the willingness of stakeholders to work on ecological networks on a cross border level. These stakeholders also appear to have good relations with the wider European Commission community and the relevant funding arms. The Highways Agency in the UK has created policies on their concept of ecological networks and communicated with national agencies on this issue.

Integration of other policies

Several respondents acknowledged the importance of the connecting the National Ecological Network with European Directives such as the Habitats and Birds Directives, the EU Water Framework Directive and International Strategies such as PEEN.

Other policies as drivers

As discussed above other policies are seen as potential drivers for ecological networks: the European Biodiversity Strategy, the EU Water Framework Directive, Climate Change policy.

Regionalisation

Regionalisation of policy within countries (the UK provided an example) can be seen as a barrier and an opportunity to ecological networks. It is a barrier in respect of biodiversity having a lower level of priority at a regional government level than a national level, and therefore with increasing powers at the regional level, this can mean biodiversity and ecological networks taking an even lower priority than it has at present. However it can be an opportunity in respect of the fact that regionalisation can encourage spatial planning at a regional level to incorporate ecological networks and this can provide an opportunity for the creation and operationalization of ecological networks at the ground level.

Inclusion of other sciences and experts

The interview analysis identified the need for scientists and researchers other than ecologists to become involved in the PEEN concept in order for it to be promoted further, e.g. social scientists, economists etc., due to the variety of social and economic issues that the concept of wider landscape use entails.

Creating partnerships

The ability within countries to create partnerships with other stakeholders provides opportunities for PEEN. This is reflected by comments made and evidence of policy strategies within all of the countries analysed, this indicates that whilst it is inevitable that stakeholder participation is not an easy process it often ends in successfully negotiated outcomes that all stakeholders can sign up to. The ability to create partnerships externally across borders is also vital to a PEEN Strategy, examples from countries such as the Netherlands reflect this.

Greater enforcement of policies such as Article 10 – Connectivity in the Habitats Directive

Some respondents highlighted the fact that PEEN could be promoted further if the connectivity clause in the Habitats Directive (Article 10) was implemented more widely by Member States and enforced to a greater extent by the European Commission.

Ecological Networks in Marine Areas

The UK analysis highlighted the fact that the creation of ecological networks in marine areas encouraged cooperation between countries and/or regions connected to that marine area.

Projects/Strategies that focus on specific Stakeholder issues related to PEEN

The interview analysis highlighted the fact that involvement of stakeholders at the European level on specific issues relating to their sector and PEEN can have a high influence on raising their awareness. For example in both UK and Greece the interviewees from the highways and transport sector spoke highly of the European Union project - Cost 341, and were motivated to continue to be involved in projects such as these.

3.3 Challenges

3.3.1 Reassessment of challenges identified in Phase 1 of the project Communicating PEEN

The challenges identified in Phase 1 are listed in *italics*.

Knowledge and data:

The lack of clear standards and guidelines for the development of corridors was highlighted. This included lack of data on connectivity requirements of species and a lack of information of the practical effect corridors have. However lack of practical data is not as substantial a problem as is generally expected. Lack of

knowledge also exists regarding the possible negative side effects of creating ecological networks such as invasive species and diseases.

Lack of modelling data particularly at the more local and regional level was highlighted in the interview analysis. In the UK non-conservation stakeholders stated that there was a need for more scientific evidence regarding the value of ecological networks, and in the Netherlands there was evidence that the data that indicated possible negative effects of ecological networks was used in arguments against the ecological network concept.

Design criteria:

At the time of phase I of the project no decisions regarding the species and ecosystems on which PEEN should focus had been made. Such a decision is considered relevant, especially to proceed with the identification of corridors. There is a clear wish to take a generous approach to selecting core areas as well as target species. PEEN should include areas that are not internationally designated, and should be designed to meet the requirements of non-migratory species. However, experience shows that on an international scale this can lead to practical problems.

There were no comments made in the Phase II study regarding design criteria of PEEN at the international level.

Scale and ecosystems:

The concept of ecological network is not considered equally relevant at all levels of scale; it is considered to be most relevant at the regional or national scale. Ecological networks at the international scale are considered relevant, but preferably should have a bio-geographical basis. As to relevance for specific ecosystems, ecological networks are not considered especially relevant for marine and alpine systems.

The Netherlands, Estonia and Germany all highlighted the importance of connecting ecological networks at the local, regional and national levels with the international PEEN concept. The challenges were acknowledged, and the need to provide opportunities included finding local champions who could consider the concept of ecological networks as wider than being at the local level only, even if this was the level required for implementation. With regards to marine systems, the interview analysis in the UK is contrary to the finding above, where marine systems are seen as not being considered relevant. Recent projects in the UK for marine ecological networks were seen to have been a positive contribution to ecological networks particularly for the bringing together of cross border stakeholders and cross border cooperation. Furthermore, in Estonia the national ecological network has been extended into the marine ecosystem in one region where interviews had taken place, and this concept in the marine area has worked very well.

The Status of PEEN:

The formal status of PEEN remains somewhat vague. PEEN was seen as a vision for European nature rather than a policy instrument, which would be achieved through the implementation of Habitats Directive (Natura 2000) and the Bern Convention (Emerald Network). Some people did see it as a policy instrument in its own right, which existed next to (and according to some) in competition with Natura 2000. The relation to national and regional conservation policy is also not yet clear. Questions also remain regarding the desirability of granting protected status to all of the components of ecological networks.

There was a lack of clarity as to the formal status of PEEN. There were indications that PEEN as a policy instrument caused some Member States to keep their distance and that better involvement of Member States could be achieved if it were promoted as being less formal and more of a forum for creativity and discussion on the ecological network concept. Some interviewees did see it as being in competition with Natura 2000, although those interviewees from countries where a PEEN ecological network had been implemented, saw it as a concept that was over and above Natura 2000, and that Natura 2000 could not be considered as a true ecological network as it lacked connectivity.

The PEEN implementation process:

There is no detailed path outlined which will lead to the eventual establishment of PEEN and there is no well developed and generally accepted idea on how this concretely can be achieved. Direct and practical cooperation between the PEEN Committee of Experts for the development of PEEN and the bodies responsible for implementation of the Bern Convention and – especially- Natura 2000 should be strengthened.

ned. Closer connections to other international conventions, such as the Ramsar Convention, the Bonn Convention and the Black Sea Convention could be explored.

Several respondents highlighted the importance of those involved in PEEN working closer with other concepts such as those listed above.

Country Involvement:

Not all European countries regularly attend the Council of Europe's Committee of Experts for the development of PEEN, which makes it difficult to become truly Pan-European. The fact that at the moment the only representatives of national governments are invited to Committee meetings, restricts the full involvement of several (federally structured) countries where ecological networks are being developed on the regional level, such as, Italy, Germany and Spain. The regions of Europe are as yet not formally involved in the PEEN process. Furthermore, the concept of ecological networks has a selective appeal, which is connected to the fact that it specifically addresses the problem of habitat fragmentation. Countries where fragmentation is not a major problem, feel less affinity with the concept, and are less likely to become actively involved in efforts to develop (inter) national ecological networks.

Respondents stressed the need for PEEN to be promoted as more focused and issue based. The need to include non-conservation stakeholders at the international level, as well as the need to involve local and regional implementers at the higher, international level was also stressed. Norway reflected the fact that focusing on fragmentation meant that interviewees were likely to see the concept as not having any relation to their own country's situation.

National focus of nature conservation:

Nature conservation tends to be very strongly focussed on in-country activities. Border crossing cooperation in developing ecological networks can by no means be taken for granted.

This challenge was highlighted within the analysis and the fact that local implementation can take away awareness of any such concepts at the international level. Whilst cross border cooperation can not be taken for granted there was a motivation in the countries analysed for carrying out cross border cooperation.

Understanding and knowledge of the general principles of ecological networks:

It was felt that the general principle of ecological networks, as well as the concept of a Pan-European ecological network, is not yet sufficiently understood and appreciated throughout Europe. Doubts remain concerning the validity of the general idea. The PEEN concept in particular is sometimes associated with the policy approach of specific countries and not considered relevant for other countries.

There were concerns in some countries that being part of PEEN would mean having to take on concepts and models of other countries and that was to be avoided. The UK is a specific example of this situation. However as the UK has continued being involved with the PEEN process at the international level, those involved are beginning to think that their concept of ecological networks is becoming better accepted by other countries implementing PEEN, and that their model of an ecological network may not be identical to those other countries but that it does work for the UK.

Insularity:

The group of individuals and organisations involved in ecological networks has some characteristics of a closed community. Work on ecological networks is not widely integrated into the overall world of conservation.

The ecological network concept was not seen as being integrated into the overall world of conservation. However there was an increasing feeling by respondents of the need for European nature conservationists to move on from traditional conservation approaches and take up the concept of wider landscape scale use, as supported by ecological networks.

Stakeholder Involvement:

More than 'traditional' approaches to nature conservation, the development of ecological networks at any scale requires the involvement and support of various non-nature conservation stakeholder groups. At a regional scale, successful attempts have been made to involve e.g. the transport and agricultural sectors.

At an international level, this is still in its infancy. There is still limited insight into how specific stakeholder groups perceive and appreciate ecological networks. Still, Phase I of the project makes clear that involving non-conservation stakeholders is perceived more as a threat than as an opportunity.

The interviewees from all sectors had motivation for increasing the involvement of non-conservation stakeholders, in the Phase II study it is seen by respondents as necessary for success rather than a threat to success. The need to involve the non-conservation stakeholders at the international level was highlighted particularly since there is a motivation from these sectors to become involved.

Resources:

In many countries, the lack of funding to adequately explore the ecological network concept and its potential for conservation is a restriction. Lack of personnel and expertise can also thwart attempts to develop ecological networks.

All countries reflected the lack of resources for nature protection generally. Therefore it is clear that ecological networks have a lack of funding within European countries.

3.3.2 New challenges identified in the Phase II Report

Decentralized implementation

Some respondents thought that implementation at the local level could mean varying levels of implementation between regional levels, unless there was a strong coordination centrally at the national level.

Transport

Pressure exists in Germany for developing rivers into channels for larger ships, which would be detrimental to nature conservation. There is also the issue of road construction. Germany is a main country for European traffic access, it is expected that there will be a 50% increase in large lorry travel, therefore motorway construction is a very prominent issue in German politics. Whilst for new road construction there will be possibilities to ameliorate the construction through the use of nature network tunnels and bridges, on existing motorways there is little prospect for the construction of such nature protection infrastructure.

