

# **Innovating environmental governance systems:**

**The local implementation of the Ecological Main Structure in the  
Netherlands.**

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Innovating environmental governance systems: The local implementation of the Ecological Main Structure in the Netherlands.

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## Summary

In the Netherlands the demand for environmental governance changed alongside changes in land-use, resulting in decentralisation to enable policy integration at the local level. The Ecological Main Structure (EMS), a network of nature across the Netherlands, is locally implemented by increasingly multi-objective and interactive processes. The relations between local stakeholders are often difficult, in particular between farmers, governmental organisations and conservancies. In some areas the governance system comprises an individual approach additionally to an institutional approach, to solve the impasse between these groups. This study aimed to analyse this innovation in local governance and intended to improve understanding about how local stakeholders motivate and discourage each other. A holistic multiple-case study design was used to analyse the local governance system for the EMS. After an exploration, structured interviews were carried out on provinces, National Forestry Service (conservancy), and individual farmers, in three case study areas where the EMS is implemented through a governance system that incorporates an institutional and individual approach. The results of this study showed that changes in environmental policies and governance are gradual and complex, and it was indicated that participation of local stakeholders is the norm for the local implementation of the EMS. Variation in the perceptions of local stakeholders about the local governance system for the implementation of the EMS became evident, which may be related to variation in legacies. Generally the province had a more positive perception in the implementation process than the NFS, and the NFS was more positive than the individual farmers. Furthermore, the results showed that all four themes of interactions that were based on principles of process management (openness, contents, core values and speed), were equally important. However, interactions concerning land and the protection of the stakeholders' livelihood and identity were more delicate. In conclusion, the analysed governance system can be an instrument to improve relations between farmers, nature organisations and governmental organisations. During the implementation process communication is of key-importance to improve the understanding among local stakeholders and facilitate the identification of solutions that are more beneficial for all groups. The analysed innovation in local governance contributes to meeting the global demand for new environmental governance systems.

**Keywords:** *Local environmental governance systems; Ecological Main Structure; Case study approach; Participation processes.*

## Samenvatting

In Nederland is de vraag naar governance voor de omgeving simultaan met veranderingen in landgebruik veranderd, met als gevolg decentralisatie om op gebiedsniveau integratie van beleid te bevorderen. De Ecologische Hoofdstructuur (EHS) wordt in toenemende mate door middel van integrale en interactieve gebiedsprocessen gerealiseerd. Daarbij liggen de relaties tussen lokale belanghebbenden vaak moeilijk, in het bijzonder tussen boeren, overheden, en natuurorganisaties. In sommige gebieden probeert men de impasse tussen deze partijen te doorbreken met een nieuwe aanpak door in het governance systeem een individuele aanpak te combineren met de meer gebruikelijke institutionele aanpak. Het onderzoeksdoel was om deze nieuwe aanpak te analyseren, en om een verbeterd inzicht te verkrijgen in de manier waarop lokale belanghebbenden elkaar daarin (de)motiveren. Casestudies werden uitgevoerd in drie gebieden waar een EHS beleidsopgave geïmplementeerd wordt met behulp van het vernieuwde governance systeem. Na een exploratie werden gestructureerde interviews afgenomen van provincies, Staatsbosbeheer, en individuele boeren. In de resultaten kwam naar voren dat de ontwikkelingen in beleid en governance voor de omgeving geleidelijk en complex zijn, waarbij participatie van lokale belanghebbenden de waarschijnlijk de norm voor realisatie van de EHS is geworden. Daarnaast werd bewezen dat percepties van het governance systeem op gebiedsniveau verschilden, en dat kan gerelateerd zijn aan vroegere ervaringen van gebiedspartijen. In het algemeen had de provincie een positievere houding in het gebiedsproces dan Staatsbosbeheer, en Staatsbosbeheer was doorgaans positiever dan individuele boeren. Verder bleken alle interacties (welke gebaseerd waren op de principes voor participatieprocessen: openheid, inhoud, kernwaarden en vooruitgang) tussen de gebiedspartijen even belangrijk. Wel bleken interacties met betrekking tot land en de bescherming van kernwaarden gevoeliger te liggen. In conclusie bleek dat het geanalyseerde governance systeem instrumenteel kan zijn in de verbetering van verhoudingen tussen boeren, overheden en natuurorganisaties. Communicatie is tijdens het participatieproces van essentieel belang om begrip tussen gebiedspartijen en de kwaliteit van de oplossingen te verbeteren. Tenslotte kan worden gesteld dat de geanalyseerde innovatie in het lokale governance systeem een bijdrage kan leveren aan het beantwoorden van de wereldwijde vraag naar nieuwe governance systemen voor de omgeving.

**Sleutelwoorden:** *Gebiedsniveau; Governance systemen voor de omgeving; Ecologische Hoofdstructuur; Casestudies; Participatieprocessen.*

## Table of contents

1.	Introduction .....	1
2.	Methodology.....	4
2.1	Methods exploratory phase.....	4
2.1.1	Data collection .....	4
2.1.2	Data entry and analyses.....	5
2.2	Methods explanatory phase .....	7
2.2.1	Data collection .....	7
2.2.2	Data entry and analyses.....	9
3.	Results .....	12
3.1	National context of local environmental governance .....	12
3.1.1.	Developments in local environmental governance in the Netherlands .....	12
3.1.2	Trends in environmental governance in the Netherlands.....	12
3.1.3	Participation as the institution for nature development for the ecological main structure	12
3.1.4	Identifying participants for the local implementation of nature policies .....	13
3.1.5	Motivating and discouraging interactions of participants .....	13
3.2	Participation processes at local level.....	15
3.2.1	Participation processes in the case study areas .....	15
3.2.2	Perceptions of the local governance system .....	15
3.2.3	Events .....	22
3.2.4	Interactions during the participation process.....	26
4.	Discussion.....	31
4.1	Discussion of the methods.....	31
4.1.1	Overall.....	31

4.1.2 Case studies .....	33
4.2 Discussion of the results .....	36
4.2.1 Explaining the variation in the results .....	36
4.2.2 Significance of the results for the Netherlands.....	42
4.2.3 Significance of the results for the global scale .....	44
5. Conclusions .....	46
6. Management implications.....	47
6.1 Local level.....	47
6.2 National level .....	48
6.3 Global level .....	48
References .....	49
Appendix 1: Research questions.....	i
Appendix 2: Exploratory interview.....	ii
Appendix 3: Principles of process management .....	iv
Appendix 4: Interview explanation phase .....	v
Appendix 5: Comparison of the case study areas.....	xxii
Appendix 6: Assessment of interactions by interviewees .....	xxiii

## 1. Introduction

Worldwide new governance systems for the environment are required because the demand for environmental governance is changing (Delmas and Young, 2009). The paradigm shift from environmental protection towards sustainable development that was heralded by the Brundtland report in 1987 (Delmas and Young, 2009; Cairns jr., 2002), led to a multi-objective integrated approach which requires a different form of governance (Young, 2009). Furthermore there is an urgent need for environmental governance, because mankind dominates (socio-) ecological systems (Vitousek et al., 1997; Gunderson and Holling, 2002; Steffen et al., 2004) and nature is of vital importance to human society (MEA, 2005). Governments, organizations that are specialized to provide governance in a well-defined setting (Young, 2009), and intergovernmental bodies have difficulties to meet the new demand for governance because they are generally too slow and inflexible to provide the adaptive management that is required for complex socio-ecological systems (Delmas and Young, 2009; Lee 1993). In addition, at the landscape level natural resource management is often not practiced because environmental governance is divided over many parties instead of having one organisation responsible for the maintenance of ecosystem processes (Cairns jr., 2002). Therefore new governance systems, i.e. directing systems that aim for beneficial outcomes for the whole society (Young, 2009), are required. Ecosystem stewardship has to be participatory and place-based to enable an adaptive and flexible approach (Maskrey, 1989; Smit and Wandel, 2006). To direct changes in governance and steward sustainable rural development it is necessary to understand decision making processes and the mechanisms through which decision making processes adjust to the changed demand of governance (Kofinas, 2009).

The global developments in environmental governance are reflected in developments in governance in the Netherlands, where the demand for environmental governance changed alongside developments in land-use. Within landuse planning the emphasis has been on segregation of functions for most of the 20<sup>th</sup> century, but during the last decades integrative approaches are increasingly applied (Jongman, 2002). Landscapes in the Netherlands have to be increasingly multi-functional because space is increasingly scarce. Agriculture is forfeiting its' dominant and important position in rural economy (Jongman, 2002; Simon et al., 2007; Steenbekkers et al.,

2006; Breeman et al., 2009), yet the demand for space for nature conservation, recreation and water storage is growing (Breeman et al., 2009). As a result sectoral policies have to be integrated at the local level which leads to complex situations. In addition local circumstances and the interests of local stakeholders were insufficiently considered (Leroy and Nelissen, 2000), consequently in many cases policies were not implemented due to low commitment of local stakeholders (Kuindersma and Selnes, 2009).

The national government responded to the problem of seizing implementation of sectoral policies by applying the principle of subsidiarity. Instead of writing detailed sectoral plans for local implementation, an integral framework of aims was provided (Nota Ruimte, 2004) and local implementation was decentralized to local committees (NL: gebiedscommissies). This situation was not manageable for the national government, therefore the coordination of local implementation including its associated budget was decentralized to the provincial level and anchored in a new law for spatial development of rural areas in 2007 (Kuindersma and Selnes, 2009). Furthermore, new public management was applied with the national government and provinces agreeing upon quantified objectives for rural development. The quantified objectives constitute a strict framework for the local implementation while flexibility is required to integrate sectoral policies (Kuindersma and Selnes, 2009). The strict framework led to conflicts between local stakeholders, and this can be illustrated particularly well by the local implementation of the Ecological Main Structure.

The aim of the Ecological Main Structure (hereafter abbreviated as EMS) is to realize a network of nature across the Netherlands before 2018 (Natuurbalans, 2003). The terrestrial part will be approximately 750,000 ha (Natuurbalans, 2003), consisting of existing nature, newly developed nature, ecological corridors, robust corridors and agricultural nature management (Notation People for Nature, Nature for People, 2000). The establishment of the EMS is behind schedule, only half of the land that needs to be acquired for the EMS has been obtained (Natuurbalans, 2009).

The acquisition of land for the EMS is problematic, because the EMS objective is quantified in hectares and this does not leave space to realize the spatial quality that is aimed for in a different way. Agriculture is the dominant land-use in the Netherlands (CBS, 2006 in URL Groene Ruimte, 2009), and the majority of the EMS land that still has to be acquired is currently high quality agricultural land. Voluntary land-acquisition is the norm for realisation of the EMS, therefore land for the EMS is often acquired through multi-objective local processes, and consequently

establishing the EMS usually implies realising agricultural aims as well (Natuurbalans, 2009; Kamphorst and Selnes, 2007).

The multi-objective local processes do not run effortlessly. Generally, the implementation of nature policies experienced many problems, and this led to distrust between farmers, governmental organisations and conservancies (Natural Countryside Netherlands and AHS Netherlands, 2007; Centre for Agriculture and Environment, 2009). Relations between these groups are often difficult and the perceptions of each other and ideas about how to fulfil policy aims vary widely, therefore equal cooperation between farmers, nature organisations and governments is required (Ministry ANF and AHS Netherlands, 2009). Local processes may enable the establishment of trust between local stakeholders (Natuurbalans, 2009), but involving stakeholders can be difficult. Therefore there is a need to understand how local stakeholders motivate and discourage each other to participate in the local implementation of the EMS.

Usually the EMS is implemented through local-committees, in which local stakeholders are represented by interest groups (i.e. polder-model). In some areas this institutional approach was unsuccessful to solve the impasse between farmers, governmental organisations and conservancies in order to enable the local implementation of the EMS (Dijkman, pers. comm.). In a few areas this problem is (precautionary) dealt with an innovative approach: combining the institutional polder-model with an individual approach of local stakeholders (e.g. Dijkman, 2010; Project team GWV, 2010; Dijkman and Van Vliet, 2009).

This study aimed to analyse the local governance systems for the EMS in which the institutional and individual approach are combined. Therefore the following parameters were measured: 1) the variation in perceptions of the most frequent participants of the local governance system for the EMS, 2) the influence of legacies on the local implementation of the EMS, and 3) effects of variation in perceptions of the governance system and legacies on the current interactions of the most frequent participants (see Appendix 1 for the full research questions). This research intends to improve the understanding between participants in the governance for local implementation of the EMS, and to present an innovation in governance for the environment that may be useful for broader application.

## 2. Methodology

A holistic multiple-case study design was used to analyse the local governance system for the EMS. Case studies are appropriate to research dynamic processes in a real-life context, and can provide analytic generalizations to build a theoretical framework and acquire an in-depth understanding of the object studied (Yin, 2009; Bryman, 2008). Explanatory case studies were carried out to identify causal relations within three separate study areas (Yin, 2009). The scope for the case studies had to be determined first, therefore the research was divided in two phases: the exploration phase and the explanation phase (Levy, 1988).

### 2.1 Methods exploratory phase

The exploration had two aims: To better understand changes in environmental governance systems in the Netherlands, and to collect information required to develop an interview for the explanation phase. This included describing the governance processes for the EMS in the study areas to assess the comparability of the study areas, and the identification of interactions between local stakeholders which were tested in the explanation phase. Semi-structured interviews were carried out and meetings of local stakeholders were observed.

#### 2.1.1 Data collection

##### 2.1.1.1 Semi-structured interviews

Specialists in governance were interviewed in April 2010. The interviewees were administrators or officials of governmental organisations (n=2), administrative researchers (n=2), independent process managers (n=3), and representatives of interest groups (n=2) (see Appendix 2 for the list of interviewees). The interviewees were selected because they were expected to have a broad overview of developments in governance systems in the Netherlands, as well as practical experience in local governance systems and thus interactions between participating groups.

Interviewees were contacted with a letter explaining the motive for the interview, the aim of the research and the aim of the interview. The interviewees could choose the moment within a given timeframe to be visited for the interview. Interviews took approximately one-to two hours and

were recorded with the interviewees' consent. The interviews were transcribed within two days after the interview, and the reports were sent to the interviewees for verification.

A standardized interview protocol was used to prevent bias from stopping too early, anchoring, primacy and recency effects, and leading the interviewee (Clason and Dormody, 1994). Nevertheless the protocol was only a guideline in order to remain flexible. The semi-structured interviews consisted of open questions about: 1) changes in and experiences with local governance systems, 2) groups involved in local governance systems and their tasks, 3) the establishment of local committees, 4) actions of the groups involved in local governance systems that might motivate or discourage other participants, 5) other potentially important topics concerning this research project, collection of relevant documents, and names of potential interviewees (see Appendix 2 for the full version of the exploratory interview).

