# Social learning and the changed construction of nature conservation

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## Summary

Due to political and social changes, traditional expert-based hierarchical coordination mechanisms are under pressure. Expert advice used to explain the outcome of the nature policy process. Now, new stakeholders actively participate in the nature policy process. With increased network coordination and social learning, experts are now just another actor among a number of private and public actors that influence the construction of nature conservation. Furthermore, the value of expert knowledge is put into perspective. This means that the way in which nature conservation is being constructed has changed. This paper addresses this change.

## Introduction

In nature conservation all over the world, natural areas are conventionally seen as bio-physical 'hard' systems. Hierarchical co-ordination of human action used to be the conventional policy discourse. Policy implementation was based on expert-informed, hierarchical decision-making (Glück, 2000). Nature conservation started when intellectual figures became concerned about the exploitation and degradation of natural areas. They realised that natural resources would not last forever and they argued that certain natural areas should remain intact (Primack, 1993). Their practical point of view was that in the long term, nature and wildlife would only have a place in protected areas, offering different forms of enforced protection ranging from fencing to patrolling by armed rangers. This is still the way most National Parks are being protected today (Prins and Grootenhuis, 2000).

Due to political and social changes there is much pressure on traditional hierarchical decision-making processes. Nowadays, nature conservation is no longer perceived to be only about biophysical processes and technical intervention. Nature conservation policy and decision making have been strongly influenced by the decentralisation of the government and the changing power relations in (rural) society (see Aarts, 1998). New stakeholders in the rural areas want to participate in decision making on nature management (after Aarts, 1998). Nature policy makers can no longer ignore the opinions of the people interested in and affected by the implementation of nature policy (Van der Windt et.al, 1997). Social learning in communicative or interactive processes of control and forms of self-regulation, is thought to reduce conflict and provide a broad social basis of public support (Aarts, 1998).

This means that the way in which nature conservation is being socially constructed has changed. Nature policy is no longer the expert-informed, hierarchical process that it used to be. There is a shift towards greater involvement of different public and private actors and public-private co-operation activities. With social learning, experts have become part of multi-stakeholder dialogues and platforms, instead of being the main adviser to the policy process (Van Heijst, 2000; Piek, personal communication). This paper explains the changes in the construction of nature conservation in the Netherlands that have occurred as a result of the shift towards increased social learning.

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## Some concepts

### *Policy co-ordination types*

The increased interest in social learning processes is part of a broader shift in policy co-ordination. In nature conservation, network co-ordination forms an addition to two classical notions of policy co-ordination in society, namely hierarchies and markets. Hierarchic co-ordination models take the autonomy of the central expert-guided government as a point of departure. Market co-ordination models take the autonomy of local actors as a point of departure (Bruijn et.al., 1993; Teisman, 1995). Network co-ordination models focus on the interaction among the various actors including experts, see table 1.

**Table1 Dimensions of three forms of policy co-ordination.**

| Dimension | Coordination types | | |
|---|---|---|---|
| | *Hierarchical co-ordination* | *Market co-ordination* | *Network co-ordination* |
| Level of analysis | Relationships that are 'director' controlled | Relationships between 'director' and local actor | Network of actors |
| Perspective | Central actor | Local actors | Interactions between actors |
| Relationships | Hierarchical | Autonomous | Interdependent |
| Interactions | Neutral implementation of fixed goals | Self-steering on the basis of autonomous decisions | Process of active exchange of information, goals and resources |
| Criteria for success | Realisation of formally set goals | Fulfilment of local needs | Joint solution to problem |
| Criteria for failure | Vague goals, to many actors, lack of information and control | Lack of resources and policy freedom | Barriers and lack of incentives for co-operation |
| Recommendations for steering | Co-ordination and centralisation | Strengthening local actors by deregulation, privatisation and decentralisation | Improving conditions for co-operation |

Source: De Bruijn et. al., 1993.

The three co-ordination mechanisms do not function in isolation. Network co-ordination functions side by side or perhaps within the limits set by hierarchy and the market (De Bruijn et.al., 1993; Teisman, 1995).

Now that, recently, the value of network co-ordination has been recognised, nature policy makers are more willing to organise the policy process so that it supports such a co-ordination process (see box 1).