Political will

Due to the history of the implementation of the Natura 2000 process, which caused confrontation and negatives images of nature conservation in Germany, there is less of a will to establish ecological networks. In Greece the lack of political will towards biodiversity policy at the national level was clearly highlighted.

Cross border cooperation

Challenges in cross border cooperation were highlighted between Länder (States) in Germany internally and also between other countries externally. External cooperation can be difficult due to differences in institutional process structure or differences in levels of political will or interest in the issue. This same situation was highlighted in The Netherlands and Estonia.

Lack of resource or instruments available

Lack of resource for ecological networks was highlighted by all of the countries in the study. For example, resource available for implementation of ecological networks varies in Germany between Länder. Some Länder do not have the money to spend on the ecological network concept, there may also be a State that has restrictions on the purchasing of land and therefore no instruments are available for the State to implement the network even if they have the political will to do so.

Public Awareness

One respondent in Greece highlighted a comment made in other countries too, and that was that the public's motivation towards the environment has lessened. People are talking about the environment as if it is far way and they are not connected to it. This can provide less motivation for action on initiatives such as a PEEN to protect nature at a higher, political level.

Advisory services and support

In Greece, a respondent highlighted the fact that for stakeholders groups, such as farmers, there are few advisory services or support set up to help them think about alternative futures that involves protecting nature. For example using the Common Agricultural Policy, second pillar funding, to fulfil Natura 2000 obligations. Therefore due to lack of information about Natura 2000 in this country, it is seen as a restraint with no opportunities.

Local level support for international policies

One of the respondents in the Netherlands observed that the attitude of the policymakers of the different regions can be a constraint to international cooperation, accepting the fact that whilst it may not be the task of a local authority to get involved in international concepts, the challenge is that their work remains focused on the local level with very little interest in the wider international cooperation level, which is needed for processes like PEEN.

Arguments against the ecological network concept

Arguments against the concept of ecological networks have been raised on issues such as animal health or food safety in The Netherlands. For example, one argument is that ecological corridors will spread animal diseases. Other arguments state that the concept is not viable for an equal balance between economy and ecology or that people do not want wild animals reintroduced back into areas. Arguments exist regarding the reintroduction of species, particularly those potentially 'dangerous' wild animals. However this is where the integration of other scientific disciplines, such as the social sciences can help in the implementation of the ecological network concept.

Imposition of an ecological network model

Specific potential barriers identified for the implementation of ecological networks included comments about the imposition of an ecological network model from other countries. For example in the UK it was thought that if a model of an ecological network is felt to be imposed from the European level then it will be ineffective in the creation of a network. It is important to realise that whilst all countries can learn from models, physical, political and societal structures differ between countries and therefore each country need their own model which is built by that country.

Regionalisation

Regionalisation in countries such as the UK can be seen as a barrier and an opportunity to ecological networks. It is a barrier in respect of biodiversity having a lower level of priority at a regional government level than a national level, and therefore with increasing powers at the regional level can mean biodiversity and ecological networks taking an even lower priority than it has at present. However it can also be seen as an opportunity in respect of the fact that regionalisation can encourage spatial planning at a regional level to include ecological networks and this can provide an opportunity for the creation and operationalization of ecological networks at the ground level.

Changes in thinking "traditional conservation approach"

This was an issue highlighted in the UK, and concerns the current perceptions of nature conservation by the nature conservation sector in Europe. The traditional conservation approach to nature protection is based upon protection of designated areas. This approach needs to change if it is to encompass the concept of ecological networks and the wider landscape use approach. Some interviewees in the UK thought that nature conservationists are reluctant to move away from the designated area approach, in case it results in lesser protection for nature. Concerns also exist in the nature conservation sector regarding the effect of changing approaches that may mean lack of credibility to policymakers, stakeholders and the public. This reflects the fact that nature conservationists are also a target group that need to be involved further in the PEEN concept.

Integration of sectors, policies and government departments

Lack of integration of different sectors involved in policies that impact upon the land and nature causes many problems for nature protection and the concept of ecological networks. This is also reflected by the

lack of integration of policies regarding the land e.g. planning policy, water policy, land management policy and the lack of integration and communication between government departments responsible for these policies.

Lack of modelling and lack of scientific evidence of the need for Ecological Networks

Some interviewees highlighted the need for further modelling and further scientific evidence for the ecological network concept particularly in respect of more social and economic analysis. In the UK nature conservationists spoke of further modelling data that is needed at the regional and local level in this area. Some non-conservation stakeholders spoke of the need for further scientific evidence to prove to them that ecological networks policy is necessary.

4 Recommendations for a PEEN Communication Strategy

The overall aim of the ECNC project 'Communicating PEEN' is to create a communication strategy that will aid in the effective implementation of a Pan European Ecological Network (PEEN). Based on the challenges and opportunities identified in the previous chapter, a number of conclusions can be drawn as to nature and scope of such a strategy:

- The importance of **style and choice of language in communication** of a concept such as PEEN was highlighted in the interview analysis. PEEN has been shown to be more likely to succeed if it continues to take the bottom-up implementation approach. However if this is the case it is important that the international PEEN strategy language is translated into the applicable style of language of the different target groups that it is trying to reach. This means that at the regional and local level it will require a different language style and explanation than that provided at the international level. The target groups need to easily recognise how it applies to them and how it adapts to their strategies.
- In order for PEEN to be more than just a strategy it needs to be communicated as a **flexible concept** that can be compatible with the differing national and regional ecological network initiatives. It needs to be able to coordinate and adapt to these differing bottom-up approach initiatives so that it fits in with them rather than requiring them to fit it. It also needs to ensure that it **does not impose models for ecological networks**.
- PEEN may be more successful if it is **promoted as more of a forum** for discussion and creativity in the promotion of ecological networks and less of a formal policy instrument. Some countries reflected the fact that they were more reluctant to be involved in PEEN as it was perceived as a potential legal instrument that would be used more as a threat, rather than an opportunity for nature conservation policy.
- When PEEN is communicated as a bottom-up approach it needs to ensure that whilst supporting this local approach, the **awareness and knowledge of the wider concept**, of how the local concept fits into the overall national ecological network and the wider international PEEN, is still supported and understood. This can often require identification of champions involved in local policymaking who can take on and communicate this wider concept.
- Whilst more attention is required at a more local level, the **role of PEEN at the international level also requires improvements in communication**. The interview analysis reflected the fact that attention of international policymakers, the EU policymakers and policymakers of other European and international governments needs to be improved. In order to initiate this, an audit/review of current practical PEEN communication activities at this higher level would provide a gap analysis, which could then provide recommendations for practical actions in the PEEN Communication Strategy.
- All of the countries analysed have shown that cross border cooperation exists, with much work organised between the different municipalities and also conservation NGOs on either side of the border. The analysis indicated that whilst it is vital that the regional and local levels implement cross border cooperation, it will be more successful if such **cross border cooperation is supported at the national level**, particularly through a national ecological network on either side of the border. Therefore PEEN should encourage national level support of cross border cooperations. **Current and future cross border cooperation that exists between countries should be encouraged and supported by PEEN at the international level**.
- Researchers involved in European research of the PEEN concept identified the importance of widening the **involvement of other knowledge areas** in order to ensure implementation of the PEEN strategy. This included the involvement of economists and social scientists. This is important due to the fact that PEEN goes beyond the protection of specified areas and into the wider landscape. This means that the

bottom-up approach of PEEN requires understanding of factors that extend beyond the ecological, at the nature and society interface. This means involvement of a variety of stakeholders and the variety of societal issues that this involvement brings, for example, economic value of land, conflicts over land use, attitudes and perceptions of land and of ecological networks. The PEEN Communication Strategy should include these other scientists and experts as a target group. The current network of researchers working on PEEN could then be extended and strengthened.

- The interview analysis clearly reflects the **importance of interactive policymaking** for successful ecological networks, support for this type of policymaking should be communicated in a PEEN.
- The need for **focused targeting of stakeholder groups about specific issues**. It is clear that whilst non-conservation stakeholders may not always have a current high awareness of PEEN, they do have an interest in the PEEN concept and becoming involved, and therefore there should be increased focus on the engagement of these stakeholders. Examples of projects such as EU Cost 341- involvement of the transport sector, are still remembered by transport stakeholders in Greece and the UK and were considered as important projects to be involved in by these stakeholders. There could be a targeted focus on communication through sector/issue working groups, meetings, workshops and conferences. A criticism was that PEEN tries to cover everything and nothing at the same time. Therefore there is a need for a focus on specific issues and aspects of PEEN, for example 'PEEN and climate change' or 'PEEN and the transport sector'.
- The PEEN Communication Strategy needs to focus upon clearly identified target groups at the different levels that it needs to reach e.g. international, European Union, national, regional and local. The report highlights **the need for improvement of involvement of non-conservation stakeholders at the international level**, in a focused way. The report identifies important sectors, that may vary according to level, for example at the national level, planning, national government nature dept, agricultural dept, forestry dept, (these stakeholders may apply at the European and international level too). The involvement of the research community at all levels including non-ecological sciences e.g. economics and social sciences. Financial institutions, economic sector, transport sector, power/resource companies and authorities e.g. water, electric, gas can also be seen as important at the international and national level.
- **Communicating PEEN requires the understanding and awareness of the fact that different stakeholders have different perceptions and interpretations as to what an ecological network is**. It is important to appreciate this and take it into account in interactions with different conservation and non-conservation stakeholders.
- There is a need to consider the nature conservationists as target groups for PEEN. The UK analysis highlighted the importance of the current differing opinions between the 'traditional conservation approach' and the wider landscape approach that PEEN follows. **Therefore it is important to include conservation organisations as a target group in a PEEN**. A strong view from interviewees in the UK was that if European countries continue to follow the concept of protecting specific areas or 'pockets' of land it will keep the overall protection of biodiversity on the periphery.
- **PEEN should link into the current trend of policy approaches such as wider landscape protection approach**, sustainable development of all areas not just high nature value etc... This provides an ideal opportunity as this supports the PEEN concept and could enable a greater momentum for PEEN. An example is provided by Estonia and how they have successfully built PEEN into their 'green network' concept, which focuses on sustainable development but incorporates PEEN. Concepts such as **Sustainable Development** attract much more attention than PEEN. PEEN should also link to other strategies such as the **EU Biodiversity strategy** as way of 'selling' it to the EU. Furthermore the report has shown potential drivers for PEEN, a strategy could concentrate on communicating the relationships between these as a way of gaining recognition e.g. PEEN and **Climate Change**, PEEN and the **EU Water Framework Directive**. Identifying the main sectors and issues of concern e.g. local authorities

as a sector and cross border cooperation as an issue, could help in providing practical actions on the ground for the implementation on a PEEN, with clear actions, targets and timetables.