#### ***2.1.1.2 Participant observations***

Participants involved in the process of local implementation of the EMS met (n=4) in 2010, allowing observations of interactions between participants (see e.g. Swagemakers et al., 2008). After a short introduction the observer remained passive during the meetings. Convenience sampling was applied (see Bryman, 2008), which included taking notes of all interactions that seemed motivating or discouraging.

#### ***2.1.2 Data entry and analyses***

As to my knowledge there were no fixed methods available for data entry and analyses of the collected data, empirical reasoning was applied. The data was analysed according to five key points:

##### ***2.1.2.1 National context of local developments for EMS***

To analyse the national context of the local developments for EMS, the anchor points of the development nature policy and governance trends were selected and analysed separately. The data was tabulated to facilitate empirical reasoning. A general characterisation of developments in environmental governance was formulated.

### *2.1.2.2 Groups participating in local governance of nature development*

The groups participating in the local governance of nature development were extracted from the interviews. The frequency of the identification of each group was used to select groups for the explanatory phase.

### *2.1.2.3 Tasks of groups involved in local implementation of nature policies*

The tasks of all groups were tabulated in Microsoft Word for further testing in the explanatory phase.

### *2.1.2.4 Motivating and discouraging interactions between groups*

Data about motivating and discouraging interactions and the actors between which the interactions occurred were coded and selected for the explanatory phase. Interactions that occurred between groups that were not selected were not considered. The number of remaining interactions was too large to be tested in the explanatory phase, therefore interactions were coded based on principles of process management (HarmoniCOP, 2005): Openness, Contents, Core values, Process speed (see Appendix 3 for explanation of the codes). Each group of coded interactions was large enough to enable the selection of interactions that occurred between all selected groups and this was expected to improve the comparability of the results. Finally, only these interactions were selected that were least likely to be confused between the four codes.

### *2.1.2.5 Participation processes for the local implementation of EMS in the case study areas*

The framework of analysis was based on Breman et al. (2008), adopting the aim of the participation process, geographical scale of the study area, current phase of the project, participants, and process activities. Data was tabulated to enable the comparison and identification of continuums along which the case study areas differed.

## 2.2 Methods explanatory phase

In the exploratory phase three groups of stakeholders were selected: province, National Forestry Service (i.e. conservancy), and individual farmers (see results section 3.1.4). In the explanation phase representatives of these groups were interviewed to measure perceptions of the local governance system for the EMS.

### 2.2.1 Data collection

Structured interviews were conducted to collect data that allowed comparison within and between study areas (Bryman, 2008).

#### 2.2.1.1 Case study areas

Data source triangulation was applied to improve accuracy and validity of the results (Yin, 2009). The study areas were compared to see if data remain the same in different contexts (Denzin, 1984). Three case study areas were selected; Groot Wilnis-Vinkeveen (GWV), Westelijke Langstraat (WL), and Utrechtse Vecht en Weiden (UVW) (figure 1). Due to the position in the EMS, nature needs to be developed in these areas (Uitvoeringsagenda Nota Ruimte, 2004; Province Utrecht, 2009). These areas were selected because in these areas the institutional and individual approach are combined for the EMS in the local governance system. Furthermore, in these areas access to participants and information about the implementation processes could be obtained through the Centre for Agriculture and Environment.

#### 2.2.1.2 Structured interviews

Interviewees were selected with the aim to collect a wide variety of perceptions. All relevant participants from the province and National Forestry Service (NFS) were interviewed, i.e. one- to two individuals per group per study area. After consultation of the external process managers (employed by the Centre for Agriculture and Environment) of the respective study area, four individual farmers with varying attitudes towards the implementation process were selected. Individual farmers' attitudes ranged from predominantly open, waiting or closed attitude towards the process for local implementation of the EMS.

A trustworthy environment was created in the approach of interviewees. Interviewees were introduced to the research project by phone or email. Participation was by choice and interviewees could choose the moment within a given timeframe that suited them best to be visited for the interview. Interviews were printed and completed during the interview enabling interviewees to see what answer was written down, and no sound-recordings were made during the interviews. Finally, a consent-form was completed by the interviewees with optional redirection of a copy and the possibility to withdraw their contribution.

Interviews were tailored to selected groups and study areas. The interviews were carried out in May and June 2010, and took approximately one to two hours. The interviews were divided into three sections: 1) identifying perceptions of the local governance system, 2) assessing the influence of interactions on the motivation to participate in the local implementation of the EMS, and 3) assessing the influence of legacies on participation in the local implementation of the EMS (a full interview can be found in Appendix 4).

Perceptions of the local governance system were assessed based on governance structure, tasks and participation level. The participation level was assessed by closed questions, interviewees chose one option along the participation continuum varying from no participation to co-deciding (Breman et al., 2008). The extent to which a task belonged to a group was measured by assessing the tasks, identified during the exploration, with a 3-point scale ranging from not- to completely their task. The governance structure was assessed by open questions to draw the organisation structure through which participants interact.

The influence of four themes of interactions (based on the exploration) on the motivation to participate in the local implementation of the EMS was measured on four trajectories (figure 2). Triangulation was enabled with three question series, each containing one action of each theme thus four actions per question series. Question series contained actions that were expected to be (A) perceived positive, (B) uncertain, and (C) perceived negative. The order of the themes within the question series was randomised. Each action was assessed with an open question to collect argumentation for the answer of a second closed question in which influence on motivation was assessed motivating or discouraging, and a third question to assess the extent of influence with a

5-point Likert scale (Clason and Dormody, 1994). At the end of each question series actions were ranked.

The last section contained open questions to identify events prior to and during the implementation process, that influenced the interviewees' motivation to participate in local implementation of EMS.

### **2.2.2 Data entry and analyses**

Empirical reasoning was applied for the analyses because no fixed methods were available (Yin, 2009). All data were listed per topic, and sorted per group and study area to enable comparisons. The small number of interviewees per group within each case study, and the number of case studies did not allow statistical tests to identify and compare patterns. Therefore data was analysed using descriptive statistics and illustrated in figures and tables (table 1) to facilitate qualitative analyses. Data about events required preprocessing to allow comparisons, therefore open coding to identify of key themes was applied (Bryman, 2008).

Patterns within and between groups were identified empirically and compared within each study area, followed by analytical cross-case synthesis (Yin, 2009). The case studies were compared as literal replications to identify patterns, first per topic and second across topics. A numerical approach was included to improve precision of the qualitative analyses (table 1).



Figure 1: Approximate location of the case study areas Utrechtse Vecht en Weiden (triangle), Groot Wilnis Vinkeveen (circle), and Westelijke Langstraat (square) in the Ecological Main Structure and Natura 2000 network (green and red) (Google maps, 2009; Ministry LNV, 2006).

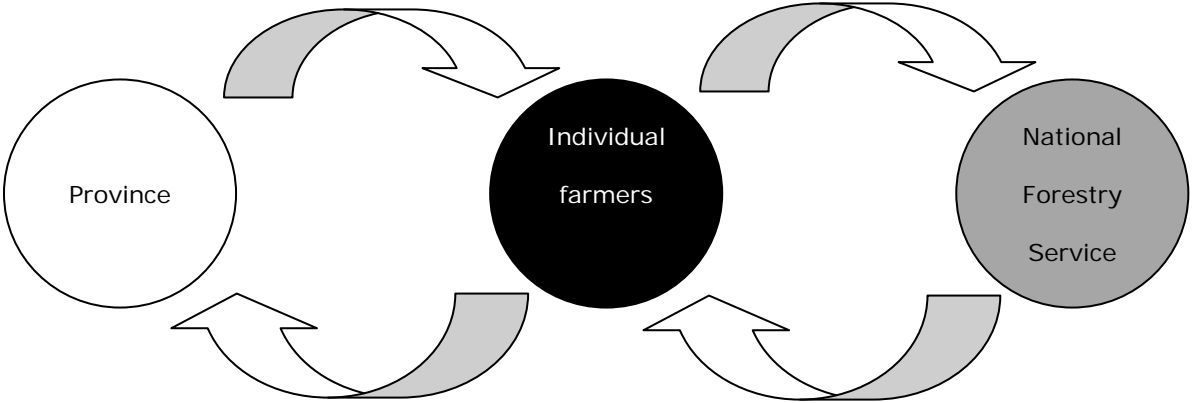


Figure 2: Visualisation of the four trajectories on which the influence of interactions on participants' motivation were tested: province perceptions of individual farmers actions, individual farmers perceptions of province and National Forestry Service actions, and National Forestry Service perceptions of individual farmers actions.

**Table 1: Methods per topic that were applied to display data to enable cross-case synthesis.**

<b>Topic</b>	<b>Data display</b>	
Participation level	Barcharts	Range of perceptions
Tasks	Table	Verbatim Mean and range of perceptions per task Mean difference between groups
Governance structure	Boxplot	Range of perceptions of connectivity
Interactions	Table	Mean and range Likert-scores per interaction per trajectory Mean and range of rank per interaction per trajectory
	Barchart	Mean Likert-score per interaction per trajectory
Events	Table	Verbatim characterisations of events
	Barchart	Frequency of motivating and discouraging events per moment (prior to or during process)

## **3. Results**

Evidence to relate changes in nature policies and trends in environmental governance at the national level (3.1) to local processes for the implementation of the EMS (3.2) is presented.

### **3.1 National context of local environmental governance**

#### **3.1.1. Developments in local environmental governance in the Netherlands**

During the exploratory phase it was shown that interviewees perceived a gradual change of local environmental governance systems. All interviewees (n=5) answered consistently to the question whether the change in local environmental governance was gradual or through turning points. Interviewees named changes in environmental policy between 1970's and 2007 as anchor-points. The gradual change, described by interviewees, encompassed a movement from sectoral policies towards enabling the integration of policies at the local level. Starting in the 1990's, the EMS policy developed from a sectoral top-down policy within which nature could only be managed by conservancies, towards a policy incorporated in an integral policy framework aiming for development of nature through both conservancies and private nature management.

#### **3.1.2 Trends in environmental governance in the Netherlands**

The trends in environmental governance were characterised as complex. Overall twelve trends were identified by interviewees (n=9) in the exploratory phase. Interviewees pointed out that the trends did not necessarily occur in clusters, and opposite trends might occur within and between policy fields. The identified trends were: centralisation, decentralisation, Europeanization, regionalisation, localisation, sectoralisation, integration, new public management, market-regulation, private nature management, individualisation, and public participation.

#### **3.1.3 Participation as the institution for nature development for the ecological main structure**

All interviewees (n=9) agreed that participation processes were increasingly applied for the local implementation of the EMS. 44% Of the interviewees perceived participation processes as the norm for the local implementation of the EMS, and 22% naturally assumed that participation processes

were the approach that would be applied. The remaining interviewees (34%) perceived participation processes only as one of the approaches that could be applied for the local implementation of the EMS, but named important advantages of this approach in terms of potentially increased efficiency, effectiveness and legitimacy of the implementation of the EMS.

### **3.1.4 Identifying participants for the local implementation of nature policies**

Interviewees of the exploratory phase (n=9) identified twenty groups that might influence the local implementation of nature policies (figure 3). The six most frequently named groups (province, water authority, municipality, Agriculture and Horticulture Society, individual farmers, and conservancies) were pre-selected, and from this pre-selection the three most relevant groups were selected to interview in the explanatory case studies. The most variety in perceptions was expected between the organisation types "government", "agriculture", and "nature" (AHS and Ministry ANF, 2009). Therefore one group was selected from each organisation type. From "government" province was selected because this is the initiating governmental organisation of the participation processes in all case study areas. From "agriculture" and "nature" the landowners, i.e. individual farmers and conservancies, were selected because cooperation of landowners is key to the local implementation of policies such as the EMS (Kuindersma and Selnes, 2009). In all study areas the conservancy was the National Forestry Service (NFS).

### **3.1.5 Motivating and discouraging interactions of participants**

In the exploratory phase 116 interactions between participants were identified by the interviewees (n=9) and the observation of meetings (n=4). Most of the interactions involved openness, and least were about speed (figure 4). Furthermore most interactions were specifically between individuals from only two groups of participants, and only fourteen actions took place on all four trajectories (figure 2).

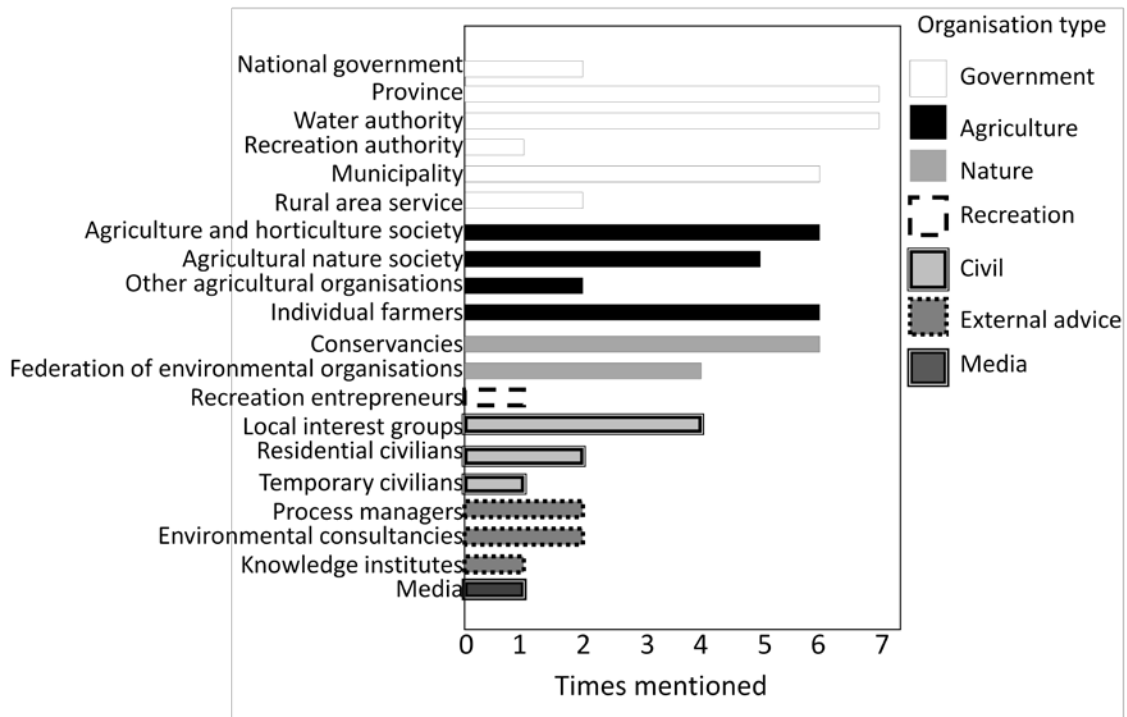


Figure 3: Differences in the number of times groups that influence the participation process for nature development at the local level were named by the interviewees in the exploratory phase.