**Box 1 Network co-ordination in nature conservation in the Netherlands**

Over the last two decades network co-ordination has increased in nature conservation in the Netherlands. In Dutch nature conservation various programmes have been formulated by the Ministry of Agriculture, Nature and Food Quality that reflect the increased network co-ordination. The most important one is *Nature for People – People for Nature* which was formulated in 2001. It is currently considered to be the major public policy document on nature conservation in the Netherlands. *Nature for People – People for Nature* replaces the previous Nature Policy Plan, the Landscape Memorandum and the Forest Policy Plan. As compared to earlier nature policy, nature policy in *Nature for People – People for Nature* has broader goals. In addition to ecological aspects related to conservation, restoration and preservation of nature, also social economic aspects of nature are now taken into account. Increased attention is given to network instruments in order to facilitate increasing citizen awareness and involvement (Van der Poll and Glasmeier, 1997). Network instruments include education, research and advice, assisting forest and nature owners and the forest and nature 'sector' at large, public participation and multi-stakeholder platforms for negotiation (Schmidt et. al. forthcomming).

Van Dongen et. al. (1995) distinguishes three forms of networks based on the kind of social organisation:

1. Associations: highly organised networks with formal interaction, that are highly institutionalised e.g. Farmers Unions.
2. Multi Stakeholder Platforms: networks with some formal interaction often among key persons, with various degrees of institutionalisation.
3. Involvement of 'civil society': stakeholders don't interact formally but do have the same stakes e.g. because they are living in the same area.

Network co-ordination includes all three forms of networks. Social learning (in the sense of concerted or collective cognition) is mostly associated with Multi Stakeholder Platforms. Therefore this paper will focus on the Multi Stakeholder Platforms.

Analysis of the relevant literature (Vermunt et.al., 2003; Leeuwis and Van der Ban, 2004; Leeuwis and Pyburn, 2002) suggests the following with regard to Multi Stakeholder Platforms:

- Mutual interdependence: If stakeholders are mutually interdependent they will either engage in co-operation or engage in conflict. On the one hand, the stakeholders will engage in conflict when they individually experience a shortage of available means to co-ordinate action, such as authority, finances, information, support, legitimisation or land, but when they also each have different interests, different ideals or unclear goals, co-operation equals negotiation.
- The stakeholders' ambition: Social learning only emerges when stakeholders are motivated to participate in a platform. The stakeholders' ambition is a result of 1) personal motivation, 2) social pressure, 3) a (rebellious) reaction to governmental rules and laws.
- Trust: The actors' motivation will increase with the amount of trust. Trust provides stakeholders with a certain feeling of security. Stakeholders take a certain risk by trusting each other. The value of trust is the possibility it offers to deal with a certain amount of uncertainty. In a social setting, trust can be encouraged by means of 1) formal agreements such as rules or 2) informal interactions based on personal relationships.
- Power relations: Differences in dependency lead to differences in power. These differences in power are not necessarily a barrier. Power differences are a essential aspect of effective concerted action. All relations are more or less hierarchical because there is always someone who can make demands and make sure that these demands are met. Power relations are never fixed. In each interaction the relations between the stakeholders are redefined. Only when this renewed definition is no longer possible, will differences in power become contra productive. Stakeholders will either become aggressive or fatalistic.

In a policy process nested within a hierarchical co-ordinated setting, the role of experts is formalised in the work of advisors who have a specific (key) position in the political processes. Multi Stakeholder Platforms include various private and public actors in addition to the technical experts themselves. This has changed the role of expert advice in the formulation, implementation, and evaluation of the policy process (Deleon, 1999).

Because the role of experts had changed in the nature policy process, the way in which nature conservation is 'socially constructed' has also changed. The concept of cognition is useful for understanding how this has changed.

*The construction of nature conservation*

The concept of cognition can shed light on the process in which nature conservation is constructed. The concept of cognition was originally developed in psychology (see e.g. Goleman, 1985). Psychological

research suggests that we organise incoming information in their brain with the help of cognitive building blocks (Figure 1). We sort out unprocessed information in order to make sense out of it. We use schemes in which all our knowledge and experience is cumulatively stored. These schemes form a set of rules and categories. They comprise theory and values. Cognition develops itself based on what we have learned during our earlier experiences. Every time we encounter an ambiguous situation, the usefulness of our existing schemes is being tested and our schemes are adapted according to our newly gained experience.