- **The need for PEEN policymakers to work more closely with other concepts linked to PEEN** was highlighted. This included closer cooperation with the EU **for the Habitats Directive**, also with the **Bern Convention** (Emerald Networks) and the **Ramsar Convention**.
- The report has highlighted the general willingness of conservation and non-conservation stakeholders in the countries analysed to be kept informed and involved in the ecological network concept. Therefore a **PEEN contacts database** of ALL stakeholders reflecting representation from the varying levels of policymaking and the varying stakeholder sectors, should be created and managed in order to create a communications network.
- A **research database of PEEN projects** should be kept in order for the research information to be further evaluated and to be taken up and used in practical policy implementation of a PEEN process.

5 References

Sandra Rientjes & Katerina Roumelioti, 2003, Support for Ecological Networks in European Nature Conservation: an indicative social map, ECNC, Tilburg, The Netherlands

Annexes

Annex I: Methodology

Annex II: Desk study of policy documents

Annex III: Executive Summary of Communicating PEEN Phase I Report

CPA 1 A3

Communicating PEEN

Project Methodology

ANNEX I

Methodological Outline

- A Desk Study of Literature including review of research reports and policy documents, in order to analyse the current policies at an international and a national level that support the concept of a Pan European Ecological Network (PEEN). The Desk Study also identified requirements for Communication, Education, Participation and Awareness (CEPA), within the policies and policy strategies. The desk study is attached as an annex (see Annex II).
- Interviews in selected countries and at a European level to analyse the implementation and communication of the ecological network concept including the support for and opposition to ecological networks. Interviews involved policymakers, conservation NGOs, researchers/scientists and also included a particular focus on non-conservation stakeholders.
- Analysis of interviews and assessment of the impact of the results on the communication of PEEN.
- Reassessment and validation of conclusions from Phase I concerning the challenges and opportunities of PEEN in light of the new information from the desk study report (see Annex II) and the interview analysis.
- Provision of recommendations for a communication strategy in support of PEEN.

Selection of Countries

The countries for analysis were chosen according to the various regions of Europe that they represent. A further criterion was to include EU Member States as well as Non-Member States. Furthermore the countries were chosen based upon their known, varied interest and involvement in PEEN and the concept of national ecological networks. The differences in national institutional processes and political approaches to nature conservation and planning have also been taken into account in the selection methodology.

Netherlands	NW European country with well developed interest/involvement in ecological networks
Estonia	Central Eastern European country with a well developed interest/involvement in ecological networks
Norway	Nordic country with limited to no interest involvement
United Kingdom	NW European country with a growing interest in (regional) ecological networks
Germany (federal structure)	NW European country with a growing interest in (regional) ecological networks
Greece	Southern European country with limited interest/involvement
European policymakers	Representation from the European Commission and EU level non-conservation stakeholder groups or associations with an interest in ecological networks

Desk Study

A framework of analysis was created in order to ensure that the desk study for each selected country and the international overview provided comparable information. Literature included research reports, formal policy documents and more informal documents such as reports or minutes of meetings. The international overview in the desk study identified the main international conventions and European legislation applicable to PEEN, each selected country was then considered to see if it complied to these international and European requirements. The country research then identified national policies that either implemented international or European requirements and national policies that implemented national policies specific to

that country. Further information was also obtained through informal means such as emails or other personal communication from contacts in order to provide or clarify information.

The desk study also specifically identified Communication, Education, Participation and Awareness (CEPA) requirements of policies, in order to clarify the formal requirements for the communication of such policies. Understanding the CEPA requirements under other policies can provide opportunities for raising the awareness of PEEN within these existing policy communication activities, providing a forum to explain how PEEN and these other policies are linked and providing a potential driver for the further promotion of PEEN.

Interview Analysis

Selection of Interviewees:

Contact was made with the selected countries in order to identify and select interviewees. Selection was based upon target groups who may have an interest or who could be affected by the ecological network concept:

- European policymakers, national policymakers (environment sector, agricultural sector, forestry sector, transport sector, planning sector)
- National and regional policy implementing authorities or policy advice agencies (environment sector, forestry sector, transport sector, planning sector, regional/local government authority)
- Researchers and scientists
- Conservation NGOs
- Non-conservation NGOs those representing land owners (e.g. foresters, farmers, hunters)

Interview Protocol:

A framework for the interviewing and for the analysis of interviewees was established by the creation of an interview protocol. Whilst the interviews were semi-structured, allowing for the interviewer to expand or probe further into any of the responses made by the interviewee, an outline of questions was provided to ensure that it was possible to make a comparison between interviewees and between countries. Questions covered aspects such as how ecological networks are implemented physically and through which political processes, how ecological networks are communicated, awareness of the concept of a national ecological network and the concept of a PEEN. The interviewees were also asked if they could identify specific opportunities and challenges that exist in their country that could affect the implementation of an ecological network.

Limitations

Whilst the methodology aims to ensure a balanced representation of views, in some countries it was not possible to interview all identified target groups. The project also set out to analyse six countries and the European policy level with limited resources, and therefore it was not possible to provide an extensive study of each area. Furthermore, the use of interviews as a data source carries certain limitations: firstly the representation of the 'facts' by the interviewees and secondly the interpretation given to the interviewees' statements by the researcher, can be less than 100% objective. The interview analysis is based on qualitative interviewee material and interviewee opinions. These limitations should be acknowledged when reading the report.

CPA 1 A3

Communicating PEEN

DESK STUDY OF POLICY DOCUMENTS

ANNEX II

Karen Gilbert and Sebastiaan van 't Erve

CONTENTS

	Page No.
Contents	60
Introduction	61
Methodology	61
Desk Study Results	62
INTERNATIONAL LEVEL REVIEW	62
The Legal/Policy Background	62
Habitats Directive	65
Birds Directive	65
Water Framework Directive	66
Bern Convention	66
Ramsar Convention	67
World Heritage Convention	68
Convention on Biological Diversity	68
Helsinki Convention	69
Pan European Biological and Landscape Diversity Strategy	70
Review of Activities related to the implementation of PEEN on the international level	70
Overall Assessment of Literature on policy/legislation	71
NATIONAL LEVEL REVIEW	72
Estonia	72
Germany	74
Greece	76
The Netherlands	78
Norway	80
United Kingdom	81
REFERENCES	84

Introduction

The desk review of the communicating PEEN project analyses international and national policy documents. The first section deals with international policy regimes that may have a direct or indirect link to a Pan European Ecological Network (PEEN) and describes the policy developments relating to PEEN and Communication, Education, Participation and Awareness (CEPA) activities. The second part deals with the six countries selected for the study: Estonia, Germany, Greece, the Netherlands, Norway and the United Kingdom. It describes the main policies in those countries relating to PEEN and the communication activities related to those policies.

The desk review provides a basis for the second part of the Communicating PEEN study, which involves interviews and analysis of participants in the selected countries and from the European level on the communication of Pan European Ecological Networks. The desk review and interview analysis are brought together in the report 'Communicating PEEN: An analysis of the implementation and communication processes for ecological networks in Europe'.

Methodology

A framework of analysis was created in order to ensure that the desk study for each selected country and for the international overview provided comparable information. Literature included research reports, formal policy documents and more informal documents such as reports on or minutes of meetings. The international overview identifies the main international Conventions and European legislation applicable to PEEN. For the selected countries an analysis was carried out to see if they were obliged under these international and European requirements.

The selected country research identifies national policies that either implement international or European requirements and national policies that implement national policies specific to that country. Information was also obtained through informal means such as emails or other personal communication from contacts in the ECNC network in order to provide or clarify information. The desk study also specifically identifies Communication, Education, Participation and Awareness (CEPA) requirements of policies, in order to identify the formal requirements for the communication of these policies, which may ultimately provide the potential driver for further communication on the concept of a PEEN through the communication of these other policies.

Selection of Countries

The countries for focused analysis were chosen according to the various regions of Europe that they represent. A further criterion was to include EU Member States as well as Non-Member States. Furthermore the countries were chosen based upon their known, varied interest and involvement in PEEN and the concept of national ecological networks. The differences in national institutional processes and political approaches to nature conservation and planning have also been taken into account in the selection methodology.

Netherlands	NW European country with well developed interest/involvement in ecological networks
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Greece	Southern European country with limited interest/involvement
European policymakers	Representation from the European Commission and EU level non-conservation stakeholder groups or associations with an interest in ecological networks

DESK STUDY RESULTS

INTERNATIONAL LEVEL REVIEW

This section of the report provides the results and analysis of a literature review of PEEN on the international level.

The Legal/Policy Background

The following international policy instruments related to the implementation of PEEN have been analysed:

Habitat Directive
Birds Directive
Water Framework Directive
PEBLDS
CBD
Bern Convention
World Heritage Convention
Ramsar
Bonn convention
Helsinki Convention

The following two tables, adapted from Van Opstal (2001), provide an overview of the different characteristics of the policy instruments and their meaning for PEEN.

TABLE 1: SCOPE OF INTERNATIONAL INSTRUMENTS ON THE EUROPEAN LEVEL AIMING AT THE PROTECTION OF SITES AND/OR THE ESTABLISHMENT OF ECOLOGICAL NETWORKS.