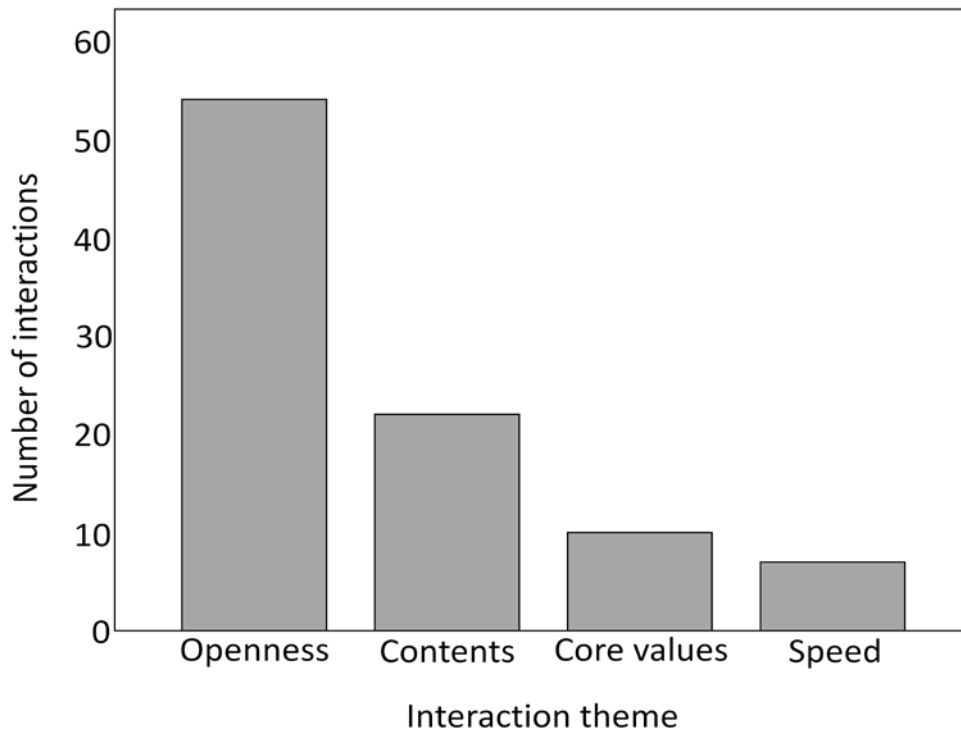


Figure 4: Differences in the number of motivating and discouraging interactions identified in the exploration phase, themed and sorted by principles of process management.

## 3.2 Participation processes at local level

### 3.2.1 Participation processes in the case study areas

Gradients could be identified along which the study areas differed (table 2). The study areas differed in the relative integration of the EMS with other policy assignments during the local implementation, the current phase of the participation process and subsequently the variety in activities organised for the cause of the participation process, and the current space for discussion about the location of the EMS (see Appendix 5 for the data from which the gradients were derived).

### 3.2.2 Perceptions of the local governance system

Perceptions of characteristics of the local governance system with regard to governance structure, tasks, and participation levels varied widely between groups within and across study areas.

#### 3.2.2.1 Governance structure

No consensus about the governance structure was found: every interviewee showed a different perception of the governance structure which was illustrated by variation in perceived connectivity. The number of connections drawn between units varied from 0 to 5 (n=11). A unit was a group of people which was responsible for a certain part of the local implementation (e.g. a project team providing technical knowledge for the development of nature, or a local-committee deciding on an advice for implementation of the EMS to the provincial government, etc.).

For the WL data about connectivity within the governance structure was collected from all groups (province, NFS, farmers), and no consistency in the connectivity within the governance structure was found (figure 5).

#### 3.2.2.2 Tasks of the province, NFS and farmers in the governance for the EMS

The perceptions of tasks differed within and between groups (table 3 and 4). The overall average difference in perception of tasks between groups was largest between individual farmers and the NFS (0.45), and smallest between province and NFS (0.23) (table 4). With regard to groups, the greatest consensus was found for tasks of the individual farmers' tasks (0.29); whereas the overall average difference in perceptions of tasks was the largest for the provincial tasks (0.38).

More specifically (table 3) the largest differences in perceptions were found in the provincial tasks “determine approximate location of nature” (0.67), “set assignment’s aim” (0.67) and “decision making about design and implementation plan” (0.57), as well as the NFS task “rent out land to farmers” (0.67). The least differences in perceptions were found in the provincial tasks “communicate aims to local stakeholders” (0.00) and “guide process” (0.09), as well as the NFS task “provide knowledge about area” (0.05).

### *3.2.2.3 Participation levels of the NFS and individual farmers*

The perceived participation levels of individual farmers and NFS varied across sites (figure 6). The participation level of individual farmers in GWV was perceived predominantly as co-deciding, in WL perceptions were divided between informing and co-deciding, and in UVW the participation level was currently perceived as informing. The participation level of the NFS in GWV and UVW was perceived mostly as co-deciding, and in WL co-producing and co-deciding.

Variation in perceptions of participation levels was identified within and between groups in each study area (figure 6). However, in GWV the variation in perceptions of participation levels of individual farmers and NFS was very similar within and between groups. The farmers perceived variation across the whole continuum of participation levels for both their own and the NFS’s participation level. The province and NFS were constantly at the high end of the continuum for both the participation level of farmers and the NFS.

In WL the participation levels of the farmers varied strongly between both ends of the continuum. The participation level of the farmers was either perceived as informing or co-deciding. The province perceived to be consulting farmers.

The NFS was divided into extremes about their own participation levels as reflected in participation levels ranging from informing to co-deciding. The province perceived the participation level of the NFS at consulting. The farmers perceived the NFS’s participation level at co-producing and co-deciding.

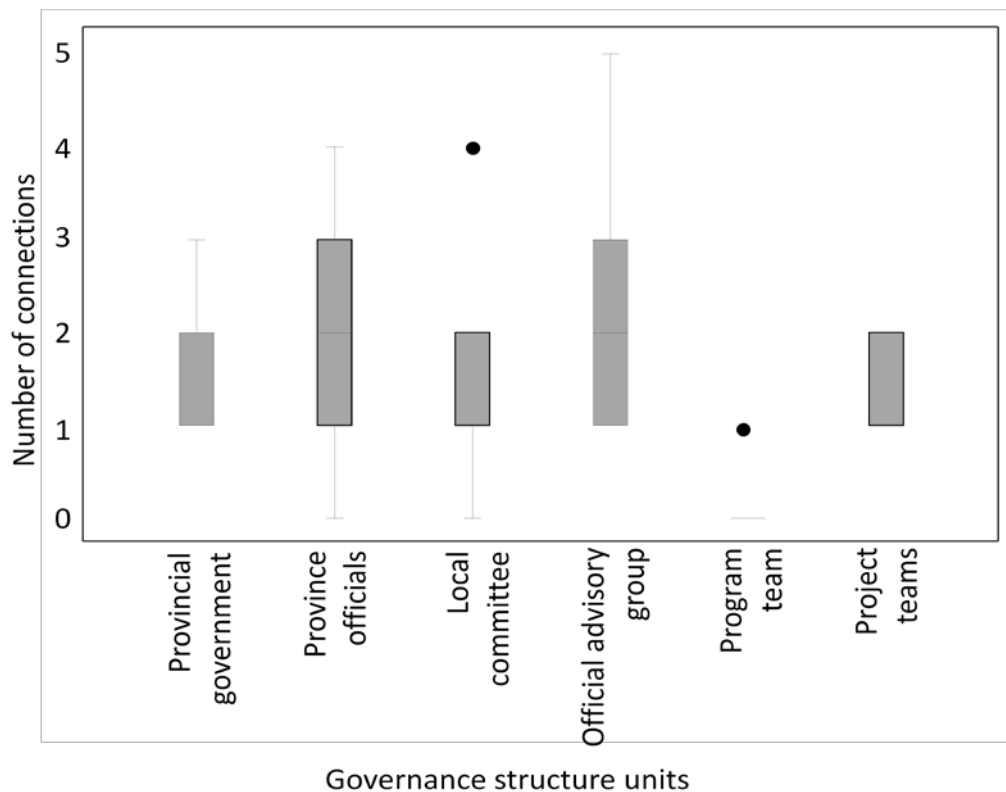
In UVW the farmers were divided about their participation level. The farmers perceived to be informed, and hoped to participate at a higher level up to co-deciding. The province aimed to let farmers co-produce.

The farmers in UVW had strongly differing perceptions about the participation level of the NFS: informing or co-deciding. The province and NFS perceived the NFS's participation level at co-deciding based on their position in the local committee. The NFS participated as interest group tool, and in that role NFS expected to be participating at the level of co-producing i.e. equal to the other landowners.

In general these results show that the NFS and province perceive the participation levels of the farmers and NFS equal, whereas the farmers perceive their own participation level lower than the participation level of the NFS.

**Table 2: Differences in the participation processes between the case study areas (comparative framework based on Breman et al., 2008).**

Case study area			
	<i>Groot Wilnis- Vinkeveen (GWV)</i> <i>(Project-team GWV, 2010)</i>	<i>Westelijke Langstraat (WL)</i> <i>(Dijkman and Van Vliet, 2009)</i>	<i>Utrechtse Vecht en Weiden (UVW)</i> <i>(Dijkman, 2010)</i>
<b>Relative integrity</b>	High: nature, water, landscape	Medium: nature, water	Low: nature
<b>Current phase participation process.</b>	Finished participation process planning stage May 2010	Uncertain, possibly restarted planning stage	Early, planning stage started April 2010
<b>Current space to discuss location EMS</b>	Low, location roughly determined in planning stage	Low, majority of area is designated EMS	Medium, end and start EMS fixed, middle can be discussed but limitations due to infrastructure
<b>Aimed participation level local stakeholders by province</b>	Interactive process	Until 2009 informed, in 2009 farmers co-produced a vision for possible implementation of nature into farm management.	Co-production
<b>Variety in process activities</b>	Highest	Middle	Lowest



**Figure 5: Variety in the perceived number of connections between the units within the governance structure for nature development in the Westelijke Langstraat (n=6).**

**Table 3: Comparison of the perceptions of the tasks of the province, National Forestry Service, and individual farmers (presented vertically), perceived by province, NFS and individual farmers (presented horizontally) in the participation processes for the development of the ecological main structure in the three study areas in 2010 (0=not their task at all, 1=partly their task, 2=completely their task).**

	<b>Overall (n=11)</b>		<b>Province (n=2)</b>		<b>National Forestry Service (n=2)</b>		<b>Individual farmers (n=7)</b>	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean
<b>Provincial tasks</b>								
Determine approximate location nature.	0-2	1.27	1-2	1.50	2	2.00	0-2	1.00
Set assignment's aims.	0-2	1.36	2	2.00	2	2.00	0-2	1.00
Determine exact location nature.	0-2	1.00	1-2	1.50	1	1.00	0-2	0.86
Facilitate input local stakeholders.	1-2	1.73	1-2	1.50	1-2	1.50	1-2	1.86
Set budget development and implementation of plan.	0-2	1.36	1-2	1.50	1	1.00	0-2	1.43
Communicate aims to local stakeholders.	2	2.00	2	2.00	2	2.00	2	2.00
Start process.	0-2	1.45	1-2	1.50	0-2	1.00	0-2	1.57
Guide process.	0-2	1.09	1	1.00	0-2	1.00	0-2	1.14
Decision making about design and implementation plan.	0-2	1.45	2	2.00	2	2.00	0-2	1.14
Advice participants.	0-2	0.91	0-1	0.50	0-1	0.50	0-2	1.14
Gratification of design to policy framework.	0-2	1.64	2	2.00	2	2.00	0-2	1.43
<b>National Forestry Service tasks</b>								
Carry out nature policies.	1-2	1.45	1-2	1.50	2	2.00	1-2	1.29
Buy land for nature development.	0-2	0.27	0	0.00	0	0.00	0-2	0.43
Provide knowledge about area.	1-2	1.45	1-2	1.50	1-2	1.50	1-2	1.43
Represent general nature interests.	0-2	1.09	1	1.00	1-2	1.50	0-2	1.00
Represent nature interests of their land.	1-2	1.82	2	2.00	2	2.00	1-2	1.71
Rent out land to farmers.	0-2	1.27	1-2	1.50	0-1	0.50	0-2	1.43
<b>Individual farmers tasks</b>								
Provide land for new nature.	0-2	0.64	1	1.00	0-2	1.00	0-2	0.43
Represent agricultural interests.	1-2	1.64	1-2	1.50	1-2	1.50	1-2	1.71
Provide knowledge about area.	0-2	1.27	1-2	1.50	1	1.00	0-2	1.29

**Table 4: Average differences ( $\Sigma$  differences between scores per task/ number of tasks) between perceptions of the province, NFS and farmers about the tasks of the province, NFS and farmers: a larger number indicates a larger difference.**

<i>Average differences in perception between:</i>				
<i>Average differences in perception about tasks of the:</i>	<b>Province – NFS</b>	<b>Province – Farmers</b>	<b>NFS – Individual farmers</b>	<b>Overall</b>
<b>Province</b>	0.18	0.44	0.52	0.38
<b>NFS</b>	0.33	0.18	0.49	0.33
<b>Individual farmers</b>	0.17	0.33	0.36	0.29
<b>Overall</b>	<b>0.23</b>	<b>0.32</b>	<b>0.45</b>	

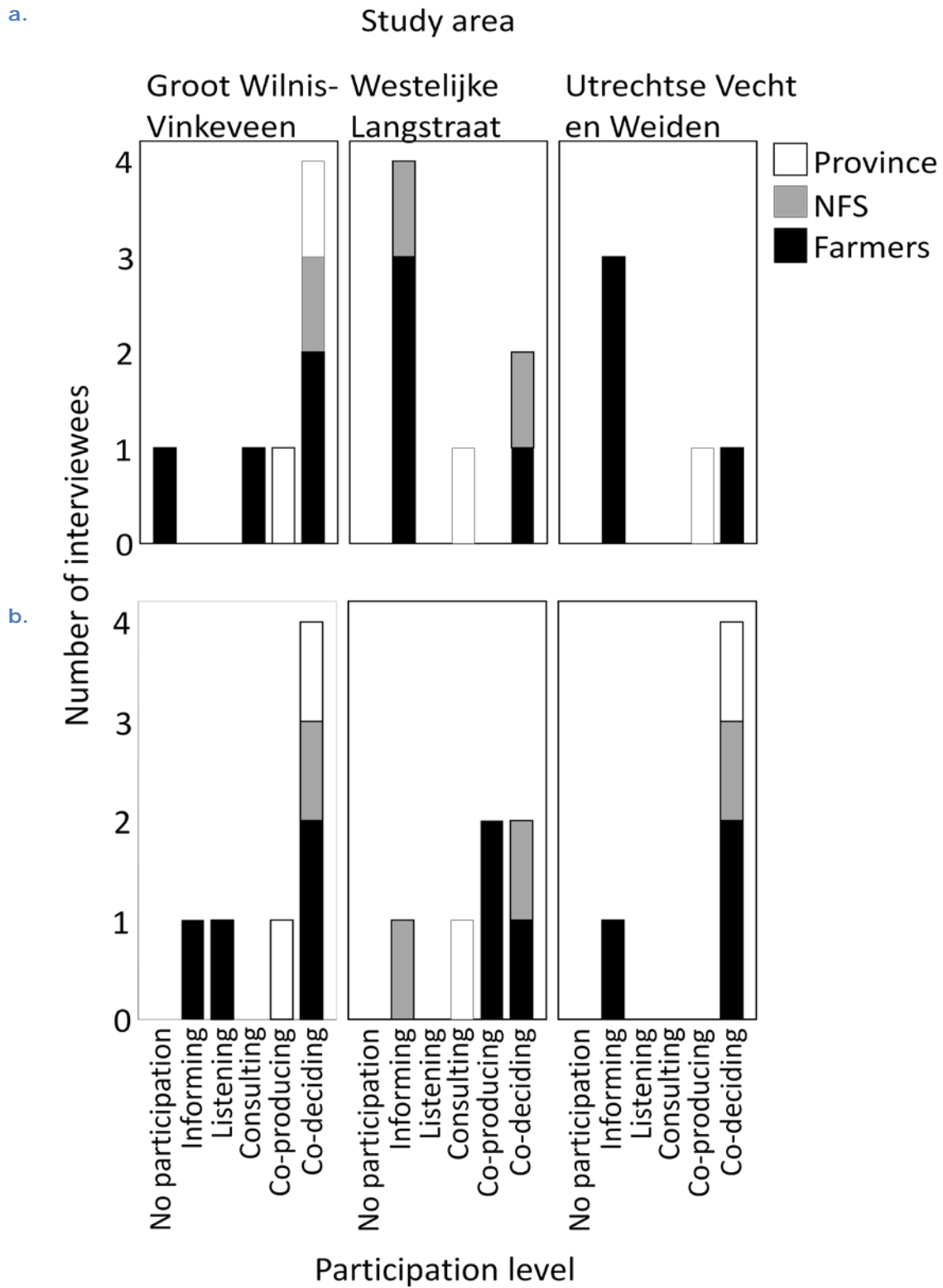


Figure 6 a and b: Comparison of perceived participation level of (a) individual farmers, and (b) NFS within and between groups and study areas.