Cognition fundamentally assumes. on the one hand, a tendency towards coherence among values/emotions, perception, theory and action. On the other, it equally requires a tendency towards correspondence between these four elements and the context. The dilemma between correspondence and coherence is the key to the study of learning (Röling, 2002).

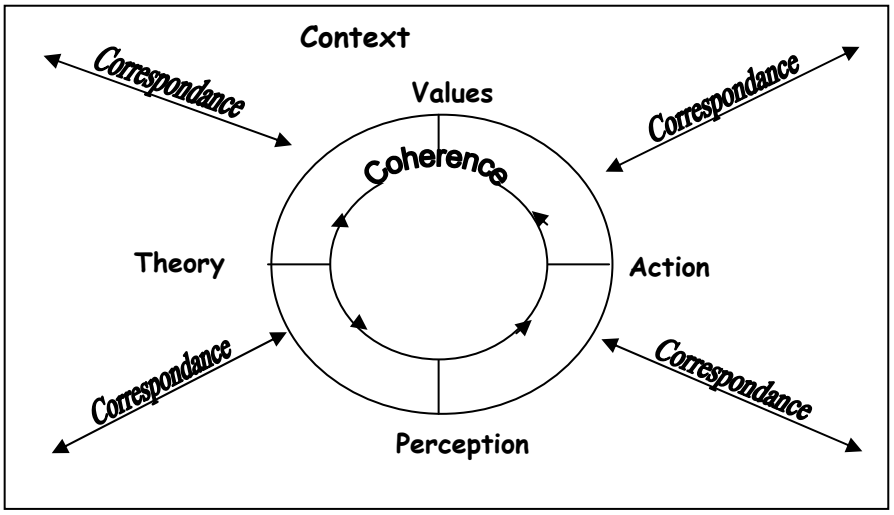


**Figure 1 Building blocks of cognition (derived from Leeuwis et al., 2002)**

## The changing construction of nature conservation when social learning

*The traditional expert advice based construction of nature conservation*

*Introduction*

When nature conservation policy is characterised by expert-based hierarchical co-ordination, students are trained as experts, to provide expert advice in the formulation, implementation and evaluation stages of the policy process. Experts construct their advice on the basis of their own cognitive schemes. The expert who perceives the environment through the window of his/her beliefs or theories about it. The experts emotions provide criteria for judgement about the environment and the action that this expert can accept as permissible in this environment.

Expert advice had a direct influence on the policy process (see for example box 2). There was a direct link between the experts' type of nature conservation and the type of nature conservation policies and practices adopted.

**Box 2 Ideotypical types of (expert) nature conservation**

(Van Bommel and Schanz, forthcomming) distinguish different ideotypical types of (expert) nature conservation.. These are reflected within the various plans and ideas on nature conservation in the Netherlands. The perspectives are not always consistent and are usually some kind of compromise. One way in which nature conservation is negotiated is through definition and adoption of abstract ecological concepts (diversity dynamics, stability, resilience) resulting in various ideotypical types of nature conservation:

- Species-oriented conservation pays special attention to species that are vulnerable to extinction. One of the major issues is isolation. The negative effects of area-loss and isolation are to be compensated for by a network consisting out of core-areas that are connected to each other by means of 'stepping stones'.
- Process-oriented conservation has the goal of maintaining and developing independently functioning ecosystems. Nature is considered as a process that can never be in equilibrium because change and disturbance are normal. The prediction of the course of ecosystem development is not possible. The completeness of an ecosystem and the differentiation in stages of succession can be encouraged by (re) introducing certain species such as large herbivores.
- Gradient-oriented conservation focuses on gradients in and between ecosystems, such as nutrients, light or water. The areas with a lot of gradients are considered the richest and most valuable situations. Spatially, large areas are aimed for not only to develop the diversity in ecosystems but also to develop the coherence among these ecosystems.
- In landscape-oriented conservation, a certain image of nature is pursued and realised. A system can be kept in a earlier state of succession by exposing it to a continuous measured disturbance and ‘freeze’ nature in a certain state or time. It is as if at a certain moment, a picture was taken and the situation as it was on this 'picture' needs to be restored and protected. Nature conservation often refers to a certain historical perspective, such as 'the situation of 1850' or 'nature as it was before man started interfering'.