Name of international instrument	Name of ecological network:	1. Character:	2. Scope:	3. Geographical delimitation:	4. Legal basis:
Convention on Wetlands (1971)	-	International	wetlands including natural, semi-natural and artificial waters	Global	Legally binding for contracting parties
Pan European Biological and Landscape Diversity Strategy (P.E.B.L.D.S.) (1995)	Pan European Ecological Network	Council of Europe & UNEP	natural and semi-natural ecosystems, habitats, species and landscapes that are of European importance	Europe	Strategy
E.U. Birds Directive (1979)	Natura 2000	European Commission	all species of naturally occurring birds in Europe	European Union territory	Legally binding for EU member States
E.U. Habitats Directive (1992)	Natura 2000	European Commission	natural habitats and wild fauna and flora. (including semi-natural habitats)	European Commission	Legally binding for EU member States
E.U. Water Framework Directive (2001)	-	European Commission	framework for the protection of inland surface waters	European Commission	Legally binding for EU member States
Bern Convention (1979)	Emerald Network	Council of Europe	natural habitats and wild fauna and flora.	Europe	Recommendation of the standing committee of the Bern convention
Helsinki Convention (1974, 1992)	-	Helsinki Commission:	natural habitats and biological diversity; ecological processes (in the Baltic Sea Area)	Baltic Sea region	Legally binding for contracting parties
Barcelona Convention (1976/1995) and Geneva/Barcelona Protocol (1982/1995)	-	International convention International convention	representative and/or endangered ecosystems of adequate size to maintain their biodiversity (in the Mediterranean region)	Mediterranean sea region	Legally binding for contracting parties

(Adapted from: Van Opstal (2001))

TABLE 2: EVALUATION OF INTERNATIONAL INSTRUMENTS ON THE EUROPEAN LEVEL

(Adapted from: Van Opstal (2001))

Name of international instrument	Criterion 1: all types of ecosystems?	Criterion 2: both natural and semi-natural	Criterion 3: all taxonomic groups?	Criterion 4: all threatened species?	Criterion 5: all endemic species	Criterion 6: full network including core-area's, etc.?
Convention on Wetlands	-	-	-	-	-	Core areas: protected wetland areas
Pan European Ecological Network (PEEN)	+	+	+	+	+	Core areas, corridors, bufferzones and restoration areas.
Natura 2000 (E.U. Birds Directive and Habitats Directive)	+	+	+	-	-	Core areas
Water Framework Directive	-	+	-	-	-	Core areas; corridors, (the river basin as the interconnected management unit)
Emerald Network (Bern Convention)	+	+	+	-	-	Core areas; (the importance of interconnectivity is acknowledged)
Helsinki Convention	-	-	-	-	-	Core areas;
Barcelona Convention	-	-	-	-	-	Core areas: a system of Coastal and Marine Baltic Sea Protected areas; under certain circumstances: bufferzones

The following tables provide a summary assessment of how the policy may be linked to the PEEN concept and how CEPA guidelines are incorporated into the policies.

There is a separate table for each policy instrument.

Habitats Directive

Assessment of the Habitats Directive	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	The strength of the Habitats Directive in support of PEEN is in the assignment of core areas. There is also an Article (10) that relates to connectivity between these core areas.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	With regards to CEPA activities, the European Commission has a Communicating Natura 2000 group, which consists of Commission representatives, Member States and NGOs. At the national level communication to the public is the responsibility of the Member States. The Habitats Directive requires, in article 22, a consultation of the public concerned in relation to the re-introduction of species, and in article 22-c, a requirement to promote education and general information on the need to protect species of wild fauna and flora and to conserve their habitats.

Birds Directive

Assessment of the Habitats Directive	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	See Habitats Directive above
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	CEPA activities relating to the Birds Directive take place through the Natura 2000 activities (see Habitats Directive). Following the 25th anniversary of the Birds Directive in 2004, there have been initiatives and events arranged by the EU and Member States to promote the Birds Directive to the 'general public'.

Water Framework Directive

Assessment of the Water Framework Directive (WFD)	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	The Water Framework Directive provides a clear framework for and expands the scope of previous EU water legislation to the protection of all waters. It supports the ecological network theory by the fact that it is based on river basin district areas and the connected terrestrial ecosystems and wetlands with regards to their water needs. It creates management units based on geo-physical entities. For each area there has to be a management plan and the areas must be of 'good ecological status' (which is defined in Annex V) by the year 2015. This is a step forward from the 'favourable conservation status', which is used in the Habitats Directive. The protection of terrestrial ecosystems and wetlands is only to the extent of ensuring their water needs, this provides for less protection than for the inland surface waters, transitional waters, coastal waters and groundwaters.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	The WFD has a strong focus on CEPA as is underlined in Article –14. The Directive relies on close cooperation and coherent action at Community, Member State and local level as well as on information, consultation and involvement of the public, including users. There is a legal requirement for CEPA activities under Article 14 to 'encourage active involvement' of the public, therefore a legally binding requirement to ensure adequate public participation

Bern Convention

Assessment of the Bern Convention	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	The Bern Convention provides support for PEEN in respect of the creation of the Emerald Network, its specific reference to migratory species and to encouragement of cross border cooperation. This Convention has no connection to the European Community's Habitats Directive/Natura 2000 network. These policies can both be seen as tools for achieving a PEEN, however there is the potential for the Natura 2000 network to cause a block in the promotion of the Bern Convention and of PEEN throughout Europe by dividing the EU Member States (and their obligations under the EU Habitats Directive) from other, non Member State, European countries.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	There is support for CEPA activities through Article 3: "Each Contracting Party shall promote education and disseminate general information on the need to conserve species of wild flora and fauna and their habitats". It supports cross border cooperation in Article 4 and Article 11: The Contracting Parties undertake to co-ordinate as appropriate their efforts for the protection of the natural habitats referred to in this article when these are situated in frontier areas. (Article 4) The Contracting Parties undertake to co-operate whenever appropriate and in particular where this would enhance the effectiveness of measures taken under other articles of this Convention; (Article 11). It also encourages coordinated research: To encourage and co-ordinate research related to the purposes of this Convention (Article 11)

Ramsar Convention

Assessment of the Ramsar Convention	
<p>Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN</p>	<p>Convention provides for the protection of wetland areas. The original emphasis of the Ramsar Convention was on the conservation and wise use of wetlands primarily to provide habitat for waterbirds. Over the years, however, the Convention has broadened its scope to cover all aspects of wetland conservation and wise use, recognising the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value. There are no networks as such, however the Convention provides a framework for international co-operation for wetland protection. The Convention's Contracting Parties make a commitment to: 1) designate at least one site that meets the Ramsar criteria for inclusion in the List of Wetlands of International Importance; 2) protect the ecological character of listed sites; 3) include wetland conservation within their national land-use planning; 4) establish nature reserves on wetlands and promote wetland training; and 5) consult with other Contracting Parties about the implementation of the Convention. Article 5 provides for cross border cooperation/networks: The Contracting Parties shall consult with each other about implementing obligations arising from the Convention especially in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties. They shall at the same time endeavour to coordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna Article 5 provides for Cooperation and therefore the need for communication. The Convention requires promotion of wetland training (education).</p>
<p>Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN</p>	<p>The following Ramsar Convention Resolutions have supported further CEPA activities: Resolution VIII.31 of Ramsar COP8 in 2002 adopted the programme on communication, education and public awareness 2003 – 2008, this resolution commits the Ramsar Secretariat and the contracting parties to a number of CEPA activities. One interesting feature is that the contracting parties formally designate a CEPA focal point for Ramsar one from the country's government and one from an NGO.</p>

World Heritage Convention

Assessment of the World Heritage Convention	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	This Convention is related to PEEN in respect of covering natural and cultural areas of outstanding interest including buffer zones.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	Article 5 refers to training: to foster the establishment or development of national or regional centres for training (education) in the protection, conservation and presentation of the cultural and natural heritage and to encourage scientific research in this field Article 27 refers to the need of Education: The States Parties to this Convention shall endeavour by all appropriate means, and in particular by educational and information programmes, to strengthen appreciation and respect by their peoples of the cultural and natural heritage. They shall undertake to keep the public broadly informed of the dangers threatening this heritage and of the activities carried on in pursuance of this Convention

Convention on Biological Diversity

Assessment of the Convention on Biological Diversity	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	The CBD is not a prescriptive instrument, understandably as it addresses global issues whilst emphasising that measure should always be taken at the appropriate level and scale. The CBD covers cross-border international cooperation and contains obligations for communication and cooperation between countries.
	The CBD openly supports other Conventions and legislation, therefore whilst there is no specific mention of, or support to, PEEN, it is covered under this general requirement of the Convention. Support for voluntary measures (such as PEEN) is given via support for country-level action plans etc. designed to support the implementation of the CBD. There is a common goal in the CBD's and PEEN's protection of marine areas, protected areas, protection of species)
	At its sixth meeting, the COP reaffirmed the importance of cooperation and the need to design and implement mutually supportive activities with other conventions, international organizations and initiatives. In particular, the COP underlined cooperation with the following organizations on specified issues: FAO, UNFCCC, UNCCD, the Ramsar Convention on Wetlands, CMS, CITES, WTO, IPPC, and WIO. ³⁵
	Marine Networks: Through the Jakarta Mandate on Marine and Coastal Biodiversity (1995), the CBD addresses ecological networks: The Convention focuses on integrated marine and coastal area management, the sustainable use of living resources, marine and coastal protected areas, mariculture and alien species.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	

Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	<p>Inland water ecosystems: The programme of work on biological diversity of inland water ecosystems integrates with other work programmes and cross-cutting issues, particularly as freshwater is the major link between many different ecosystems and issues. The CBD promotes cooperation with other Conventions and organizations through Joint Work Plans, in particular the Ramsar Convention on Wetlands and the Convention on Migratory Species.</p>
	<p>Article 8 of the CBD relates to PEEN in the promotion of ecosystems, natural habitats and areas adjacent to protected areas with a view to furthering protection of these areas.</p>
	<p>Article 5 – Cooperation Each Contracting Party shall, as far as possible and as appropriate, cooperate with other Contracting Parties, directly or, where appropriate, through competent international organizations, in respect of areas beyond national jurisdiction and on other matters of mutual interest, for the conservation and sustainable use of biological diversity.</p> <p>Article 10. Sustainable Use of Components of Biological Diversity deals with cooperation between government authorities and the private sector in developing methods.</p> <p>Article 13. provides strong support for CEPA by stating a clear requirement for Public Education and Awareness through promotion and cooperation</p>

Helsinki Convention

Assessment of the Helsinki Convention	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	The focus of the Helsinki Convention is on regional environmental protection. However as its goal is to safeguard the ecological balance of the Baltic, it also appoints 'Baltic Sea Protected Areas' which are the equivalent of core protected areas.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	The Helsinki Convention contains an article on Information to the public (Article 17), but this is rather restricted, as it only requires contracting parties to provide information on permits issued, results of water and effluent sampling and results of checking compliance and water-quality objectives. The Helsinki Commission does have an 'information and communication strategy' for CEPA activities.