### 3.2.3 Events

Events were analysed because they might have caused variation in the perceptions of the local governance system and might influence the interactions of participants. Generally the number (figure 7) and characterisation (table 5) of events varied between groups within and across the case study areas, although analogies were identified as well.

#### 3.2.3.1 Patterns in the number of events

Comparing the number of events identified by the groups across case study areas (figure 7), provinces appeared to have a more positive than negative legacy, while the individual farmers named more negative than positive events. For the NFS no pattern in numbers of events was identified.

#### 3.2.3.2 Patterns in the characterisation of events

Patterns in the characterisation of events could be identified (table 5). In GWV and WL participation processes were perceived to improve the understanding and cooperation among participants. In all case study areas both the NFS and individual farmers named positive experiences about the cooperation of nature and agriculture, prior to and during the process of local implementation of the EMS.

Space for improvements was identified: The NFS perceived the contribution of the Agriculture and Horticulture Society in GWV and WL as unconstructive. In WL and UVW the province named a process activity for the local implementation of the EMS motivating, while the same events were perceived discouraging by the individual farmers. Farmers in all case study areas named discouraging events prior to and during the process for local implementation related to perceived unreliability of governmental organisations, and especially communication during the process was a source of perceived unreliability.

A social mechanism between groups was identified: the experiences of farmers with unreliable governmental organisations lead to a distrustful attitude, and this distrust was perceived as discouraging by the province and led to a cautious attitude of the province in a later participation process.

Although 'land' was a recurring theme in the events prior to the participation processes (about 30% of the events were related to land), it was striking that barely any events during the participation process were related to land.

During the implementation process events were named that suggest difficulties to find a balance for the speed of the process: in GWV and WL the slow progress was discouraging but in UVW time pressure was perceived too high.

**Table 5: Comparison of motivating and discouraging events that influenced motivation to participate in the local implementation of the EMS, identified in the explanatory interviews.**

		Motivating <i>Prior to</i>	<i>During</i>	Discouraging <i>Prior to</i>	<i>During</i>
Groot Wilnis-Vinkeveen	<i>Province</i>	Test new approach for local implementation EMS.	Improved cooperation and understanding between province, NFS, and farmers.		Unreliability farmers because ammonia discussion.
	<i>NFS</i>		Improved cooperation and understanding between province, NFS, and farmers.		Mediating role of province. Sectoral focus farmers' organisations. Slow progress in process.
	<i>Farmers</i>	Win-win through land-exchange. Successful protesting against conservation activities.	Improved cooperation and understanding between province, NFS, and farmers.	Bad listening of governmental organisations. Contradictory policies concerning land-exchange.	Unreliable province. Contradictory conservation policies. Communication and language style. Slow progress in process.
Westelijke Langstraat	<i>Province</i>		Presentation development vision that was supported by all groups, prior to project private nature management.		
	<i>NFS</i>	Cooperation with farmers. High potential WL for collective nature management.	Improved cooperation with Agricultural Nature Society.		Unconstructive contribution Agriculture and Horticulture Society. Discussion water level with farmers. Slow progress in process.
	<i>Farmers</i>		Project private nature management: develop farmers' vision, practical focus.	Unreliable governmental organisations: contradictory developments, bad listening, inflexible attitude.	Unreliable government: consultation Rural Area Service, bad communication, complexity of process.
Utrechtse Vecht en Weiden	<i>Province</i>	Positive experience participation processes in other area.	Information evening.	Distrust of farmers in previous process in other area.	
	<i>NFS</i>				
	<i>Farmers</i>	Cooperation with NFS.		High demand land, recently lost land to infrastructure. Unreliable government and NFS: Contradictory developments in nature polices, bad listening, unsuccessful nature project.	Information evening: little information about contents policy assignment, unanswered questions. Contradictory nature policy. Time pressure.

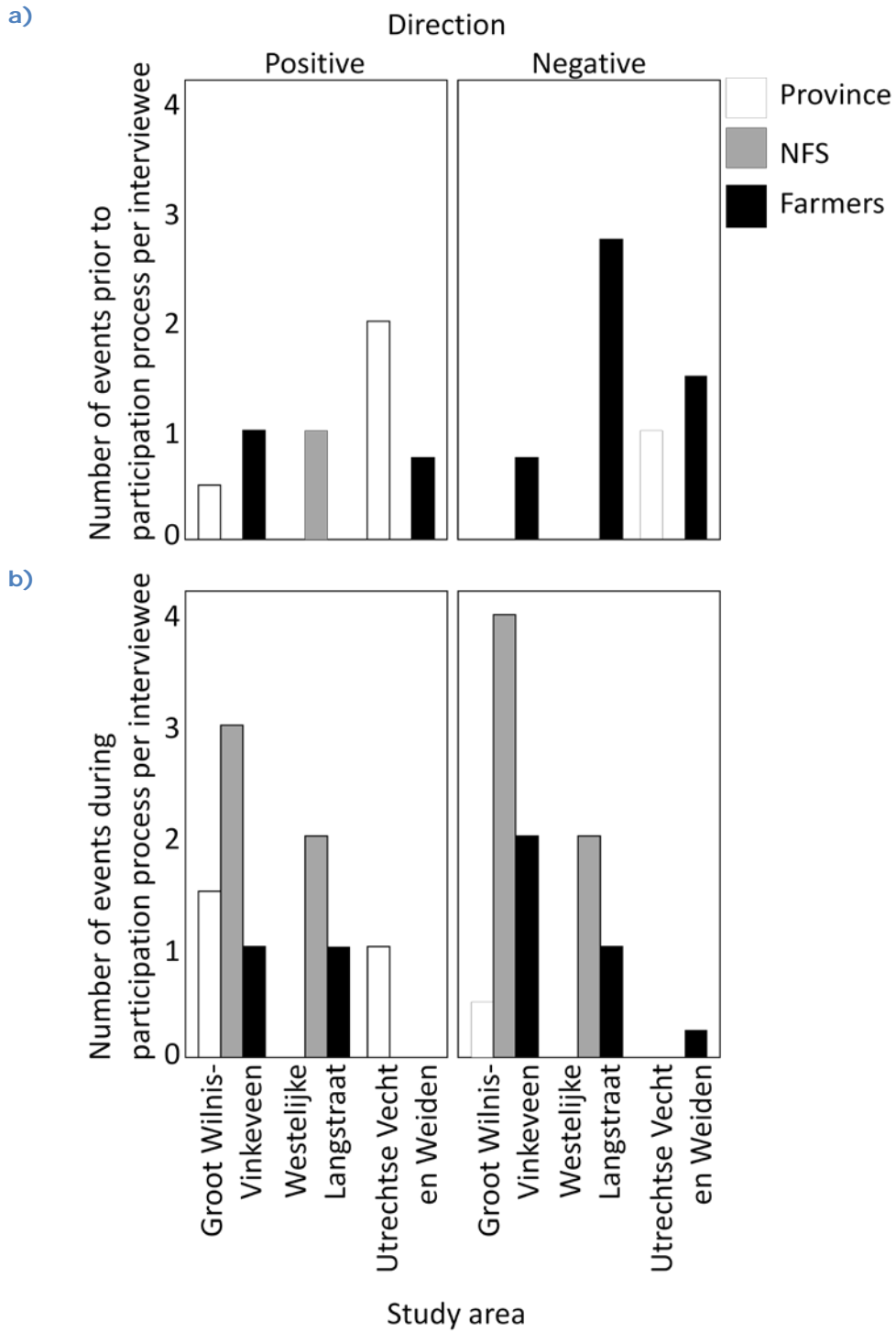


Figure 7 a and b: Comparison of the number of motivating and constraining events named per interviewee per group per study area, (a) prior to and (b) during the participation process.

### **3.2.4 Interactions during the participation process**

Analyses of the Likert-scores of interaction themes assessed on all four trajectories did not reveal an interaction theme that on average scored highest or lowest, when comparing within and between groups within as well as across study areas. Therefore no interaction theme was identified to be superior important (figure 8 a and b). However, interactions relating to the theme “core values” were most frequently assessed with extreme average values within study areas, for motivating as well as discouraging interactions (table 6).

#### ***3.2.4.1 Comparison of general attitudes***

Generally the interviewees within groups across study areas, responded consistently positive or negative to each separate action. In question series C interviewees consistently responded negative to the presented actions. However, farmers were generally more extreme in negative responses.

The results show that individual farmers are generally more positive about interactions with the NFS than with the province. Furthermore the province and NFS are generally more positive about interactions with individual farmers than vice versa.

In question series A and B a striking difference was identified. In GWV and WL, where the participation processes were in an advanced stage, the farmers were constantly more positive about the province’s actions than the province about individual farmers actions. In UVW, where the process was in an early stage, the province was constantly more positive about the individual farmers’ actions than individual farmers about the province’s actions.

The differences between the average Likert-scores were highest between groups in UVW and lowest in WL. In GWV the differences were surprisingly large considering that the process was recently finished.

#### ***3.2.4.2 Discontinuous and contradictory patterns***

The speed of the process led to varying results. In question series A the province was positive if the farmers actively participate in the process in order to make progress, but the farmers were

negative about the province which continued the implementation process when a group of participants abated the process. In question series C the province was constantly negative about farmers slowing down the process with the repetitive question “Why does this new nature need to be realized?”. On the other hand the farmers in UVW were negative about the province slowing down the process due to long internal discussion time, whereas they were not influenced in WL and GWV.

In question series B the province and farmers in all study areas gave opposite answers to questions about openness. In GWV and UVW the province was positive and the farmers negative, while in WL the farmers were positive and the province negative. This may be related to the state of the process. At the start of the process when farmers ask the province for an explanation of the policy assignment, the province perceives this as positive but in a later stage of the process it is perceived as deliberately frustrating and slowing down the process as it occurred in WL (the interviewees of the province for GWV answered in general and not specifically for GWV). In GWV and UVW the farmers were negative about the province explaining why the new nature is required, and this reflects that they generally were not open for the policy assignment about the EMS. However, not explaining the policy assignment gave even more negative replies.

#### *3.2.4.3 The importance of land*

Interactions concerning land had disproportionately frequent extreme average Likert-scores in every study area. The proportion of interactions (48%) concerning land assessed with an extreme average Likert-score (compared to the total number of interaction assessed with an extreme average Likert-score) was larger than the proportion of interactions (17%) concerning land assessed in the interviews (compared to the total number of interactions assessed), in every study area for every group with exception of farmers in WL as well as the NFS in GWV and UVW.

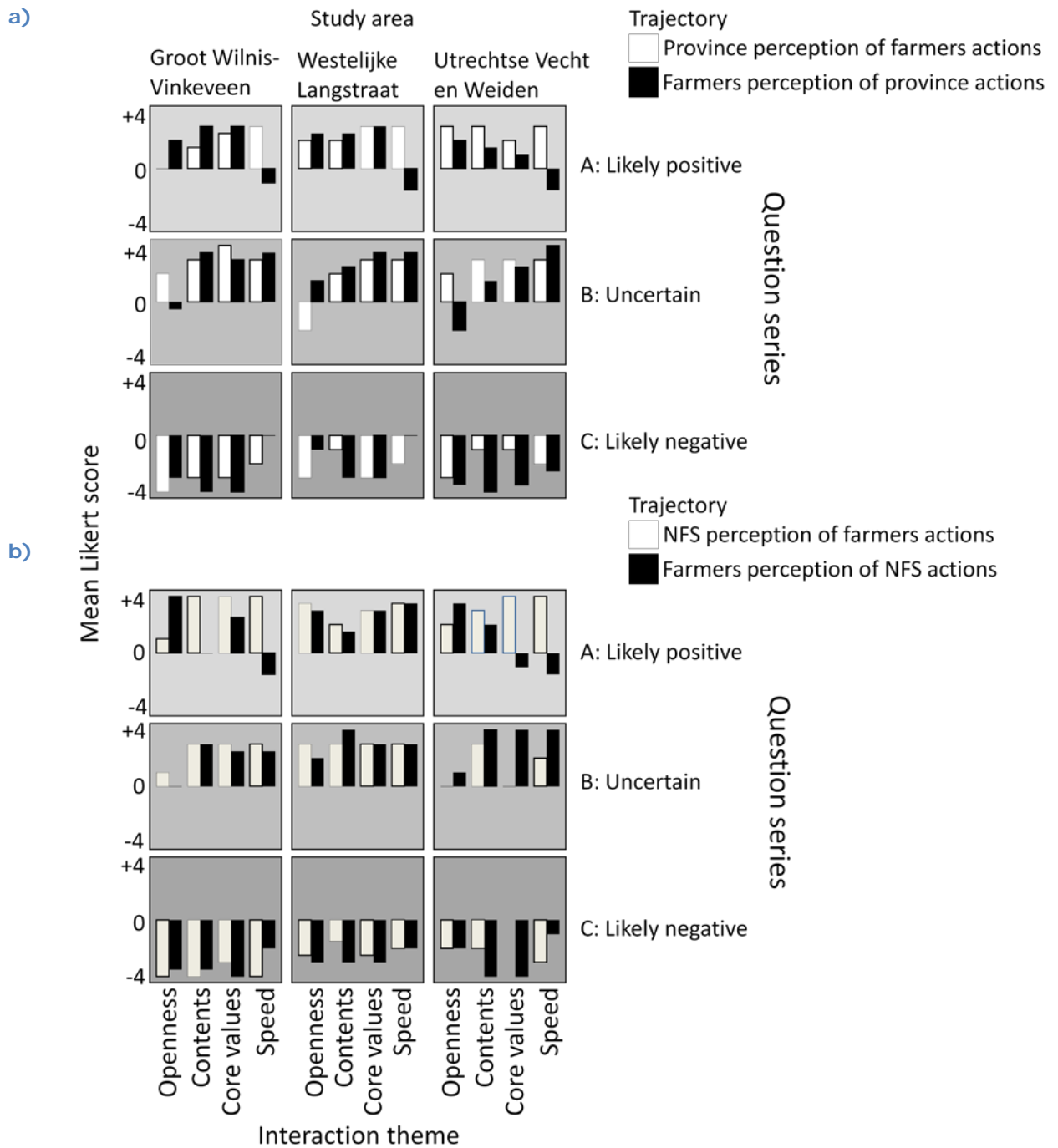


Figure 8: Comparing the average Likert-scores of themes of interactions, questioned in three question series, between groups within and across study areas.