The following two cases will illustrate the way in which nature conservation was constructed in in the past when science was used to legitimise policy arguments. Policy makers who want to successfully cope with problems on the political agenda, wanted to base their decisions on the best possible knowledge available. The first case represents an example of species conservation and the second case represents and example ecosystem conservation.

*The Cormorant discussion in the Netherlands*

The first case study is about cormorant conservation in the Netherlands. As cormorants are fish-eating birds, they are believed by some to be harmful to commercial fisheries (Van Eerden and Van Rijn 1997). Over centuries time and again the cormorants have had to deal with habitat loss and persecution in the Netherlands (Mateijn and Dirksen 1991). To prevent their extinction, the cormorants were assigned the status of a protected bird species in 1966. Protection of breeding sites and the ban on a number of persistent pesticides in the late 1960’s and early 1970’s made a recovery possible (Veldkamp 1997). In 1978 the cormorant population had recovered and cormorants settled in the Oostvaardersplassen (a protected area) only 10 kilometers from West Europe’s largest fishfarm.

The cormorants started feeding on the ponds of the fish-farm and caused major damage (Osieck 1982, Moerbeek 1983) To solve the problem, experts were hired to carry out research in order to find a solution. Experiments were carried out (see Osieck, 1982 and Moerbeek, 1983) which included placing scarecrows, fitting different patterns of nylon ropes above the water surface and light and sound effects. Finally experts tried to chase the cormorants away with trained birds of prey.

When nothing seemed to work, the owner of the fish-farm, the Organisation for the Improvement of Inland Fisheries, wanted to be compensated by the Dutch government for the damage caused by the cormorants (Buissink 2000). After 9 years of legal actions, in 1991 the court decided that their complaints were legitimate. The government had to pay the compensation not only because it owned the nearby protected area but also because it actively encouraged the settlement of cormorants by providing artificial nesting sites in this area (Jongkind 1991).

Nature conservation was clearly constructed in a hierarchical way. When predation occurred, experts were asked to carry out research in order to solve the problem. When this turned out to be insufficient legal steps were taken. There was no attempt to solve the conflict in an interactive or communicative way. The cormorant was an endangered 'red list' species and could therefore not be harmed in anyway. Shooting cormorants or managing the population by 'treating' the eggs (shaking eggs or treating them with chemicals to prevent hatching) was not considered to be an acceptable nature management option.

*The Drentsche Aa*

The second case study is on the Drentsche Aa area. The Drentsche Aa represents one of the last relatively unspoilt river systems on the North German Plain. In the sixties, the diversity in terms of landscape and especially flora that traditional farming had generated was threatened by the agricultural modernisation, including heavy use of fertilisers and pesticides, land 'rationalisation', drainage, river canalisation and so on. At the time, pioneers in nature conservation effectively fought this destruction in the Drentsche Aa area by beginning to purchase water meadows along the small streams. At the time, purchase of land from farmers was the only option for conservation. The State Forest Service, who already owned some state forests originally meant for wood production, was charged with the management of these lands. In the 1930's SBB had acquired land by threatening to expropriate land from the farmers who did not want to sell. In 1965 again, farmers were not involved in the decision making about the creation of the reserve areas and they were afraid that the State Forest Service would threaten to expropriate them again. Following this upheaval, the Ministry agreed to make additional funds available that would facilitate the purchase the ancient brook meadows and hay lands in the broad glacial valley bottoms (Bakker and de Vries, 1983; Ernst, 1976). The farmers became devided. Finally, the land was voluntarily sold by some farmers and decisions could be quickly made by the small number of people involved. Many farmers in the area still resented the purchase of farmland for purposes of nature conservation and even considered those who sold out as 'traitors' to the farmers' cause.

In the years that followed, experts carried out a great deal of plant community and hydro-ecological research in the area. They extensively documented the species composition in the area and they studied the effects of management practices on the species composition for maintaining the cultural 'brook meadow' landscape. Between 1970 and 1990, numerous studies were carried out in the Drentsche Aa area.

Again nature conservation was constructed in a hierarchical way. The farmers were not involved in the decision making procedure about the conservation of the area. The decision was made by the experts of the State Forest Service and the policy makers together. Farmers were lured into selling their land but, at the same time, farmers perceived a (real or imagined) risk of expropriation if they did not.