Pan European Biological and Landscape Diversity Strategy

Assessment of the Pan European Biological and Landscape Diversity Strategy	
Assessment of the strengths and weaknesses of the legislation/policy in support of PEEN	PEBLDS forms the direct basis of PEEN. It is further supported through the Kyiv Action Plans from the 'Environment for Europe' ministerial meeting in Kyiv 2003.
Assessment of Communication, Education, Participation and Awareness (CEPA) requirements or activities in support of PEEN	There is a specific Kyiv Action plan on promoting Communication, Education, Participation and Awareness. It urges countries to develop their own CEPA strategies and to actively involve the general public.

Review of Activities related to the implementation of PEEN on the international level

The following groups and committees have been identified in the desk review as specific communication activities that come from the above international policies, which can have a direct or an indirect effect on the implementation of PEEN.

Habitats Committee

The Habitats Committee consists of national experts and is the mechanism through which the Member States are involved in the policy processes concerning the Habitats Directive. It operates under the direction of the Commission through DG Environment.

Ornis Committee

The Ornis Committee is the twin of the Habitats Committee, it also consists of national experts and serves as input to the Commission on matters concerning the Birds Directive.

Biodiversity Expert Group

The Biodiversity Expert Group provides input to the European Commission on biodiversity matters relating to the EU Biodiversity Strategy. It consists of Commission representatives, biodiversity Member State representatives and representation of experts from NGOs etc.

Communicating Natura 2000 Working Group

The Communicating Natura 2000 Working Group was set up by the nature and biodiversity department of DG Environment. It involves European Member State representatives and European NGOs. The group works on Communicating Natura 2000 throughout the European Member states. It works on awareness rising through the Natura 2000 network and provides the opportunity for Member States to raise communication issues.

Strategy Council PEBLDS (indicate the direct relationship between PEBLDS and PEEN)

The Council of the Pan-European Strategy is the decision-making body and is composed of representatives of all 54 States involved in the "Environment for Europe" process. Since 1998 it meets every year, and prior to that date every two years.

Strategy Bureau PEBLDS

The Bureau consists of representation of governments with the support of the Joint Secretariat. A number of NGOs are represented as observers. At the PEBLDS Council in March 2000, it was decided to form an enlarged Bureau composed of the members of the Bureau plus two representatives of EU member states, two representatives of central and east European countries, two representatives of the group of western

and other European states, four representatives of NGOs and members from countries represented on the CBD Bureau and also party to other relevant conventions.

Joint Secretariat of PEBLDS

The Joint Secretariat of the Pan-European Strategy carries out the daily operations relating to PEBLDS and is composed of the Council of Europe and UNEP.

The PEEN Committee of Experts

The Committee of Experts for the development of the Pan-European Ecological Network is an intergovernmental, Pan-European expert committee that was set up by the Council of Europe in 1997 under the authority of the Council for the Pan-European Biological and Landscape Diversity Strategy. The main function is to guide the development and supervise the implementation of the work programme to establish the Pan-European Ecological Network, to report on progress to the Council of the PEBLDS and its Bureau and to prepare proposals for further activities.

Bern Convention Secretariat

The Council of Europe co-ordinates the activities related to the Bern Convention and the Secretariat carries out day-to-day activities of the Convention.

Ramsar Secretariat

The Ramsar Convention Secretariat carries out the day-to-day coordination of the Convention's activities. It is located in the headquarters facilities of IUCN-The World Conservation Union in Gland, Switzerland.

Helsinki Commission

Within the framework of the Helsinki Commission the Nature Conservation and Coastal Zone Management Group (HELCOM HABITAT) aims to conserve natural habitats and biological diversity as well as to protect ecological processes vital to the Baltic Sea environment. The group promotes the adoption of ecosystem approaches for the sustainable use and management of coastal and marine natural resources, and fosters Coastal Zone Management Plans.

Overall Assessment of policy/legislation

The international policy instruments cover a large spectrum of biodiversity protection and can have a direct or indirect link to the promotion of a Pan European Ecological Network (PEEN). Different policy instruments used at the international level will have different abilities for achieving their policy goals.

From a legal point of view the Natura 2000 network has the strongest basis for the creation of an ecological network as it is part of the EU Habitats Directive and therefore is embedded in legislation. However, the Natura 2000 network is limited to EU-countries and therefore does not cover the whole of Europe. Natura 2000 Network should be seen as a driver for enabling the PEEN concept. The more intergovernmental policy instruments, such as the Emerald network (Bern Convention), Pan European Biological and Landscape Diversity Strategy and PEEN have a wider geographical scope than the Natura 2000 Network. However the weakness of the Convention and Strategy concepts are in their implementation, since there are no strong legal consequences of non-compliance (as in the EU Habitats Directive) and also the coordination of the implementation is dependent entirely upon national support for these instruments.

Not all international instruments are adequate for the realisation of a functioning ecological network on a European scale, as not all instruments fully apply the ecological network theory, that consists of not only core areas, but also corridors and buffer zones. The Pan-European Ecological Network has, technically speaking, the broadest scope because it covers not only core areas, but also network elements, such as corridors and buffer zones, which are not specified in most of the other international policies. The element of connectivity in PEEN is a great potential and of great ecological importance (Van Opstal, 2001).

A specific issue for the implementation of PEEN on the international level concerns the differences in political status of the organisations involved in Ecological Networks. PEEN itself is an intergovernmental poli-

cy instrument, which operates on a different level to Natura 2000 which has a very strong legal basis and of which the implementation by the EU Members States can be enforced by the Commission through an infringement procedure in the Courts. The implementation of PEEN is much more dependent on national political support and has no way to enforce implementation.

Overall Assessment of the CEPA activities in support of PEEN (from desk review)

The level of support for CEPA activities within individual policies varies. There can be strong support within individual policies, for example it can be a legal requirement, as in Article 14 of the Water Framework Directive; an agreement within a Convention, as is the case for Article 13 of the Convention of Biological Diversity; or a requirement for specific support, as in the Ramsar Convention. In other policies there are less specific requirements such as “ to ensure cooperation”, however to achieve cooperation, CEPA activities will be required. The CEPA activities that exist under the various international policies can provide forums and links for the communication of the PEEN concept.

NATIONAL LEVEL REVIEW

Estonia

This preliminary report provides the results and analysis of a literature review of PEEN within Estonia. Overview of legislation and policy

International commitments

Convention on Wetlands	✓
Biogenetic reserves	✓
Pan European Biological and Landscape Diversity Strategy	✓
E.U. Birds Directive	✓
E.U. Habitats Directive	✓
Bern Convention	✓
Helsinki Convention	✓
Barcelona Convention and Geneva/Barcelona Protocol	✓

National instruments

Act on Sustainable Development
Act on Protection of Natural Objects
Act on Protection of Marine and Freshwater Coasts, Shores and Banks
Act on Planning and Building
Act on Wildlife Protection
Act on Forestry
Act on Hunting Management
Act on Land Improvement
Act on Water
Act on Fisheries Estonian National Environmental Strategy
Estonian Environmental Action Plan
Estonia – vision 2010

Estonian legislation supports the establishment of an ecological network. The general concept of ecological networks is embedded in the spatial planning legislation. The system through which these networks will be designated and preserved, is still to be fully established. Recent legislation and environmental policies (the Estonian National Environmental Strategy, the Estonian Environmental Action Plan and “Estonia – vision 2010” as a long-term strategy) gradually extend the support for establishing and maintaining an ecological network, at all hierarchic levels.

The Act on Sustainable Development 1997 (as amended) lays down the principles of the national strategy and provides the legal basis for implementing the principles of sustainable development. This Act contains special articles concerning ecological networks, i.e. ecological considerations at spatial planning and developmental planning.

The Act on Protection of Natural Objects 2001 (as amended) is one of the main legal instruments concerning nature conservation. This Act determines the nature of protection and the procedure for the protection of territories (landscapes), single objects of nature (geomorphologic features), plant, fungi and animal species. It determines the rights and responsibilities of landowners, land users and other persons in regard to protected natural objects and regulates the introduction and reintroduction of protected species. By setting the general framework for designating protected areas, and for working out their protection rules, territorial zoning and management plans, the Act provides a strong legal support for preservation of core areas of the ecological network.

The Act on Protection of Marine and Freshwater Coasts, Shores and Banks (1995) stipulates the principles for using and protecting the Estonian coast and shoreline. The Act is very important for preserving ecological corridors along the coastline, lake-shores and river banks.

Spatial planning, including settlements, industry and their infrastructure, which exert an impact on a considerable share of natural areas, is organised by the Act on Planning and Building 1999 (as amended). The Act provides the legal background for designing an ecological network as a part of the county spatial planning process. The county plan has legal power in Estonia. The county spatial plan is considered to be the main development plan, which sets the legal framework for land use and other activities. The design of the green network is carried out at county level (planners use the term “green network” instead of “ecological network”).

The Act on Wildlife Protection (1998) sets a legal basis for the protection and preservation of migratory routes. All activities, such as, construction and planning of roads, communication lines or rebuilding should take into consideration the existing migratory routes of wildlife.

The other laws and regulations which could indirectly support ecological network principles, include the Act on Forestry (1998, amended in 1999), the Act on Hunting Management (1994), the Act on Land Improvement (1994), the Act on Water (1994, amended 1996), the Act on Fisheries (1995, amended in 1996, 1998, 2000).

Several environmental policies, for example, the Estonian National Environmental Strategy and the Estonian Environmental Action Plan, are oriented towards the development of ecological networks in Estonia. The Estonian National Environmental Strategy, approved in 1997, sets a goal to ensure the preservation of viable populations of local plant and animal species, natural and semi-natural communities and landscapes typical of Estonia (EME, 1997). The long-term strategy “Estonia – vision 2010” contains a chapter on “green networks” and a schematic map of an Estonian green network.

The National Agri-Environmental Program supports the development and preservation of ecological networks at local (farm, agricultural enterprise) level. Currently, the project on “Development of an Agri-environmental Scheme for Estonia” is on-going (Sepp, 1999).