**Table 6: Comparison of extremes in the influence of interactions on the motivation to participate in the local implementation of the EMS, assessed by mean Likert-score (range from -4 = extremely discouraging, to 0 = no influence, to 4 = extremely motivating) and mean rank (range from 1 = most important- to 4 = least important within question series), sorted per study area per trajectory.**

	Motivating interactions	Discouraging interactions
<b>Groot Wilnis- Vinkeveen</b>		
Province's perception of farmers' actions (n=2)	<u>Core values:</u> Farmers acknowledge the province's interest to establish the EMS, and offer a voluntary land exchange resulting in nature at appropriate places ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=1$ ).	<u>Openness:</u> The farmers express their dissatisfaction in the media ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=1$ ).
NFS' perception of farmers' actions (n=1)	<u>Core values:</u> Farmers keep the agreement that a new water level is negotiated during the process ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=1$ ). <u>Speed:</u> Farmers actively contribute to the process activities enabling to make progress ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=2$ ).	<u>Openness:</u> The farmers express their dissatisfaction in the media ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=3$ ). <u>Speed:</u> The farmers slow down the process with the question 'Why does this new nature need to be realized?' ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=1$ ).
Farmers' perception of province's actions (n=2)	<u>Contents:</u> The participants of the process make a field excursion to see how solutions would work out in practice ( $\bar{x}_{\text{Likert}}=3.5$ ; $\bar{x}_{\text{rank}}=1.5$ ).	<u>Contents:</u> The province uses only knowledge of consultancies without applying the local knowledge of the farmers ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=3$ ). <u>Core values:</u> The province does not keep its promise that farmers can give input about the location and type of nature for the EMS ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=2$ ).
Farmers' perception of NFS' actions (n=2)	<u>Openness:</u> The NFS wants to develop nature in the area, but is open to exchange land both nature and agriculture benefit ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=3.5$ ).	<u>Core values:</u> The NFS does not keep its promise to cooperate in a voluntary land exchange ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=1$ ).
<b>Westelijke Langstraat</b>		
Province's perception of farmers' actions (n=1)	<u>Core values:</u> Farmers acknowledge the province's interest to establish the EMS, and offer a voluntary land exchange resulting in nature at appropriate places ( $\bar{x}_{\text{Likert}}=3$ ; $\bar{x}_{\text{rank}}=1$ ). <u>Speed:</u> Farmers actively contribute to the process activities enabling to make progress ( $\bar{x}_{\text{Likert}}=3$ ; $\bar{x}_{\text{rank}}=1$ ).	<u>Core values:</u> The farmers do not keep their promise to cooperate in a voluntary land exchange ( $\bar{x}_{\text{Likert}}=-3$ ; $\bar{x}_{\text{rank}}=1$ ).
NFS' perception of farmers' actions (n=2)	<u>Openness:</u> Farmers have an open attitude towards fitting nature into the farm management ( $\bar{x}_{\text{Likert}}=3.5$ ; $\bar{x}_{\text{rank}}=2$ ).	<u>Openness:</u> The farmers express their dissatisfaction in the media ( $\bar{x}_{\text{Likert}}=-2.5$ ; $\bar{x}_{\text{rank}}=2$ ). <u>Core values:</u> The farmers do not keep their promise to cooperate in a voluntary land exchange ( $\bar{x}_{\text{Likert}}=-2.5$ ; $\bar{x}_{\text{rank}}=1.5$ ).
Farmers' perception of province's actions (n=2)	<u>Core values:</u> The province acknowledges the farmers' interests by having a flexible attitude concerning the types of nature aimed for in the EMS ( $\bar{x}_{\text{Likert}}=3.5$ ; $\bar{x}_{\text{rank}}=2$ ). <u>Speed:</u> The province promises to make an effort compensating farmland in order to keep the process going ( $\bar{x}_{\text{Likert}}=3.5$ ; $\bar{x}_{\text{rank}}=1$ ).	<u>Contents:</u> The province uses only knowledge of consultancies without applying the local knowledge of the farmers ( $\bar{x}_{\text{Likert}}=-3$ ; $\bar{x}_{\text{rank}}=1.5$ ). <u>Core values:</u> The province does not keep its promise that farmers can give input about the location and type of nature for the EMS ( $\bar{x}_{\text{Likert}}=-3$ ; $\bar{x}_{\text{rank}}=1.5$ ).

Farmers' perception of NFS' actions (n=2)	<u>Contents:</u> The participants of the process make a field excursion to see how solutions would work out in practice ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=1$ ).	<u>Core values:</u> The NFS does not keep its promise to cooperate in a voluntary land exchange ( $\bar{x}_{\text{Likert}}=-3$ ; $\bar{x}_{\text{rank}}=1$ ). <u>Openness:</u> The NFS express their dissatisfaction in the media ( $\bar{x}_{\text{Likert}}=-3$ ; $\bar{x}_{\text{rank}}=2$ )
<b><i>Utrechtse Vecht en Weiden</i></b>		
Province's perception of farmers' actions (n=1)	<u>Core values:</u> Farmers acknowledge the province's interest to establish the EMS, and offer a voluntary land exchange resulting in nature at appropriate places ( $\bar{x}_{\text{Likert}}=3$ ; $\bar{x}_{\text{rank}}=1$ ). <u>Openness:</u> Farmers have an open attitude towards fitting nature into the farm management ( $\bar{x}_{\text{Likert}}=3$ ; $\bar{x}_{\text{rank}}=1$ ).	<u>Openness:</u> The farmers express their dissatisfaction in the media ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=1$ ).
NFS' perception of farmers' actions (n=1)	<u>Core values:</u> Farmers keep the agreement that a new water level is negotiated during the process ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=3$ ). <u>Speed:</u> Farmers actively contribute to the process activities enabling to make progress ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=1$ )	<u>Speed:</u> The farmers slow down the process with the question 'Why does this new nature need to be realized?' ( $\bar{x}_{\text{Likert}}=-3$ ; $\bar{x}_{\text{rank}}=1$ ).
Farmers' perception of province's actions (n=2)	<u>Speed:</u> The province promises to make an effort compensating farmland in order to keep the process going ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=2.5$ ).	<u>Contents:</u> The province uses only knowledge of consultancies without applying the local knowledge of the farmers ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=2.25$ ).
Farmers' perception of NFS' actions (n=2)	<u>Core values:</u> The NFs acknowledge the farmers' interests by offering a voluntary land exchange that benefits both agriculture and nature ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=2$ ). <u>Speed:</u> The NFS offers to manage land rented out to farmers in cooperation, in order to keep the process going ( $\bar{x}_{\text{Likert}}=4$ ; $\bar{x}_{\text{rank}}=2$ ).	<u>Core values:</u> The NFS does not keep its promise to cooperate in a voluntary land exchange ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=1.75$ ). <u>Contents:</u> The NFS refuses to exchange knowledge about the current qualities of the area with the farmers during a field excursion ( $\bar{x}_{\text{Likert}}=-4$ ; $\bar{x}_{\text{rank}}=2.75$ ).

## 4. Discussion

The results of this study show that changes in environmental policies and governance are gradual and complex. It is indicated that participation of local stakeholders is the norm for the local implementation of the EMS. Variation in the perceptions of local stakeholders about the local governance system for the implementation of the EMS became evident. The perceptions of the governance structure, tasks, and the participation level differed within and between groups. The variation in perceptions may be related variation in legacies, because the number and characteristics of events that influence the motivation to participate in the local implementation of the EMS varied between groups. All principles of process management (openness, contents, core values and speed) were on average equally important, but core values were most frequently assessed with an extreme score. In addition interactions concerning land were disproportionately frequent assessed with an extreme score. Overall the province and NFS tended to give a more positive response to interactions with individual farmers than vice versa.

### 4.1 Discussion of the methods

Reliability of methods was provided by using a protocol and validity was assured by establishing a chain of evidence. During the exploration phase of the study validity was verified by following multiple lines of evidence. In the case studies internal validity was verified by pattern matching between three groups of interviewees in each study area and external validity was verified by cross-case syntheses of multiple case studies. Despite these measures to assure reliability and validity, improvements in the study design are possible.

#### 4.1.1 Overall

##### 4.1.1.1 Repeatability of the study

The use of protocols enables the repeatability of this study. However, it can be expected that interviewees might respond differently to another interviewer, which could influence the results (Bryman, 2008). Repeating the case studies in the same areas with different interviewees should give the same results, because the chance to collect as much variety as possible was optimised by deliberately choosing a wide variety within groups. In contrast to that, it is likely to obtain different

results if the same study is conducted in another study area because of variation in, among others, the policy assignment, local stakeholders and their legacies, and local context. Still the patterns that were identified by cross-case synthesis should be similar.

#### *4.1.1.2 Number of interviewees*

In the exploration phase the number of interviews was limited by the time available for data collection. As the interviews progressed, the obtained information became increasingly repetitive, but every interviewee added another nuance.

In the case studies the number of interviewees was limited by the availability of relevant interviewees and time constraints for data collection. All eligible individuals from the province and NFS, regarding the participation processes in the case study areas, were interviewed. Interviewees from province and NFS were limited by time, generally the maximum time available for the interviews was 45 minutes to one hour. Therefore, less data was collected, especially about governance structure and tasks. Consequently cross-case synthesis was not possible for the governance structure and tasks. Furthermore there may be bias in the data about events, because the events were usually addressed after ca. 45 minutes of interviewing when interviewees were getting restless to move to the next appointment. Assuming that interviewees would name events first that are perceived most important, it is still valid to conclude that the nature of events varies between groups across cases. Another source of potential bias is that the province and NFS named less events because it is policy to cooperate with other groups, and some interviewees felt it was not professional to let their motivation be influenced by events. With less time constraints from the research project, more farmers may have been interviewed. For the farmers the time of the year was inconvenient for interviews because they were occupied with mowing, planting, etc., interviewing during winter would have been more favourable. Nevertheless, there were no signs of unwillingness to cooperate with the interviews once farmers agreed to take part in the study, irrespective from their attitude towards the EMS.

## 4.1.2 Case studies

### 4.1.2.1 Skills for case studies

A researcher must be sufficiently skilled to carry out a case study. The skills necessary include the ability to ask good questions and interpret the answers, an adaptive and flexible attitude, good understanding of the issue studied and knowledge to prevent bias (Yin, 2009). In this study the investigator was inexperienced and carried out case studies and associated interviews for the first time. Nevertheless, the novice researcher had the advantage of being adaptive, flexible and unprejudiced about the subject, enabling an open attitude which is believed to have motivated interviewees to provide in-depth information. To simplify the data collection process, a protocol was developed following recommendations of Yin (2009) and Tellis (1997). However, a flexible attitude was necessary because no standard methodology was available for the subject. Although the exploration gave unexpected results, it allowed to develop a structured interview for the case studies, which simplified and standardised the interviewing process. Furthermore, the structured interview was tested beforehand, ensuring training of the interviewer and improvements of the interview as recommended by Bryman (2008).

### 4.1.2.2 Identifying causal relations

The case study approach appeared to be a hypotheses generating process rather than explanatory. The general research design of the study was to explore and then explain using a case study approach. The initial aim of the study was to assess how local governance systems change, but the exploration did not result in propositions about causal relations positioned along a time continuum that could be tested in the case study areas. Therefore the explanatory case studies were conducted to analyse the current status of the local governance systems. A holistic case study design was used but during the analyses the study emerged as an embedded design, because the perceptions of the interviewees varied too much to reveal a single picture of the governance system and consequently the groups of interviewees were treated as units of analyses. Although patterns could be identified, the approach is characterised as a hypotheses generating process (Glaser and Strauss 1967, Yin 2009).

This work provides a basis to develop and test propositions about causal relations between perceptions of governance systems, legacies and interactions by applying time-series analyses.

The case study areas were located along a time-continuum (table 2), and the results suggested that the influence of interactions on the motivation of interviewees to participate in the local implementation of the EMS varied along this time-continuum (figure 8). Furthermore the variation in perceptions of the local governance system may be caused by variation in legacies (table 5). Although no causal relations were tested in this study, chronicles were identified. These chronicles can be formulated as propositions and tested with time-series analyses to identify causal relations. Furthermore, time-series analyses allow to build logic models (Peterson and Bickman, 1992; Rog and Huebner, 1992), and this could be applied to interactions in order to identify social-mechanisms: the dependent variable in the first interaction becomes the independent variable in the next interaction. Rather than solely applying cross-case synthesis, it could be combined with time-series analyses to build stronger evidence for causal relations.

#### *4.1.2.3 Combining numerical and verbatim data*

For analytical generalisation quantitative data can be used to support qualitative data (Yin, 2009). Quantitative approaches can be used to clarify the relative frequency in verbatim data, enabling more precise estimates of frequency than quasi-quantitative terms like 'often' and 'much' (Bryman, 2008). Therefore quantitative approaches are useful for the interpretation of qualitative data. During this study a predominantly numerical approach was applied in the analyses of the qualitative data. A numerical approach may be less sensitive to biases due to interpretation of verbatim data. Generally a numerical approach is a deductive approach, which suggests that there was a theory which could be tested based on propositions (Bryman, 2008). Although this approach allowed to identify initial patterns, it did not reflect the depth of the data. The verbatim data contained more information than the associated numerical data showed. As the studied case of local governance systems for the EMS is innovative and there are only few studies available so far, it was necessary to gain a better understanding first. This is usually done by using an inductive approach for which a qualitative data collection and analyses approach is more appropriate (Bryman, 2008). However, it was beyond the scope of this study to use qualitative data analysis software in order to find more and stronger patterns in the verbatim data.