*Conclusion*

Nature conservation in a hierarchical setting was developed and implemented within a 'closed' system (policy makers and experts). People's participation was limited to consultation. After the consultation process, the experts and policy makers could modify their ideas in the light of people's responses. They were under no obligation to take on board people's views (See Pretty et.al, 1995). Nature conservation ultimately reflected one (or a mix) of ideotypical expert type of nature conservation.

With increased network co-ordination nature conservation that was developed within the same 'closed' scientic system, however, now needs to be implemented in a complex dynamic (i.e. 'open') societal setting (Aarts, 1998).

The changing role of expert advice in social learning processes

The role of experts in nature conservation policy changed as preference shifted to increased network co-ordination (Vermunt et. al., 2003; Neuvel and Aarts, forthcomming; Leeuwis and Van der Ban, 2004).

On the one hand, experts are now often just another actor among the number of private and public actors who influence the outcome of the policy process (see figure 2). Instead of being formalised as advisor with a specific (key) position in the political processes and proceedings, the experts are now all of a sudden confronted with a variety of other organisations and individuals, each with their own stakes and claims. All of a sudden experts have to communicate and negotiate in an entirely different setting, and this requires all kinds of new skills and attitudes.

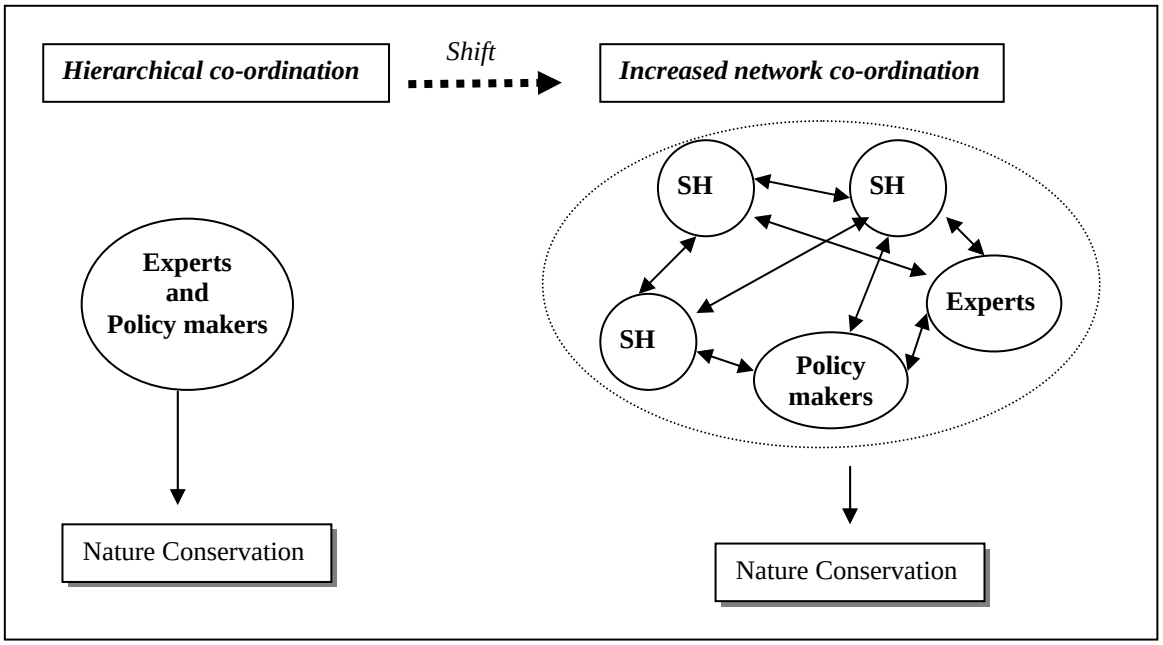


**Figure 2 Schematic change from expert driven nature conservation to nature conservation in a network co-ordinated setting in which experts have become a stakeholder among other stakeholders (SH=Stakeholder)**

On the other hand, the value of 'scientific' knowledge is put into a different perspective.

Firstly, the confrontation with others highlights that scientists often produce contradictory knowledge about specific issues. Between disciplines, the differences are great, but even within a discipline such as ‘ecology’ there are various ‘schools of thought’, each with its own methods, teachings, institutional traditions and scientific language. The difference in ‘schools of thought’ is related to differences in the way a specific problem is perceived, which in its turn is a result of difference in interest. When different scientists are confronted with a specific problem, they produce a diversity of (sometimes contradictory) knowledge.