The National Agri-Environmental program is intended:

To maintain and protect valuable natural, semi-natural wildlife habitats, landscapes and their elements, which are associated with small biotopes such as ponds, hedges, stone heaps, stone walls, etc.;

To maintain, protect and improve the visual appearance of the farm by maintaining, protecting and improving all farm and field boundaries, including hedges and stone walls;

To maintain and encourage extensive crop production methods on all cultivated land by: 1) leaving at least a 3 metre wide unsprayed and “headland” on all cultivated fields (this must be increased to 10 metres if

the field boundary is lake or river) and 2) leaving an additional 1 metre uncultivated field margin on all cultivated field over 8 ha in size. These methods are intended to encourage perennial vegetation.

The other policies that include strategies for preserving or developing ecological networks are the Estonian Forest Policy (1997), the Estonian Forestry Development Plan (2001) and the Estonian biodiversity strategy and action plan (EME and UNEP, 1999).

Assessment of policy and legislation in support of PEEN

Estonian policy and legislation strongly support the development of a national ecological network that is coherent with the concept of a PEEN. Clear targets have been set at the national level in designating ecological network elements by the relevant authorities. The development of a National Ecological Network is therefore well underway.

Assessment of legislation and policy in respect CEPA Activities

As the policy for a national ecological network is based upon implementation at the more local levels, that is county and local authority levels, there will be a need for more interactive policy making that includes CEPA activities, in order for it to be successful. The literature did not clarify which CEPA activities were being used in the implementation of the ecological network.

Germany

This preliminary report provides the results and analysis of a literature review of PEEN within Germany.

Overview of legislation and policy

International commitments

Convention on Wetlands	✓
Biogenetic reserves	✓
Pan European Biological and Landscape Diversity Strategy	✓
E.U. Birds Directive	✓
E.U. Habitats Directive	✓
Bern Convention	✓
Helsinki Convention	✓
Barcelona Convention and Geneva/Barcelona Protocol	✓

National instruments

German Federal Nature Conservation Act 2002

Legal bases and political perspectives:

The habitat network approach is newly enshrined in the Nature Conservation Act 2002. This prescribes the development of a habitat network system covering at least 10% of the territory of Germany. Only some of the previous protected areas designated in the various categories will meet the criteria for habitat network areas. This will make it necessary to secure and, where appropriate, develop additional areas. However the spatial setting, which needs to be considered from a conservation perspective to implement the habitat network concept is much wider [BFN, 2004]

In Germany nature conservation by law is a task of the federal states. Accordingly in each of the federal states initiatives concerning the development of ecological networks have started at different times and have so far mostly been developed independently. Here the northernmost state, Schleswig-Holstein, has taken a leading role. There is a requirement for the establishment of a functional ecological network on at least 15% of its surface area, which has been included in its nature conservation policy for a long time already. Accordingly plans for ecological networks exist for all of Schleswig-Holstein on various spatial scales and the implementation is making good progress. Another state, Rheinland-Pfalz, also needs to be mentioned, because plans for ecological networks covering its entire surface area were developed very early on.

The new version of the Federal Nature Conservation Act came into force in Germany in April 2002. This included the new article, article 3, which obliges each of the German federal states to assign at least 10 % of its surface area to the development of an ecological network. This article also says that the aims of such a network are mainly functional, i.e. to secure the conservation of species, communities and habitats as well as the preservation, regeneration and development of functioning ecological interactions. This article also outlines which functional components and types of sites should or might be part of the ecological network, and lists different options of securing these as part of an ecological network.

The federal states were obliged to implement this article in their respective nature conservation acts by April 2005. So far only some of the federal states have achieved this. The federal states are obliged to develop such ecological networks in a consistent way working together across federal state borders. Although article 3 of the Federal Nature Conservation Act does give an outline of what the goals of the establishment of ecological networks are, it does not tell in detail how these goals are to be reached.

A working group consisting of representatives of the nature conservation agencies of the federal states and the national agency was formed in order to develop criteria for a consistent implementation of this article. This working group mainly focused upon the development of a system of criteria serving to select sites that already contribute to an ecological network and sites that are needed in addition and accordingly should be developed for this purpose. The working group also commented on which of these sites should be considered as part of the 10% of the surface area demanded. Guidance was also provided about the suitability of different legal means of conservation for securing the long-term functioning of the components of ecological networks.

Some of the federal states had already produced maps for ecological networks within their borders before this system of criteria was developed. In some cases the designed networks fulfil the criteria quite well, in other cases the networks will need some adaptation.

All of these maps have been put together using GIS and serve as a base for a research-project that has just started and aims at selecting core areas and ecological corridors of national and international importance.

Assessment of policy and legislation in support of PEEN

There is clear support for Ecological Networks in German federal law. Implementation of ecological networks takes place at the 'Länder' (federal states) level. There is also strong support for the international dimension of the German federal ecological network and it appears that the Bundesamt für Naturschutz (national nature authority) is very active in the identification of new methods of how those actors involved in implementing the ecological network can cooperate with their international partners.

Assessment of legislation and policy in respect CEPA Activities

Whilst the CEPA Activities of the Nature Conservation Act were not prescriptive in the review, the text does indicate that the government are looking at how to involve necessary actors, and more specifically beginning to look at which actors are necessary for cross border cooperation.

Greece

This preliminary report provides the results and analysis of a literature review of PEEN within Greece.

Overview of legislation and policy :

International commitments

Convention on Wetlands	✓
Biogenetic reserves	✓
Pan European Biological and Landscape Diversity Strategy	✓
E.U. Birds Directive	✓
E.U. Habitats Directive	✓
Bern Convention	✓
Helsinki Convention	✓
Barcelona Convention and Geneva/Barcelona Protocol	✓

National instruments

Master Plan for the Protection of Nature
National Law 1650/1986
National Law 1469/1950
National Law 996/1971
National Law 177/1975

The Master Plan for the Protection of Nature

The Government have created a national strategy the 'Master Plan for the Protection of Nature', which aims to provide for the establishment of ecological networks in Greece. The plan was created by a firm of consultants called, OIKOS, work began in 1999. The plan was then revised by new political leaders and presented at a press conference in October 2001. The Greek National Ecological Network basically provides for the implementation of the Natura 2000 Network and does not go beyond this into any further depth, particularly with regards to connectivity. Therefore it may be seen as having potential to be developed into a National Ecological Network but does not go as far as ecological networks, as defined by the PEEN concept.

The Master Plan includes the creation of an ecological network for 'all areas with a high ecological, biodiversity or aesthetic value'. It includes Special Protection Areas (SPAs) the requirement under the Birds Directive (79/409/EC) and (SACs) the proposed Natura 2000 sites under the Habitats Directive (92/43/EC). Other designated areas such as National forests or 'wildlife refuges' (established by the Ministry of Agriculture) are also included in the plan.

The Master Plan has two large categories of classification:

- Areas in the 'National Protected Areas Network'
- Areas of regional and local importance

The Master Plan creates Management Authorities that will manage the protected areas in Greece. In 2002, Law 3044/02 was created by the Government to establish the first set of Management Authorities.

A national committee has been set up called FYSI 2000 (Greek for Natura 2000) under Article 5 of the Government Decision 33918/1998. This committee is responsible for the coordination and evaluation of Management Authorities, as well as consulting with the Ministry of Environment. The Management Authorities will ensure the implementation of Natura 2000 at the local level. The national committee involves stakeholders consisting of Ministry representatives, academics and experts, environmental NGOs and a president, appointed by the Minister of the Environment (S. Psaroudas, personal communication, July 24, 2004).

The management of protected areas falls in the jurisdiction of Ministry of Environment, Physical Planning and Public Works and the Ministry of Agriculture.

National legislation providing for the protection of nature includes (Legakis, 1998):

National Issaw 1650/1986

This law provides for the protection of the environment and serves as a general framework for biodiversity protection. It includes:

Environment Impact Assessment studies

Pollution measures

Protection of nature and landscapes, defining categories of protected areas (National Parks, Nature Reserves, Strict Nature Reserves, Protected Natural Formations-Landscapes-Landscape components and Eco-development areas

Other relevant legislation includes:

Legislation	Description
Presidential Decree 67/81	Provides protection of native flora and wild fauna and the determination of the co-ordination and control procedure of related research
Law 1469/1950	Relates to Landscape of Outstanding Natural Beauty
Law 996/1971	Relates to the protection of Natural Parks, Aesthetic Forests and Natural Monuments
Law 177/1975	Provides protection through the control of hunting areas

National Initiatives in support of nature protection (Legakis, 1998):

Initiative	Description
The National Wetland Initiative	In association with Greek Biotope/Wetland Centre). This strategy is an integral part of the National Biodiversity Strategy
National Project for Coasts	This project contributes to the National Biodiversity Strategy and relevant Action Plans.
The Agri-Environmental Policy Committee	This committee was set up to integrate agricultural and environmental policy, the CBD being a main input for biodiversity conservation.
The Sustainable Development of mountainous areas	A group that considers linking biodiversity value of these areas with sustainable use
The initiation of the European Network NATURA 2000	This includes the preparatory actions for the conservation of biodiversity on protected sites, as well as the integration of biodiversity policies in regional and local land use plans. Information and policy-making meetings are organised in 13 regions of the country by the Ministry of the Environment and the support of the Greek Biotope/Wetland Centre

Assessment of policy and legislation in support of PEEN

The Ministry of Environment, Physical Planning and Public Works issued 'The first national report on the Convention on Biological Diversity', in January 1998 (Legakis, 1998). This report was part of a process to input into the Greek "National Biodiversity Strategy". This National Strategy is the basis for the protection of nature through National Action Plans. These plans include the implementation of the Natura 2000 network.

Greece has signed up to the Pan European Biological and Landscape Diversity (PEBLDS) Strategy, which focuses on the concept of PEEN. Greek national legislation and policy supports the implementation of international legislation and policy through the concept of ecological networks. Greece has initiated the creation of ecological networks in so far as in compliance with the Natura 2000 Network and national legislation, policy and initiatives providing for the protection of specific habitats and species.