#### *4.1.2.4 Relating patterns to continuums of variation across study areas*

It was possible to do triangulation of the case study areas but the cross-case synthesis has to be made with care, because patterns across case study areas could be related to several continuums of variation (table 2). In this study no causal relations between the observed patterns and the continuums were tested. Therefore, it is not possible to distinguish the continuum that causes variety in the results. Nevertheless, the design of the study did allow for identification of chronicles.

The time-continuum that was applied in this study and the real time of the process of local implementation is not entirely comparable. This is reflected in the fact that the process in WL already runs longer than the process in GWV, and whereas the process in WL is in the “middle” the process in GWV already finished.

#### *4.1.2.5 Potential bias caused by the interviewing process in the case studies*

The results from the structured interviews may be biased due to leading the interviews and interview-fatigue. The structured interviews inevitably led interviewees to answers, which is necessary to obtain comparable results within and between groups, as well as within and across study areas. Furthermore the interview was relatively long which may have caused interview fatigue (Bryman, 2008). To some extent the time required for an interview was unexpectedly long. Especially in the section assessing the “governance system characteristics” (see appendix 4) interviewees required much time, for example to assess whether they had informed or were informed. In addition to that the interviews contained several types of questions and topics, and generally interviewees needed more time than expected to switch between the sections of questions.

#### *4.1.2.6 Questioning interactions: assumptions and interpretations*

For the structured interview questions about interactions, two assumptions may have to be rejected. First of all it was assumed that the motivation to participate in the local implementation of the EMS was influenced by interactions. However, some interviewees emphasized that their motivation is steady irrespective from interactions. This steady motivation may be caused by an intrinsic motivation to find a solution with other participants, or is subject to a policy that prescribes a certain behaviour and consequently motivation. Therefore it could be that measuring only the ‘importance’ instead of ‘effects on motivation’ would have been more suitable to identify

priority interactions. This would not have provided an indication of impacts on motivations though. This issue draw attention to the necessity to assess the basic level of motivation of interviewees to participate in the local implementation of the EMS. Furthermore, by structuring the interviews rigidly it was assumed that all possibly important themes of interactions were included. Several interviewees named motivations that did not fit within the used themes. Therefore including more open questions in combination with qualitative data analysis software may provide a better insight (Bryman, 2008).

Although bias may be prevented by the structure of the survey, the wording of the themes could have caused bias. Some of the questioned interactions really occurred, but most of them were imaginary. The capabilities of the interviewees to imagine interactions differed, and some people instantly responded reluctant towards interactions with other groups. Prompts were standardised (as recommended by Bryman, 2008) by repeating the question two- to three times. Usually interviewees would consider the questioned interactions after repeating it, but in the rare occasions that this did not help the question was skipped. Including more open questions could have avoided this problem. Furthermore acquiescence, 'automatically' answering to a series of similar questions, could have occurred (Bryman, 2008), but this was prevented by posing opposite interactions and randomising the order of the themes of interactions. Finally, the examples of interactions, which were given to make the principles less abstract, influenced the answers, because interviewees interpreted the questions differently. It is possible to distinct between process-oriented interviewees (the process is the aim), and outcome-oriented interviewees (the process is a mean).

## **4.2 Discussion of the results**

The variation in the results will be discussed first, which will be followed by a discussion of the significance of the results for the Netherlands as well as globally.

### **4.2.1 Explaining the variation in the results**

#### ***4.2.1.1 Interactions: Principles of process management confirmed***

The principles of participation processes developed for river basin management (HarmoniCOP, 2005) may be applied to participation processes for the local implementation of the EMS too. All

interaction themes, which were based on the principles identified by HarmoniCOP (2005), were equally important within and across study areas, meaning that all principles should be considered during participation processes for the EMS. Protecting the stakeholders' livelihood and identity gave the most extreme results, indicating that this issue is more delicate than the other themes. Irrespective from the principles of process management, interactions concerning land were perceived more important than other interactions. This is supported by results from the events, as land was a frequently recurring topic. In some study areas the importance of the topic "land" is acknowledged by employing an independent land-counsellor. The speed of the implementation process seems difficult to balance. This was illustrated by the events which indicated that on the one hand participants should not be pushed too hard, as perceived in UVW, but on the other hand the process should also not be too slow, as perceived in GWV and WL, since both were perceived as discouraging to participate. Much depends on the way speed and progress is made or prevented. Realistic and legitimate deadlines should be set, and the process should not be deliberately frustrated by participants. This was proven by time-dependency of assessments of interactions: actions that are perceived positive at the start of the process may be perceived negative in a later phase. For example farmers asking for explanations of the policy assignment at the start of a process was generally perceived positive, while in a later stage this action was perceived as deliberately frustrating the process.

Generally the province perceived interactions more positive than the NFS, and the NFS had more positive perceptions than individual farmers. Similarly, the events showed that provinces generally have more positive legacies than individual farmers. This insight may help participants and process managers to interpret reactions of these groups. On the other hand, assessments of interactions became increasingly congruent over the time period of the participation process, which indicates that participants value and possibly interpret interactions increasingly similar as time in the participation process progresses.

#### *4.2.1.2 Events: Legacies as a source of varying perceptions*

Legacies are past events that have an effect on the current situation (North, 1990). Interviewees were asked to name events that influence their current motivation to participate in the local implementation of the EMS. The number and characteristics of events identified by different groups varied (table 5, figure 7), and therefore it may be concluded that legacies varied between groups.

The variation in legacies may cause the variation in perceptions of the governance system. Perceptions are based on past experiences (Gregory, 1974), and one's subjective perception of the present determines how a problem, in this case the local implementation of the EMS, is interpreted (Klar et al., 1987).

The results of the events suggested that the understanding and cooperation improved during the implementation process, and a similar pattern was observed in the interactions in which assessments of actions became increasingly congruent as the implementation processes progressed. For the local implementation of the EMS solutions are negotiated among stakeholders. During such negotiations the present situation is reframed, and perceptions increasingly converge by sharing information and expressing interests (Donnellon and Gray, 1990). Communication and sharing information enables identification of win-win situations (Fisher and Ury, 1981). Therefore, shared information about different perceptions may favour mutual understanding and the quality of solutions (Pinkley and Northcraft, 1994).

By interpretation of the events social mechanisms could be identified, which were that distrust might lead to more distrust, and commitment might lead to more commitment. Hedström and Swedberg (1998) defined social mechanisms as processes that have a specific effect on a specific social structure. The results showed that the majority of the interviewed groups in each study area have experiences which caused distrust towards other groups. At the start of the process a variation of reluctant attitudes like cautious, closed, offensive attitudes were observed in UVW (data not shown). Furthermore, during the local implementation experiences occurred which fostered distrust (table 5). Documents confirm that problems in the implementation of nature policies led to distrust between farmers, governmental organisations and conservancies (Natural Countryside Netherlands and AHS Netherlands, 2007; Centre for Agriculture and Environment, 2009). To solve this problem, participants should take the risk to invest in the relations e.g. by an open attitude and expressing their concerns. This could improve relations among participants, and it can create an up-going spiral of commitment benefiting all parties (Anderson and Weitz, 1992).

#### ***4.2.1.3 Participation level***

Conform the long-term trend of public participation in the Netherlands (Coenen et al., 2001) the provinces aimed for an interactive (i.e. two-way communication (Breman et al., 2008))

participation level for individual farmers and NFS in all study areas, but perceptions of participation levels varied within and between groups within and across study areas. Generally the province and NFS perceived the participation level of NFS and individual farmers as equal, while individual farmers perceived their participation level lower than that of the NFS. There are three possible explanations for this: 1) province and NFS generally assumed that individual farmers are represented by agricultural organisations in the local committee, 2) recent changes in the relations from linear to equipollent, 3) activities organised during the process to discuss solutions for the local implementation of the EMS. First, not all farmers are member of the agricultural organisations that are seated in the local committee, and do not feel represented by them resulting in a lower perceived participation level. Second, nature policies were dominantly top-down implemented and only a limited number of conservancies could manage nature, these conservancies could farm out land to individual farmers (Nature policy plan, 1990), indicating a linear relation from province to conservancy to individual farmer. However, nature can currently be managed by conservancies and individual farmers, and usually new nature is developed through interactive integral local processes (Program management, 2000; Kamphorst and Selnes, 2007) resulting in a more equipollent relation relative to the previous situation. As individual farmers might still be used to the previous situation, they may assume that during the transition from the traditional to the new policies the NFS still has more influence and thus a higher participation level. Third the process activities may cause variation in perceptions: communication causes variation because some farmers felt informed by information material while others did not understand the materials and consequently felt uninformed. In addition some individual farmers did not see any of their suggestions reflected in the implementation process and thus felt not heard nor consulted. Furthermore the process generally starts at a low participation level, first informing participants and increasingly involving them. Not all participants are actively involved in every activity, for example in GWV only a select group of individual farmers was invited to workshops to spatially design, i.e. co-produce, the implementation of the EMS.

The variation in the participation levels of NFS may be explained by: 1) the low number of individuals involved in the process and interviewed, 2) their presence in the area, and 3) their different roles in the implementation process. First, the number of individuals from the NFS participating in the local implementation is small and therefore it is easy to involve them directly in the local implementation. Moreover a lower number of individuals interviewed (i.e. NFS) cannot

result in the same high variety of answers as a large number of individuals (i.e. individual farmers). Second, the results also indicate that individual farmers, who are not in the vicinity of land owned by the NFS perceive the participation level of the NFS lower than individual farmers in areas where NFS does own land. Third, the NFS perceives two different roles in the local implementation of the EMS. In the local committee they perceive to be co-deciding while in other situations they perceive to participate at same level as other landowners.

#### *4.2.1.4 Tasks: Ongoing changes*

The role of the province and generally the role of local stakeholders, in the implementation of spatial development aims in rural areas, are currently defining and differ per province (Natuurbalans, 2009; Kamphorst and Selnes, 2007). The variation in perceptions of tasks could be explained by the combination of data from two provinces, and by the current dynamics in tasks. Data from all three study areas, which are situated in two different provinces, were analysed together. This might have caused variation, because tasks of the province, NFS and individual farmers may vary across provinces. Nevertheless variation perceptions of tasks could be expected, given the recent changes in governance of spatial development in rural areas. The widest variation in perceptions was identified for provincial tasks (table 4), all extremes centred around the question 'how much influence should the province have on developments at the local level?'. On the other hand, all interviewees unanimously agreed that the province should communicate the aims of policy assignments for spatial development to the local stakeholders (table 3). In the legacies communication was identified as a source of distrust against governmental organisations, and in UVW problems with communication from the province about the policy assignment were encountered right from the start (table 5). Therefore communication, and specifically the task of the province to communicate EMS policy aims, is of superior importance. Furthermore tasks can be negotiated and become a source of trust and commitment, which was proven in GWV where the tasks of NFS were negotiated and subsequently accepted by all parties (data not shown) to finally improve understanding and cooperation between participants.

#### *4.2.1.5 Governance structure: What, where, whom?!*

The variation in perceptions of governance structures may be related to ongoing changes in governance of spatial development in rural areas. Local infrastructures to discuss solutions for the

implementation of spatial development policies were developed by the decentralisation of the coordination of local implementation of spatial development policies in rural areas from national to provincial level and the development of bottom-up processes to discuss the implementation with local stakeholders (Kamphorst and Selnes, 2007). The development of local governance structures is ongoing, for example in UVW the local committee was established in 2008, and then other infrastructure emerged, such as a local "open platform" in 2009 where stakeholders can meet (URL UVW). The role of the different components of the local infrastructure (for example local committee, project team, official advisory group, etc.) is still in a developing stage as people start to meet and explore what they are authorised, expected and wishing to do (Dijkman, pers. comm.). Therefore it is no surprise that varying perceptions of this governance structure exist. The risk of this variation in perceptions is potential miscommunications, which could lead to inefficient and ineffective cooperation. Therefore, the local governance structure and its development has to be negotiated and communicated among local stakeholders.

#### *4.2.1.6 Participation: the norm for local implementation of the EMS?*

The observed establishment of participation of local stakeholders as the norm for the implementation of the EMS may be a logic consequence of long-term developments in public participation and could be related to the norm of voluntary land acquisition for the EMS. The Netherlands has a history of varying forms of public participation, since the 1960's public participation is increasingly addressed in spatial development (Randeraad and Wolfram, 1998; Van der Cammen and De Klerk, 1986). Public participation developed from an instrument to improve democratic quality, to institutionalised procedures, to a right in the 1990's (Coenen et al., 2001). Against this background of public participation in spatial development, it is only a small step towards the establishment of the norm of participation of local stakeholders in the implementation of the EMS.

Voluntary land acquisition is the norm for the EMS, nevertheless approximately 10% of the land required for nature can be expropriated (URL Ministry ANF). Generally the implementation of the EMS is perceived by landowners as a threat, because they may lose land. By implementing policies integrally at the local level, there is a larger chance that the implementation process addresses policies that provide opportunities for landowners. Therefore, at the local level policy integration could be a mean to prevent expropriation. Moreover, interactively engaging local stakeholders

improves the chances that landowners benefit from- and consequently cooperate with- the local implementation of policies. Therefore the perceived norm to establish the EMS through participation processes can be directly related to the norm of voluntary land acquisition.

#### ***4.2.1.7 Developments in governance: Commitment to change***

Gradual changes of environmental governance were identified (3.1.1 and 3.1.2). Furthermore the individual farmers named these changes in environmental policy contradictory and a source of distrust towards governmental organisations, while the provinces did not mention any negative events concerning policy development (table 5). This difference might be caused by differences in commitment to change of environmental policy and governance. It is difficult to define commitment accurately. Buchanan (1974) explains it as the result of identification with aims and values, involvement with one's role, and loyalty towards the subject in question. Consequently, the provinces may be more committed to the developments in environmental policies and are less likely to experience the developments as contradictory. Province officials and administrators might identify themselves with the developments since it is part of their role to develop new policies and to coordinate the local implementation. Contrary, individual farmers are subject to the developments and therefore more likely to experience the developments as contradictory, because they were less involved in the developments of environmental policy. Commitment to change could be build by engaging individual farmers in the development and implementation of environmental policies.

#### **4.2.2 Significance of the results for the Netherlands**

##### ***4.2.2.1 Characteristics of the study areas compared between provinces***

The provinces' approaches for local implementation of nature policies are multiform. Variation in local governance systems developed across and within provinces, and every province has a different method to define "local areas" (Kamphorst and Selnes, 2007). All provinces increasingly cooperate with local stakeholders and aim to tailor the implementation of policies to the local situation (Kamphorst and Selnes, 2007). In provinces with relatively high demand for land, the local implementation of the EMS is not expected to be achieved before 2018 (this includes Utrecht). However, the EMS is expected to be established in provinces with sufficient dynamics on the land market and relatively low prices (this includes Noord-Brabant) (Natuurbalans, 2009; IPO, 2009).