The second reason is that other types of knowledge, such as local knowledge, are increasingly valued. When faced with societal problems, the usual response from central actors is a call for more scientific research. However, conclusions from former research often lead to many new questions and an accumulation of facts. In the end, research may easily generate more questions than it solves. It only increases uncertainty. In reaction to this complexity, simplified rules of thumb are formulated. In the long run this leads to further failures because of the biases that are inherent to short-term solutions. It is increasingly recognised that the “societal problems” can only be understood by taking the experiences of local people into account. Nowadays, norms and values within a certain cultural context are perceived to be rational, too. It is recognised that local knowledge has the rationality of praxis. For generations people have accumulated knowledge by experimenting-while-doing. This has yielded them valuable and useful

knowledge that cannot be ignored. This means that the strict division between scientific knowledge and local knowledge is no longer valid.

## *Construction of nature conservation in a social learning process*

### *Introduction*

With increased network co-ordination, the stakeholders start building a shared cognitive model that will allow them to function as a Multi Stakeholder group. This requires an agreement on perception, theory, values and action. This is by no means an unproblematic exercise. In both the Drentsche Aa area and in the cormorant discussion the co-ordination shifted from hierarchical co-ordination toward network co-ordination in the 1990's.

### *The Cormorant discussion*

After the predation problems with the fish farm in the 1980's the nature of the cormorant discussion changed in the 1990's. It was now characterized by the concerns of the commercial fishermen. When the decreasing fish yield in Lake IJsselmeer became evident, a new discussion started with different stakeholders. Also, a new approach was taken with regard to solving this conflict.

In order to fight over-exploitation, the commercial fishermen had to reduce their fishing efforts with 50% in 1989 (Jongkind, 1991). This was when they became concerned about the growth of the cormorant population. The commercial fishermen took their complaint to the Ministry of Agriculture, Nature Conservation and Fisheries (Visserijnieuws 1993). The Ministry asked the National Reference Centre for Nature Management to investigate the impact of the cormorants on the commercial fisheries. The National Reference Centre for Nature Management took a network approach and established a platform to which important stakeholders were invited. Reaching a consensus was very important. The stakeholders decided to first concentrate on the possible interaction of cormorants and the commercial inland fisheries, by making an inventory of the available, and/ or missing, information and assessing the state of affairs. Starting point were the complaints of fishermen and fisheries organisations as expressed in a postal questionnaire (Van Dam et al, 1995). In 1995 the results were published in a small book and the democratic conclusion was that the cormorants and the fyke net fisheries together withdraw 96% of the biomass of small perch and the consumption of perch by cormorants equals the by-catch in fyke-net fisheries (Van Dam et al, 1995). The cormorant problem had been officially acknowledged and social learning on a multi stakeholder platform had effectively enabled the stakeholders to learn their way out.

### *The Drentsche Aa*

In the Drentsche Aa area things went differently. In this case too, a multi stakeholder platform was initiated in order to solve a conflict but the negotiation and learning did not immediately solve it.

The unique characteristics of the Drentsche Aa area led the Provincial authorities in Drenthe in 1992 to start a procedure towards declaring the area a National Park (in the sense of the law on National Parks). Hydrological research had shown that the rainwater that infiltrates on the plateau's charges the seepage on which the rare vegetation in the brook meadows depend. This had shown up the interdependencies between nature conservation and farming in the Drentsche Aa.

The plans for a National Park led to strong protests among farmers. As a result, the Province hastily shifted its tactics. Instead of a National Park, it aimed for a National Landscape ('a National Park with

extended objectives' that allow multifunctional land use). In 1998 a platform was established to implement the National Landscape. It used the existing landscape as point of departure and aimed at collaboration among involved parties to develop the area on the basis of what has emerged in history. The source of inspiration is cultural history.

However, the learning that has occurred to date does not, on the whole, seem to have led to a collective construction of nature conservation. Instead, what has been learned on the official platform seems only to have reinforced the impasse and most learning seems to have driven the two main stakeholders further away from each other. Stakeholders became entrenched in defending their own interests and the discussion became stuck.