Assessment of legislation and policy in respect CEPA Activities

At the national level CEPA activities exist through the establishment of a committee called FYSI 2000 (Greek for Natura 2000) under Article 5 of the Government Decision 33918/1998. This committee is responsible for the coordination and evaluation of Management Authorities, as well as consulting with the Ministry of Environment. The committee involves the following type of stakeholder: Ministry representatives, academics and experts, environmental NGOs and a president, appointed by the Minister of the Environment. This type of CEPA activity may provide support for broadening the scope of ecological networks from Natura 2000 to further development of the concept of PEEN, from the committee at a national level to the management authorities that the committee oversees at the regional level.

The Netherlands

This preliminary report provides the results and analysis of a literature review of PEEN within The Netherlands.

Overview of legislation and policy

International commitments

Convention on Wetlands	✓
Biogenetic reserves	✓
Pan European Biological and Landscape Diversity Strategy	✓
E.U. Birds Directive	✓
E.U. Habitats Directive	✓
Bern Convention	✓
Helsinki Convention	✓
Barcelona Convention and Geneva/Barcelona Protocol	✓

National instruments

Nature for People (NvM)
National Environment Plan 4 (NMP4)

The NvM and the NMP4 are devoted to protecting ecological and cultural values through such measures as a connected system of protected areas. This is a prime candidate for the application of the ecosystem approach. Additional starting points of Dutch policy are that the surface area of original nature (wilderness areas) remains at least the same acreage as in the year 2000 and that all existing biological 'hot spots' are protected as much as possible, and are surrounded by buffer zones. Furthermore protected areas are to become ecologically connected by means of linking zones. In concrete terms, the Dutch effort in the long run aims to ensure the protection of at least 10% of the land surface area as nature area.

Creation of an ecological network

The Netherlands has been working for a number of years on the National Ecological Network. The network contains 700,000 hectares of which 200,000 are 'new nature'. This includes continuous nature areas and hotspots supporting species unique to the Netherlands. These areas are linked in order to increase the exchange and thereby the survival chance of species. To guarantee establishment of the National Ecological Network by 2020, quantitative and qualitative goals have been formulated.

The Netherlands promotes itself as actively supporting the implementation of strategies that are directed at the protection of biological hot spots in a connected ecological network and that mobilise local communities. The creation of national parks and nature reserves are seen as important tools to achieve this.

The promotion of a buffer zone policy is carried out by directing research efforts and supporting multilateral initiatives. These buffer zones are promoted as areas where sustainable use of resources may be carried out.

The Dutch Government actively supports the establishment of the Pan-European Ecological Network in various ways. Through Dutch Government supported PEEN map projects; current projects on identification of hot spots according to the PEBLDS definition; as part of the framework of Natura 2000 and the Emerald Green Network. They also promote the interaction between the PEEN and the policy for other land-uses such as agriculture, infrastructure and land clearance.

The Netherlands also promotes support for governments and NGOs in Central and Eastern Europe to identify parts of international ecological networks, including the establishment of an adequate protection regime and the systematic management of these areas. The instruments available for this include a Document of Understanding with Hungary, Poland, Russia and the Ukraine, multi-year agreements with international organisations or internationally operating NGOs, and the subsidy scheme for nature projects in Central and Eastern Europe.

The Netherlands takes part in cross border cooperations, for example, the establishment of a Wadden Sea International Park with Germany and Denmark is being explored. Links with Germany and Belgium are being investigated. The Netherlands also aims to strengthen ecological functions of the transboundary river basin areas of the Rhine, Schelde, Maas and Ems rivers through international cooperative agreements.

Assessment of policy and legislation in support of PEEN

There is strong support in Dutch policy and legislation for ecological networks; this is shown through the creation of the National Ecological Network and the policies and activities that directly support the concept of a PEEN.

Assessment of legislation and policy in respect of CEPA activities

The literature did not provide specific details of CEPA activities, however there were indications that communication for activities such as cross border cooperation agreements were taking place.

Norway

This preliminary report provides the results and analysis of a literature review of PEEN within Norway.

Overview of legislation and policy

International commitments

Convention on Wetlands	✓
Biogenetic reserves	✓
Pan European Biological and Landscape Diversity Strategy	✓
E.U. Birds Directive	
E.U. Habitats Directive	
Bern Convention	✓
Helsinki Convention	✓
Barcelona Convention and Geneva/Barcelona Protocol	✓

National instruments

The Nature Conservation Act
The Wildlife Act
The Planning and Building Act
National Policy Guidelines for coordinated land-use and transport planning

Norway's first act on nature conservation was passed in 1910, and applied for the first time in 1911, when 52 plant species were protected in the Dovrefjell area. This was a response to the large-scale collection of rare plants that had started in the area at the turn of the century. The act was replaced in 1970.

Royal Decree, pursuant to the Nature Conservation Act, permanently protects forty-seven species of plants and nine species of invertebrates. This means that they may not be picked or collected. A number of other species are protected or catches are regulated through the Wildlife Act, the Act relating to salmonids and freshwater fish and the 1983 Act relating to seawater fisheries.

The Wildlife Act is based on the principle that all mammals, birds, reptiles and amphibians and their eggs, nests and lairs, are protected unless otherwise specified. For example, hunting periods have been defined for some species.

The change from a scattered agricultural population of 19th century Norway to a modern industrial society has also greatly changed the natural environment. Towns have grown in size and population, and the introduction of modern methods in agriculture and forestry has changed both agricultural landscapes and the wilder countryside. As a result of these changes habitats are disappearing and being replaced by man-made habitats.

Some threatened and vulnerable species and their habitats are strictly protected under the Nature Conservation Act (national parks, nature reserves etc.). All sectors in Norway are now being urged to integrate environmental considerations into their own tasks. The municipalities have for example surveyed key habitats in forests and biological diversity within their boundaries.

Assessment of policy and legislation in support of PEEN

PEEN and ecological networks are not mentioned explicitly in national legislation. Even though Norway has signed the PEELDS, PEEN does not get much attention in policy and legislation. There is no explicit support for PEEN in legislation. Because of the specific characteristics of the Norwegian landscape, the notion of an ecological network is deemed irrelevant.

Assessment of the legislation and policy in respect of CEPA activities

The literature reviewed did not provide any specific details of CEPA activities carried out to support nature policies. Although it does refer to the fact that different sectors were being communicated with to encourage them to incorporate environmental protection in their activities. It also mentions the fact that local municipalities have been involved in the surveying of biodiversity.

United Kingdom

This preliminary report provides the results and analysis of a literature review of PEEN within the United Kingdom.

An overview of legislation and policy

International commitment

Convention on Wetlands	✓
Biogenetic reserves	✓
Pan European Biological and Landscape Diversity Strategy	✓
E.U. Birds Directive	✓
E.U. Habitats Directive	✓
Bern Convention	✓
Helsinki Convention	✓
Barcelona Convention and Geneva/Barcelona Protocol	✓

National instruments

Habitats Regulations 1994
Wildlife & Countryside Act 1981
CRoW Act 2000

The Conservation (Natural Habitats, & c) Regulation 1994 (amended 1997, 2000)

This Regulation transposed the EC Habitats Directive, protecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), as part of the EC Bird Directive requirements. This forms the National Natura 2000 Network.

The Government agencies can enter into management agreements on this type of land or apply Compulsory Purchase legislation. The Regulation also provides for the protection of and effective management of the sites. Species of the site are protected in this Regulation. The Joint Nature Conservation Committee (JNCC), the UK Governments wildlife adviser, advises government on the application and interpretation of the Directive.

The Wildlife & Countryside Act 1981 (amended 1985)

This Act consolidates and amends previous national legislation to cover the EU Birds Directive (79/409/EEC) and the Bern Convention. The Act covers protection for wildlife, the countryside, National Parks, the designation of protected areas and public rights of way.

The Act contains measures for protecting native wildlife from the establishment of non-native species. Designation of protected areas is provided for in the Act by the notification of Sites of Special Scientific Interest (SSSIs) and provides measures for the protection and management of SSSIs. SSSIs are designated by English Nature, Scottish Natural Heritage and the Countryside Council for Wales or Areas of Special Scientific Interest (ASSIs) in Northern Ireland by the DoENI. SSSI's can be owned by anyone, the designation is to identify those areas worthy of preservation. These sites form the basic unit of UK protected area legislation; the majority of higher designations such as SPAs or SACs are superimposed on to existing SSSIs (Hearn, K. 1997)

The Countryside and Rights of Way Act 2000 (CRoW Act 2000)

This applies to England and Wales only. The Act provides for public access and public rights of way, increases protection for SSSIs, strengthens wildlife legislation and provides for better management of Areas of Outstanding Natural Beauty (AONBs). The Act requires local authorities to produce management plans for AONBs and consolidates previous legislation. It enables the creation of Conservation Boards in order to assume responsibility for AONBs particularly where land is designated across several local authority jurisdictions.

National Initiatives

National Nature Reserves

National Nature Reserves (NNRs) were established to protect the most important areas of wildlife habitat and geological formations in Britain. They are considered 'nationally important' and are among the best examples of a particular habitat. They are owned or controlled by English Nature or held by approved bodies such as Wildlife Trusts. There are 214 NNRs covering 87,859 hectares. Many SSSIs are also NNRs (para 1, "National Nature Reserves", n.d).

The UK Biodiversity Action Plan, 1994

The UK Biodiversity Action Plan was produced by the Government to conserve and enhance biological diversity in the UK; it involves a series of plans that are implemented at the national and the local level. The UK Biodiversity Partnership implements the Plan. It was set up with the aim of bringing together all the partners involved in or with an interest in the UK Biodiversity Action Plan and in policy on biodiversity, and to co-ordinate action that should be taken forward at a UK level. The full partnership will meet annually, and the work will be supported by a standing committee, which includes representatives of the four country groups, the agencies and conservation NGOs.

The UK Biodiversity Partnership has a Standing Committee which is chaired by the Director of Wildlife, Countryside and Flood Management of DEFRA while the Chairs of the four Country Biodiversity Groups, representatives of the four country nature conservation agencies and representatives of the NGO community are standing members. This core membership ensures that the views of the country partnerships are represented and that the group retains its strong biodiversity focus.

The Standing Committee's role is to guide and support the UK Biodiversity Partnership in implementing the UK Biodiversity Action Plan, facilitate the exchange of information among the Country Biodiversity Groups and oversee the maintenance of systems to support and report on a common set of UK Habitat and Species Action Plans. Two support groups have been set up to help the Standing Committee manage the UK BAP process. These are the UK Biodiversity Reporting and Information Group and the UK Biodiversity Research Advisory Group.