Nevertheless the improvement of relations between nature organisations, farmers and governmental organisations is a matter of national concern (Ministry of ANF and AHS Netherlands, 2009).

#### *4.2.2.2 Innovating local governance to build commitment in relations*

The local governance systems combining the institutional and individual approach, seem an adequate method to decrease the variety in perceptions and meet the national agenda-item to improve relations between farmers, nature organisations and governmental organisations (Ministry of ANF and AHS Netherlands, 2009). The events suggested an improved understanding between these groups, and as the process progressed the variation in assessments of interactions between groups decreased. Improving relations between groups is connected to building commitment in relations. Anderson and Weitz (1992) define commitment as the desire to develop stable relationships, the willingness to invest in relationships, and the confidence in long-term stability of relationships. Building commitment in relationships takes time, it requires social interactions and open communication with others, taking risks and accomplishing success (Sheldon, 1971; Lee, 1971; Hrebiniak and Alutto, 1973; Anderson and Weitz, 1992). The combination of an institutional and individual approach offers the possibility for local stakeholders to interact and build stable relationships. Past conflicts may cause problems in these interactions, because people who were involved in conflicts are less credible when they show willingness to invest in relationships (Anderson and Weitz, 1992). Sharing information motivates commitment to a relationship, open communication is important to build confidence in long-term stability of relationships and reduce dysfunctional conflicts (Anderson and Weitz, 1989; Anderson and Narus, 1990; Dwyer et al., 1987). In this way a positive feedback can be created, the commitment of one person can increase the commitment of another person (Anderson and Weitz, 1992). When a party shows commitment by investing in a relationship, its credibility increases which causes other parties to be less inclined to behave opportunistically (Macaulay, 1963; Telser, 1980). Summarising, each party has to take risks and invest in the relationship which will raise commitment of the investing party and increases its credibility as perceived by the other party. Parties commit most to other parties that communicate well and have avoided vigorous conflicts (Anderson and Weitz, 1992).

#### ***4.2.2.3 Participation processes: benefits and disadvantages***

Advantages of participation processes were identified by this study, but participatory governance is no panacea. Participation of local stakeholders can lead to improved quality of the solution (Brunori and Rossi, 2000), for example because the knowledge base is enlarged by local knowledge which facilitates the identification of the strength and weaknesses of an area (Breman et al., 2008; De Vries, 2000; Herzberg, 2005; Mettepenningen and Huylenbroeck, 2008). Generally innovations are more commonly developed in participatory systems (De Vries, 2000; Herzberg, 2005), which may be an advantage for the ongoing developments of local governance systems in the Netherlands. Furthermore, at the local level social capital may increase (Mettepenningen and Huylenbroeck, 2008), which is supported by the results of this study because cooperation between participants was perceived to improve as the implementation process progressed. On the pre-condition of clear communication, the legitimacy, transparency, and credibility of policies may improve (Breman et al., 2008; Richards et al., 2007). Although co-deciding may improve the perceived efficiency (De Vries, 2000), perceived efficiency may reduce as well (Meynen and Doornbos, 2004), for instance due to unwillingness of participants to cooperate (Mettepenningen and Huylenbroeck, 2008) and increased workload for public officials (McGinnis, 2005). Finally, participants can be discouraged because of incorrect, non-feasible, or too variable expectations (Breman et al., 2008), information should be shared in order to enable convergence of expectations (Donnellon and Gray, 1990).

#### ***4.2.3 Significance of the results for the global scale***

##### ***4.2.3.1 Local democratic governance systems around the world***

Although the demand for land and the population density in the Netherlands is high in comparison to the rest of the world, alternatives for governance of sustainable development are explored locally around the globe. For instance, in the UK the sustainable development strategy aims for involvement of local communities and citizens in governance to enable socially embedded changes (HM Government, 2005; Seyfang, 2006). In Sweden adaptive co-management was developed in a landscape-scale area to bring governmental organisations together with local actors, which was motivated by negotiating a collective problem-definition lead by a key-actor (Olsson et al., 2004). In Australia positive experiences were gained with gradual decentralisation of natural resource management to local communities, since local actors work cost-effective and build commitment to the projects (Paton et al., 2004). On all continents local democratic governance systems are

developed within the course of decentralisation but for varying reasons such as improving cost-effectiveness of public services, improving democratic quality, progress towards national unity, progress towards market economy, and improving effectiveness of governance (Work, 2002).

#### *4.2.3.2 Dutch innovation in local governance as a model to negotiate sustainable development*

The innovative environmental governance system developed in the Netherlands which combines institutional and individual approaches and engages local stakeholders in the governance of the environment, can be a model for negotiating sustainable development. Although the innovation was developed to solve local problems, it can still apply to a wider context because it deals with a global problem (Georg, 1999), namely the demand for innovations in environmental governance (Delmas and Young, 2009). In addition the movement towards sustainability should last, and this requires the development of local democratic institutions (Young, 1997; Maskrey, 1989; Smit and Wandel, 2006). Local democratic institutions, such as the local governance system analysed in this research project, facilitate locally driven changes that are locally embedded (Burgess et al., 2003) and more durable than top-down initiated changes (Seyfang and Smith, 2009). Moreover, the integrated character of this innovative governance system reduces sensitivity to changes in the social-ecological system (Ludwig et al., 2001).

To allow for the wider application of this innovative governance system the intrinsic and diffusion benefits needs to be further assessed (Seyfang and Smith, 2009). The question needs to be answered whether this system improves the legitimacy, efficiency and effectiveness of the local implementation of environmental policies. The developments in the study areas should be further monitored because after the current collective planning phase for the local implementation of the EMS, the plan will be realised and nature may be managed collectively in at least one of the areas. Consequently, this new governance approach may result in collective governance as well as collective natural resource management.

## 5. Conclusions

This study showed that in the Netherlands changes in environmental governance and nature policies are gradual and complex. It was indicated that participation of local stakeholders is the norm for the local implementation of the EMS. Cooperation among local stakeholders may be difficult, because in this study it became evident that perceptions of the local governance systems differed greatly between interviewees of the provinces, NFS, and individual farmers. Communication about different perceptions may improve the understanding among local stakeholders and facilitate the identification of solutions that are more beneficial for all groups. In this study it became evident that the environmental governance system in the Netherlands which combines the institutional and individual approach may be an adequate instrument to decrease the variety in perceptions and can meet the national agenda-item to improve relations between farmers, nature organisations and governmental organisations. Finally, this innovative governance system can serve as a model for negotiating sustainable development and it contributes to meeting the demand for new environmental governance systems.

## 6. Management implications

### 6.1 Local level

- Local stakeholders should have the possibility to participate in the local implementation of the EMS.
- Since the EMS is usually locally implemented through integral processes, participants need to develop knowledge about fields of action aside from their main interest. This is necessary to facilitate the discussion of policy assignments and consequently to identify solutions.
- All the principles for participation processes which were identified by HarmoniCOP (2005) should be considered during participation processes for the EMS.
- Land is an important and delicate issue which can be addressed by employing a land-counsellor, following the given examples in some of the study areas.
- For balanced progress of the implementation process, realistic and legitimate deadlines should be set. In addition, participants should not deliberately frustrate the process.
- The influence of legacies on the motivation of the local stakeholders to participate in the local implementation of environmental policies need to be inventoried at the start of the participation process.
- In the local implementation of environmental policies it should not be assumed that all farmers feel represented by farmers organisation.
- The variation in perceptions within groups is a chance, because it implies that there are people in different groups with similar perceptions. These people could make linkages between groups and facilitate development of solutions.
- The identified variation in perceptions of governance structures can cause miscommunications and consequently perceived unreliability of participants.
- It is important to communicate perceptions of the governance system, policy assignment, problems, qualities of the area etc., because this may improve mutual understanding and the quality of solutions.

- The changes in local environmental governance systems are still ongoing and can be discussed in participation processes alongside implementation of environmental policies. Commitment to change could be build by engaging local stakeholders in the development and implementation of environmental policies and the associated governance systems. Therefore, the varying perceptions of the local governance system, for example by discussing the tasks of the different participants and the governance structure through which they interact, should be communicated.

## 6.2 National level

- The national agenda-item to improve relations between farmers, nature organisations and governmental organisations can be addressed with the local governance systems in which the institutional and individual approach are combined, because through these systems variety in perceptions among stakeholders decreased and the understanding between groups may improve as the implementation process progresses.
- The national policies and the top-down control by the national governmental level should give more space to lower governance levels. This is necessary in order to facilitate the integration of policies during the local implementation and to allow bottom-up activities to tailor policies to the local situation.

## 6.3 Global level

- The innovative governance system that combines institutional and individual approaches can be a model for negotiating sustainable development, because it facilitates local stakeholders to discuss change. Moreover, since these changes are locally embedded they may be more durable than top-down initiated changes.

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## Appendix 1: Research questions

- 1) How do the perceptions of characteristics of local governance systems for nature development for the Ecological Main Structure vary between the most frequent participants within and across the study areas?
  - a. Which groups are participating most frequently in governance systems for the EMS?
  - b. Through which local governance structure do the most frequent participants interact during the implementation of the EMS?
  - c. What are the tasks of the most frequent local participants during the implementation of the EMS?
  - d. What is the participation level of the most frequent local participants during the implementation of the EMS?
- 2) How are the perceptions of the local governance system for the Ecological Main Structure influenced by events that are perceived important by the most frequent participants?
  - a. How do events *prior to* the participation process for the local implementation of the EMS influence the participants' perceptions of the governance system?
  - b. How do events *during* the participation process for the local implementation of the EMS influence the participants' perceptions of the governance system?
- 3) How do the varying perceptions of the local governance system for the Ecological Main Structure influence the interactions between the most frequent participants during the participation process?
  - a. How does the influence of different interactions on the motivation for participation of the most frequent participants vary between groups within and across study areas?

## Appendix 2: Exploratory interview

<i>Interviewees exploration phase</i>		
Arno de Schepper	Vice-chair	Brabants Particulier Grondbezit
Freek van Leeuwen	Administrator and project manager	Veelzijdig Boerenland
Frits van der Schans	Process manager	Centrum voor Landbouw en Milieu
Henk Smit	Process manager	WING
Jantien van Oostijen	Program manager Krimpenerwaard	Provincie Zuid-Holland
Marcel Pleijte	Administrative researcher	Alterra Wageningen UR
Wiebren Kuindersma	Administrative researcher	Alterra Wageningen UR
Wim Dijkman	Process manager	Centrum voor Landbouw en Milieu
Joseph Rooijackers	Government official	Ministry Agriculture, Nature and Food quality, Directorate Regional Affairs West

### Interview exploration phase

#### *Opening*

My name is Anne Velenturf from the UEA, at the moment I collect data for my dissertation, the research is in cooperation with the CLM. My research is about the local governance of nature development and management. There is a trend that local civilians and entrepreneurs are increasingly involved in governance for nature development and management, and with my research I try to explain why people participate. Therefore I focus on interactions of parties that influence that governance at the local level. Before interviewing people at the local level, I carry out exploratory interviews with specialists to get a broader view. Topics that will be covered are developments in local governance systems, important local actors, local committees, and social mechanisms.

#### *Introductory questions*

Do you give me your permission to use the information collected with this interview for my research?

And do you give me your permission to use the information for presentations, reports and publications?

Would you mind if I use your name in the report etc. or would you rather remain anonymous?

#### *Governance systems*

What changes do you perceive in governance systems at the local level?

What was the turning point of change in these local governance systems? E.g. Was it at the start of the WILG? Or at the start of the participation process for nature development and management?

How would you characterize the local governance system before the change?

What was the level of centralisation before the turning point?

How would you characterize the local governance systems now?

How do you experience this new governance systems? What are the advantages? What are the disadvantages?

### ***Important parties that are involved with nature conservation in rural areas***

What are the most important parties involved in nature conservation in rural areas? Does that differ per area?

What are the tasks of these parties? Does that differ per area?

What were the most important parties involved in nature conservation in rural areas?

What were the tasks of these parties?

Which parties became more or less important?

Did power-ratios shift?

How did the cooperation between parties change?

### ***Local committees***

When did local committees come into being?

Why did they arise?

Who are the members? How are they selected?

What are the function and tasks of these committees?

Do they officially have a voice in the decision-making process or is there contribution purely informal?

What is the role of the local committee in the participation process?

Is the local committee the same as the project team for nature development?

### ***Social mechanisms***

Could you name actions that are important to get people involved in the planning, decision-making and realization of nature development and management?

Which actions of the most important parties are perceived as motivating or discouraging by the other most important parties?

### ***Concluding questions***

Are there any other topics concerning my research that you think we should discuss?

Which documents would you recommend to acquire a clear view on the current changes in governance systems and to collect possible social mechanisms?

Who else could I interview during this phase of the research?

If I have any further questions, could I contact you again?

## Appendix 3: Principles of process management

Adopted from Harmoni COP (2005), full report in several languages, including English and Dutch, available at: <http://www.harmonicop.uos.de/>.

### The design principles in brief

Openness	<ol style="list-style-type: none"><li>1. All relevant stakeholders should be able to participate in the decision-making process</li><li>2. The participants in the process should have power to commit to the process</li><li>3. The process and its management should be transparent</li></ol>
Protection of core values	<ol style="list-style-type: none"><li>4. The process should respect and not threaten the livelihood and identity of the different stakeholders</li><li>5. Stakeholders should commit themselves to the process</li><li>6. The process should offer participants an exit option</li></ol>
Speed	<ol style="list-style-type: none"><li>7. The process should create prospects of gain and incentives for cooperation</li><li>8. Third parties and external developments may be used to speed it up</li><li>9. Conflicts should be transferred to the periphery of the process (e.g. to a special group so as not to threaten progress)</li></ol>
Substance	<ol style="list-style-type: none"><li>10. The roles of scientific and technical experts and other stakeholders should be clear</li><li>11. The process should first result in several alternatives of which one or more can be later selected.</li></ol>

## Appendix 4: Interview explanation phase

*Interviews for the explanation phase were adjusted per study area per trajectory, resulting in twelve different interviews. All questions were the same, only the actions presented in part 2 of the interview differed per trajectory, and in part 3 the process activities were adjusted per area. Below is attached one of the twelve interviews. All actions presented to the interviewees can be found in appendix 6.*

### **Interview explanation phase: Groot Wilnis-Vinkeveen, individual farmers.**

#### Research after local governance of nature development

In cooperation with the Centre for Agriculture and Environment I carry out my dissertation-research after local governance of nature development for the Ecological Main Structure (EMS). Several developments can be observed in this governance in the Netherlands, among others increasing participation of local stakeholders. In my research I try to clarify what motivates people to participate in the governance system for nature development. The research focuses on interaction of three groups: provinces, conservancies, and individual farmers. Interviews are carried out in three study areas: Utrechtse Vecht en Weiden (Utrecht), Westelijke Langstraat (Noord-Brabant), en Groot Wilnis-Vinkeveen (Utrecht). In these areas the Centre for Agriculture and Environment (co-)managed participation processes for the local implementation of the EMS, among which Robust Corridors as well. Therefore quite some knowledge about these processes is acquired already, and this interview is specifically about your perception of the participation process. With your cooperation I hope insights into the actions are provided, including how these actions influence other participants. The research is finished in August, and then you will receive the report.