The only bright spots are the small experiments for shared hand-on learning that have been stimulated by the Plot Exchange Committee. In the margins of the official platform, this Committee was created to allowed informal interaction between the State Forest Service and farmers. The Committee was chaired by a volunteer with considerable standing and trust in the area, a retired professional consultant. He was keenly aware of the impasse in the relationships between farmers and SBB and deeply regretted it. One particularly heated exchange between farmers and the State Forest Service led the Chairman of that Committee to start what he calls 'The Pie Bakers' Deliberation'. This informal meeting does not have a regular schedule and the next meeting is agreed at the last. Its purpose is to create trust among the opponents and to agree on small steps forward. At the moment, a number of small-scale initiatives have been rekindled and/or started. On their own initiative, farmers and recreation entrepreneurs are beginning to start 'Environmental Co-operatives', and 'Nature Associations'.

This means that some learning is taking place but it is not necessarily taking place on the officially established platform. Instead it seems to be the informal platform that functions in the margins were the actual breakthroughs are initiated.

*Conclusion*

For social learning, there needs to be a feeling of interdependence, and trust and that there needs to be a balancing of power. At the start of a social learning process, it can be observed that each stakeholder defines nature conservation according to his or her own cognitive model, restricts himself or herself to this and articulates this view during the discussion. Without interdependence, trust and a balancing of power, the stakeholders are not motivated to move beyond this and come to an agreement. A discussion on values then often has the character of 'my view of nature is not yours, mine is the only correct view and I will prove this to you'. Stakeholders' behaviour becomes strategic and they easily become entrenched in their own views of nature. The discussion gets stuck as each tries to defend his or her own normative view on the basis of his or her ethical and moral arguments. These arguments only impress those who already are in agreement. Others do not consider the arguments relevant or substantial (Aarts, 1998).

Stakeholders can learn to act as a collective cognitive agent when the preconditions of interdependence, trust and power relations with regard to network co-ordination are met. A dialogue around shared action can create room for new perceptions and new knowledge constructions. The process in which the shared norms and theories are defined is dynamic and capricious. Some stakeholders may be in a position to claim that certain ideotypical types of nature conservation are 'right' whereas others are 'wrong'. Stakeholders tend to accept the theories and values of those sources that they trust. Co-researching might raise the level or scope of trust but might in some cases still leave some stakeholders with the feeling that their understanding has been marginalised. Some theories and values will be embraced while others will be left. During the construction of the shared theories and values, relations are being formed and dependencies are being created.

The type of nature conservation will start to become shared through inter-action. An open dialogue around action encourages a shared perception. During the dialogue, power, trust and interdependence are redefined, thus creating space for new perceptions, new theories and new values i.e. cognitive boundaries change (Vermunt et.al, 2003).

## Conclusion

This paper set out to address the changes in the construction of nature conservation that have occurred as a result of the shift towards increased network co-ordination.

Increased network co-ordination changes the construction of nature conservation by changing the role of expert advice. In a hierarchical co-ordinated setting, the role of experts is formalised in bureaucratic roles, processes and procedures. With increased network co-ordination, technical experts become just another actor among the number of private and public actors who influence the outcome of the policy process.

As interaction proceeds, the value of expert knowledge is put into question and into a different perspective. Other types of knowledge and objectives, such as the local knowledge of farmer, the objectives of tourists, or members of conservation NGOs, have to be taken into account. Secondly, the expert production of fragmented (and often contradictory) knowledge about specific issues, reduces the credibility of their advice.

The new role of experts requires a different attitude on part of the experts themselves. Instead of producing 'truth' and giving advice on the basis of this universalising construction, the experts all of a sudden find themselves stuck in a multi-stakeholder negotiation process. Some nature conservation experts experience this change in expert culture as a minor earthquake. They do not really know what to do anymore and how to handle multi-stakeholder negotiations.

## Further research

The shared theories and values that the stakeholders formulate on together in social learning are not necessarily the same as the theories and values of the experts. During an interactive multi-stakeholder dialogue, room can be created for new perceptions and new knowledge constructions. The process in which the shared norms and theories are defined is dynamic and capricious. The outcome is the outcome of a learning and negotiation process. This paper is part of ongoing PhD research at Wageningen Universtity (the Netherlands). The PhD research will now continue by finding out what the consequences of the changed role of expert advice are for nature conservation.

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