A Species Action Plan (SAP) has been prepared by Statutory Agencies with other groups and voluntary bodies and other organisations are to “champion” individual SAPs for specific species. The overall SAP identifies broad habitat types and key habitats for protection. The SAP report acknowledges that in order to conserve UK species more will need to be done than just taking into account a few key habitats; this is part of the welcome reference for many biodiversity organisations in the UK to the wider countryside. Habitat Action Plans (HAPs) are also being created. National HAPs will be championed by Statutory Agencies.

Local Biodiversity Action Plans (BAPs) are also being created which include Local HAPs. The function of local BAPs is to ensure that national targets in the national plans are met. The biodiversity element of Agenda 21 will be covered in these plans and promote species and characteristics of the local area. Targets set under these plans should reflect the values of local people promoting the concept of stakeholder involvement and widespread ownership of the plans, which is considered essential (Hearns, 1997 (2)).

An assessment of legislation and policy in support of PEEN

The UK has, so far, only implemented the ecological network concept through its implementation of the Natura 2000 Network and its other national initiatives such as SSSIs and NNRs. The UK has also signed up to the Pan European Biological and Landscape Diversity (PEBLDS) Strategy, which focuses on the concept of PEEN. However active support for the broader concept of PEEN, over and above Natura 2000 Network, is not recognised in policy. With saying this, the UK does carry out activities and research that work towards the PEEN concept and the concept of the ‘ecosystems approach’ taken from the CBD is widely accepted. For example there has been a range of publications looking at habitat corridors in the context of urban conservation. The concept of networks and corridors has been widely adopted in urban planning in the United Kingdom, presumably because the open spaces, greenways and corridors provide wider benefits for people (Porter, 2004)

Research activities in the UK have also analysed the appropriateness of ‘ecological networks’ as a tool for conservation, especially with a view to ecological coherence of protected area. This has included national assessments of protected sites, which included the main principles of ecological networks Ratcliffe (1977) and NCC (1989). More recent research has considered linear features, habitats and wildlife Leafe (1993) and the role of corridors in the protection of areas Farmer (1993).

For sites of international importance, there are statutory controls on activities outside a Natura 2000 site if this might have an impact within that site. However generally corridors between protected sites have no formal planning status. In Scotland Section 3 of National Planning Policy Guidance 14 advises planning authorities to seek to safeguard and enhance the wider natural heritage beyond the confines of designated sites. Also Regulation 37(6) (which transposes Article 10 of the Habitats Directive into domestic legislation) specifies that nature conservation policies in Structure Plans and Local Plans should encourage the management of landscape features of value to wildlife. In the UK neither protected sites nor corridors have any formal buffer areas. Any ‘buffering’ that may be necessary to sustain the interests of the site will usually be accommodated within the boundaries of the protected site.

Assessment of legislation and policy in respect of CEPA activities

The UK BAP may provide opportunities for contact with stakeholders for the communication of PEEN as in effect it creates a network of plans and therefore people from the national to the local level. The UK BAP partnership incorporates a Standing Committee and the also has four groups representing the UK countries, there is also a reporting and information and a research advisory group.

The JNCC in its’ role of advising the Government on the implementation of Natura 2000 Network may provide opportunities for increasing the awareness of PEEN. One of their specific functions includes providing advice and knowledge to anyone on nature conservation issues affecting Great Britain and internationally (para 1, “Corporate Information”, n.d.)

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Communicating PEEN

Executive Summary of Communicating PEEN: Phase I Report

ANNEX III

Executive summary of the report on Phase 1 of the Communicating PEEN project:

Support for ecological networks in European nature conservation: an indicative social map. By Sandra Rientjes and Katerina Roumelioti. Tilburg: ECNC. 2003.

This report presents the results of an explorative study into the understanding and appreciation of ecological networks as a policy concept in Europe. The aim of this study was to provide information that would be relevant for the implementation of the Pan-European Ecological Network (PEEN). The study also took into account understanding and appreciation of ecological networks in general: whatever doubts exist concerning the validity, relevance or feasibility of ecological networks in general will affect opinions on an ecological network at a Pan-European scale. To obtain insight into these research questions, two methods were used: interviews with individuals who are, or have been, closely involved with the development of the PEEN concept, and a survey among conservation ecologists and national or regional policy makers in 31 countries.

Ecological networks in general

The topic of ecological networks appears to be very much alive in European nature conservation, but there are indications that interest is restricted to a specific sub-group of conservation professionals, (especially the research community), and that ecological networks are not considered particularly important or relevant by professionals who focus on other aspects of conservation (such as the protection of particular sites and species, or more general policy issues).

Are ecological networks relevant and feasible?

In general, there are hardly any doubts concerning the overall validity of the ecological network concept. Ecological networks are considered to be relevant for the protection of habitats and species, at least in theory. Practical relevance is considered highest if a network focuses on specific species or habitats, and does not exceed a specific level of geographical scale. The regional (i.e. sub-national) level is considered most appropriate for the development of ecological networks, followed by the local and the national level. International ecological networks are considered effective, if they have a clear bio-geographical basis, such as an international river or a border-crossing mountain range. There are some doubts about the possibilities to create an effective international ecological network without such a clear bio-geographic focus. Ecological networks are considered to be relevant for most ecosystem types, but effectiveness is considered to be medium for alpine systems, and low for the marine ecosystem.

In general, people are positive about the relevance of ecological networks for their country and about the feasibility of developing such networks in their country. Respondents from larger countries are just as likely to consider ecological networks feasible on a national scale as respondents from smaller countries. However, respondents from countries with a federative structure are slightly less likely to consider national ecological networks feasible than respondents from non-federative countries. This would indicate that doubts about feasibility, and relevance, are not as such related to the size of the area to be covered by the network. These doubts could be related to the legal or administrative problems that are foreseen when an ecological network covers different administrative areas or 'jurisdictions'.

Structure and objectives of ecological networks

Core areas and corridors are considered to be essential elements in an ecological network, but there are some doubts about stepping-stones and buffer zones. There is wide support for the statement that ecological networks can include areas without any protected status. Opinion is divided as to whether the main purpose of an ecological network is the protection of migratory species and species that depend on connectivity between habitats for their survival (e.g. bear, wolf, lynx), or that networks could serve a wider group of species. In general, it was felt that ecological networks not only protect species and ecosystems, but also landscapes. Knowledge about the possible negative side-effects of ecological networks (spreading of diseases, invasive species) appears to be limited.

Practical experiences with developing ecological networks

Creating an ecological network on paper is relatively easy, but developing the network on the ground can be (and is) extremely difficult. Lack of resources, insufficient understanding of the concept among key decision makers, and insufficient expertise to explore the concept adequately rank high in the list of experienced problems. The availability of data apparently causes fewer problems in reality than expected, whereas the translation of the concept from the national to the regional level proves more difficult.

Developing an ecological network means involving land-users, economic sectors and other governmental departments. Experiences show that researchers and conservation NGOs are most outspokenly positive about ecological networks, closely followed by conservation policy makers and owners/managers of existing protected areas. Planning departments and the forestry sector take a more or less neutral position. Farmers and other landowners are most clearly critical, but during the process of network development these 'opponents' of ecological networks have been known to move from 'critical' to 'neutral' or 'supportive'.

Changes in legislation and policy, as well as the availability of funding are the most commonly named triggering events for the development of ecological networks.

The Pan – European Ecological Network

The PEEN concept is fairly well known and generally considered to be relevant for European nature conservation. However, apparently PEEN is rarely discussed in the wider nature conservation community. The group of people and organisations actively involved in pursuing the establishment of PEEN is fairly small, and operates within a somewhat limited circuit.

Feasibility and scope

There is wide support for the hypothesis that, in theory at least, it is possible to develop a functioning Pan-European ecological network within approximately 25 years. Ecological corridors on a Pan – European scale are considered feasible, but lack of data on connectivity requirements of species is seen as a problem. However, even individuals closely involved in the development of PEEN are usually at a loss to indicate how international corridors can be identified. It is felt that PEEN should not focus exclusively on migratory species or species with clear connectivity requirements, but should take a wider scope. PEEN also should include nationally protected sites and not focus exclusively on sites designated under international legislation. A majority of the respondents believed that it would be desirable to give all elements of PEEN (i.e. including the corridors) protected status.

Formal status of PEEN

PEEN is considered to provide an added value compared to other international conservation initiatives, but its 'formal' status in international nature conservation policy is unclear. This applies especially to the relationship between PEEN, Natura 2000 and the Bern Convention. For some, Natura 2000 and PEEN are so closely intertwined that the implementation of Natura 2000 is equivalent to the first phase of establishing PEEN (identifying the core areas), with the Bern Convention providing a legal framework outside the EU and the Accession Countries. Others see Natura 2000 and the Emerald Network of Bern Convention sites merely as a first step to the establishment of core areas and felt that other areas could also be part of PEEN. Within the European Commission there are some reservations concerning the desirability of actively pursuing the establishment of PEEN as long as the implementation of Natura 2000 is not completed. As long as core areas are not designated and protected under a legal framework, practical problems are foreseen with creating a functional and sustainable ecological network on a European scale.

Establishing PEEN

There is no clear vision concerning the process through which PEEN will be established. Generally, a combination of top-down and bottom-up approaches is considered necessary. Practical implementation of ecological networks can only be done on a fairly limited geographical scale, and the building blocks of PEEN would be national and regional ecological networks. However, there is little support for the idea that

PEEN will develop automatically if and when all countries of Europe have developed national ecological networks. Experience shows that the development of national or regional ecological networks is not consistently placed in an international perspective, even when the network is being developed in a border region. Therefore establishing a Pan-European Ecological Network will require a certain amount of top-down guidance, with an expected increase of bureaucratic procedure.

The following priorities were suggested for a PEEN work-program over the next five years:

- Stimulating the development of national and regional ecological networks;
- Developing an indicative map of the PEEN for the whole of Europe;
- Establishing a legal framework for PEEN;
- Promoting the concept of ecological networks among the general public;
- Coordinating international research into connectivity and species-specific corridors;
- Stimulating cross border cooperation between already existing national and ecological networks;
- Develop a programme to train nature conservationists in stakeholder involvement and interactive policy making.