The interview consists of three sections: First the context within which interactions take place is measured, second the influence of interactions on motivation is measured, and third important events prior to and during the process are described.

#### Introductory questions

---

Name interviewee

Place, date

Group Province/ National Forestry Service/ Individual farmer  
AHS member? ANS member?

Function/ farm type

**Interview part 1:**

Interview questions for research question 1: How do the perceptions of characteristics of local governance systems for nature development for the Ecological Main Structure vary between the most frequent participants within and across the study areas?

In this section the context of the participation process is described. This section consists of 1a) participation levels, 1b) tasks, 1c) governance structure.

**1a) Participation levels.**

*The participation level is the degree of participation to the process, this express show much influence a group could have during the local implementation. In this interview the participation level of the individual farmers and the conservancy (National Forestry Service) is measured.*

---

**1aF) Participation level individual farmers.**

1aF1) When and how were farmers *informed* about the planning for nature development for the Ecological Main Structure?

- Not at all.
  - At the end of the planning process.
  - At the beginning of the planning process.
  - Throughout the planning process.
- By ... (e.g. local newspaper, letter from province, personally contacted)

.....  
.....

1aF2) When and how did the province listen to the farmers ideas about the planning for nature development for the Ecological Main Structure?

NB Listening is collecting ideas but there is no obligation to try to fit these into the plan.

- Not at all
- At the end of the planning process.
- At the beginning of the planning process.
- Throughout the planning process.

By ... (e.g. information evening, design workshop, individual interviews)

.....  
.....

1aF3)When and how were farmers *consulted* about nature development for the Ecological Main Structure?

NB Consultation is collecting ideas and fitting the interests as well as possible into the plan.

- Not at all
- At the end of the planning process.
- At the beginning of the planning process.
- Throughout the planning process.

By ... (e.g. information evening, design workshop, individual interviews)

.....  
.....

---

1aF4) When and how did farmers themselves provide input to the design of the ecological main structure?

NB This is coproducing, searching together for solutions for the policy assignment.

- Not at all.
  - The farmers developed a solution for the EMS in cooperation with other groups.
  - The farmers designed the whole solution for implementation of the ecological main structure themselves.
- By... (e.g. design workshop, excursion, individual interviews).

.....  
.....

1aF5) To what extent did the farmers make formal decisions about the design of the ecological main structure?

- Formally the farmers did not make decisions.
- The farmers made decisions in cooperation with others.
- The farmers made decisions autonomic.

1aF6) Which situation characterized the level of participation of the individual farmers most during the participation process for nature development for the EMS?

- No participation.
- Informing.
- Listening.
- Consulting.
- Co-producing.
- Co-decision making.

1aF7) How much space does this policy assignment offer to farmers to discuss the location of the ecological main structure?

*Select the number that is most appropriate.*

None.  0  1  2  3  4 Very much.

1aF8) How much space does this policy assignment offer to farmers to discuss the types of nature that are targeted for the ecological main structure?

*Select the number that is most appropriate.*

None.  0  1  2  3  4 Very much.

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**1aF) Participation level NFS.**

1aF1) When and how was the NFS *informed* about the planning for nature development for the Ecological Main Structure?

- Not at all.
- At the end of the planning process.
- At the beginning of the planning process.
- Throughout the planning process.

By ... (e.g. local newspaper, letter from province, personally contacted)

.....  
.....

1aF2) When and how did the province listen to the NFS's ideas about the planning for nature development for the Ecological Main Structure?

NB Listening is collecting ideas but there is no obligation to try to fit these into the plan.

- Not at all
- At the end of the planning process.
- At the beginning of the planning process.
- Throughout the planning process.

By ... (e.g. information evening, design workshop, individual interviews)

.....  
.....

1aF3)When and how was the NFS *consulted* about nature development for the Ecological Main Structure?

NB Consultation is collecting ideas and fitting the interests as well as possible into the plan.

- Not at all
- At the end of the planning process.
- At the beginning of the planning process.
- Throughout the planning process.

By ... (e.g. information evening, design workshop, individual interviews)

.....  
.....

1aF4) When and how did the NFS provide input to the design of the ecological main structure?

NB This is coproducing, searching together for solutions for the policy assignment.

- Not at all.
- The NFS developed a solution for the EMS in cooperation with other groups.
- The NFS designed the whole solution for implementation of the ecological main structure themselves.

By... (e.g. design workshop, excursion, individual interviews).

.....  
.....

1aF5) To what extent did the NFS make formal decisions about the design of the ecological main structure?

- Formally the NFS did not make decisions.
- The NFS made decisions in cooperation with others.
- The NFS made decisions autonomic.

1aF6) Which situation characterized the level of participation of the NFS most during the participation process for nature development for the EMS?

- No participation.
- Informing.
- Listening.
- Consulting.
- Co-producing.
- Co-decision making.

1aF7) How much space does this policy assignment offer to the NFS to discuss the location of the ecological main structure?

Select the number that is most appropriate.

None.  —  —  —  —  Very much.

1aF8) How much space does this policy assignment offer to the NFS to discuss the types of nature that are targeted for the ecological main structure?

Select the number that is most appropriate.

None.  —  —  —  —  Very much.

**1b) Tasks**

The tasks of the province, conservancies and individual farmers in the governance and management of nature development are changing. Therefore it is no longer self-evident who does what. Prior to this interview administrative specialists and process managers identified who has which tasks in the rural area concerning nature development. This interview questions are based on that information.

1bP)Tasks of the province.			
In this planning process for the local implementation of the EMS it is the provinces' task to:	Not at all	Partly	Completely
<i>Select the most appropriate answer &gt;&gt;</i>			
Point out where the nature approximately should be established.			
Set clear aims for the assignment.			
Point out exactly where the nature should be established.			
Facilitate input of local stakeholders.			
Set the budget for the development of a plan and the implementation.			

Communicate the aims of the assignment clearly to the local stakeholders.			
Start the participation process.			
Guide the participation process.			
Make decisions about the design and implementation.			
Advise parties that participate in the area-process.			
Test the design proposal to the policy framework.			
Other: ..... ..... ..... ..... .....			

<b>1bN) Tasks of NFS.</b>			
<u>In this planning process for the local implementation of the EMS it is the NFS's task to:</u>	Not at all	Partly	Completely
<i>Select the most appropriate answer &gt;&gt;</i>			
Carry out nature policies.			
Buy land for nature development.			
Provide knowledge of the area			
Represent general nature interests.			
Represent nature interests for their own areas.			
Rent out land.			
Other: ..... ..... ..... ..... .....			

<b>1bF) Tasks of individual farmers.</b>			
<u>In this planning process for the local implementation of the EMS it is the individual farmers' task to:</u> <i>Select the most appropriate answer &gt;&gt;</i>	Not at all	Partly	Completely
Provide land that is required for new nature.			
Represent general agriculture interests.			
Provide knowledge about the area.			
Other: ..... ..... ..... ..... .....			

**1c) Governance structure**

*In this question the structure of the governance system is drawn. This clarifies through which social structure the planning takes place.*

**1c) Organisation structure of the local governance system for nature development.**

*With documents from internet 'units', e.g. the local committee and the projectteam, that provide the governance of nature development for the EMS in this area could be identified. These are written on stickers which you can use to draw the organisation structure through which the development of the plan for implementation of the EMS takes place. It is about both the formal and informal governance structure. It is especially your perception of the governance structure this question aims to acquire.*

1c1) How are these units formally connected? Put the stickers on the paper and draw the formal connections between the units.

1c2) Are there any informal connections between those units? Draw them on the paper as well.

1c3) Are there any units missing? It may be both formal and informal units. If yes, please draw them on the paper and their connections to the other units.

1c4) Where are you in this organisation structure? Please put crosses at these places.

## Interview part 2

Interview questions for research question 2: How do the varying perceptions of the local governance system for the Ecological Main Structure influence the interactions between the most frequent participants during the participation process?

*Many interactions occur during the participation process. Therefore interactions are grouped under four themes of interactions, based on principles of process management: openness, contents, core values and speed. Three series of interactions are presented, about each interaction a few questions are asked and per question series you are asked to rank the interactions. This is expected to clarify the effects of interactions, identify possible interactions that are more important than others, and this can be used to set priorities in the participation process.*

---

### 2) Series 1.

A) Open agenda allowing others to add topics: the province starts the participation process to implement the nature policy assignment, but has an open agenda allowing farmers to add topics from the agriculture agenda.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

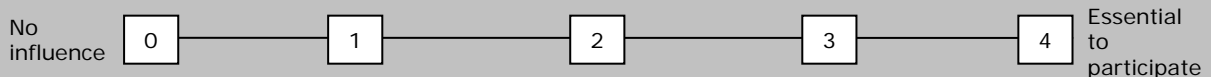
.....  
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.  
 Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



B) Input of local knowledge: The province wants to collect local knowledge for the development of the plan, and asks the farmers at an information evening to write the current nature-qualities on a map.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

.....  
.....  
.....  
.....  
.....

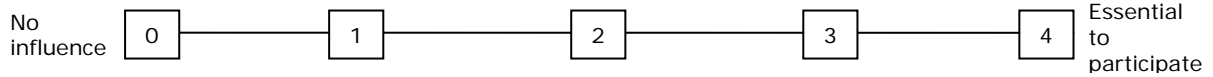
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



C) Keep the process going: The province continues the process, even when a party quits the process, but in the mean time the province does try to solve the problem with the party that quit.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

.....

.....

.....

.....

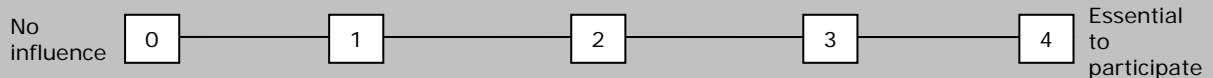
.....

Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



D) Follow-up agreements: The province promised to give farmers the possibility to give input for the planning phase of the EMS, and they keep their promise by organising activities where farmers can discuss the EMS with a.o. the province.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

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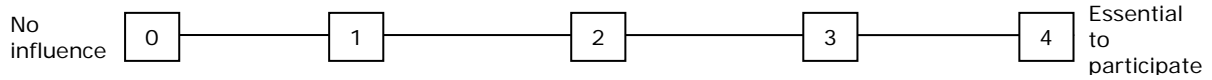
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
  - Discourage.
-

How much does this action influence your motivation to participate in the governance for the EMS?  
*Select the number that is most appropriate.*



Please rank the top 3 of most important actions:

..... A) Open agenda allowing others to add topics: the province starts the participation process to implement the nature policy assignment, but has an open agenda allowing farmers to add topics from the agriculture agenda.

..... B) Input of local knowledge: The province wants to collect local knowledge for the development of the plan, and asks the farmers at an information evening to write the current nature-qualities on a map.

..... C) Keep the process going: The province continues the process, even when a party quits the process, but in the mean time the province does try to solve the problem with the party that quit.

..... D) Follow-up agreements: The province promised to give farmers the possibility to give input for the planning phase of the EMS, and they keep their promise by organising activities where farmers can discuss the EMS with a.o. the province.

## 2) Serie 2.

A) Keep the process going by putting something to win ahead: If the farmers cooperate with the realization of nature in the area, the province promises to make an effort compensating land with land.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

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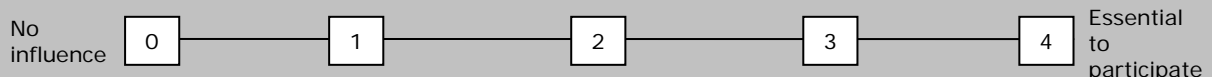
Does this action motivate or discourage you to participate in the governance for the EMS?

Motivate.

Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



B) Acknowledge each others' interests: The province acknowledges the interests of the farmers to realize the EMS with nature types that are compatible with the farm management, and has a flexible attitude to realize at some places different types of nature than aimed for in the first place.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

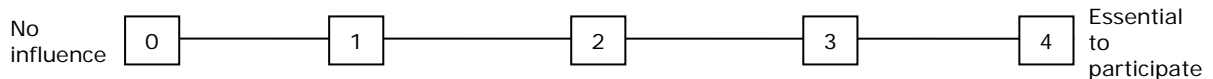
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



C) The participants have a different perception of the problem leading to misunderstanding each other: The province explains clearly why the new nature needs to be developed.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

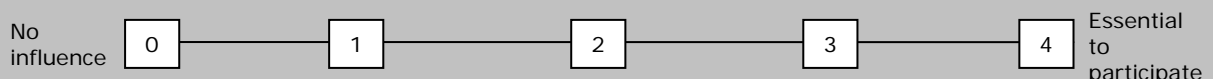
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



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D) Practicability of the various solutions: The participants of the process, among others the province and individual farmers, make a field excursion to see how the solutions would work out in practice.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

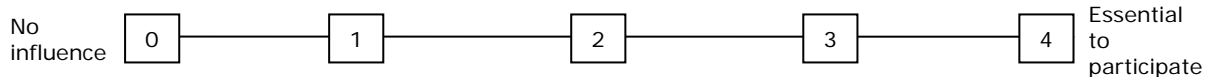
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



Please rank the top 3 of most important actions:

..... A) Keep the process going by putting something to win ahead: If the farmers cooperate with the realization of nature in the area, the province promises to make an effort compensating land with land.

..... B) Acknowledge each others' interests: The province acknowledges the interests of the farmers to realize the EMS with nature types that are compatible with the farm management, and has a flexible attitude to realize at some places different types of nature than aimed for in the first place.

..... C) The participants have a different perception of the problem leading to misunderstanding each other: The province explains clearly why the new nature needs to be developed.

..... D) Practicability of the various solutions: The participants of the process, among others the province and individual farmers, make a field excursion to see how the solutions would work out in practice.

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## 2) Serie 3.

A) Input of local knowledge: The province uses only knowledge of consultancies, the local knowledge of the farmers is not applied.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

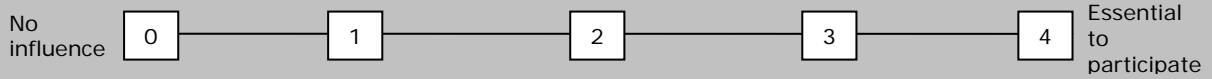
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



B) Not following up agreements: The province said at the start of the process that it is not decided yet where which nature type is to be realized, but during the process it becomes evident that in this matter input of farmers is not possible.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

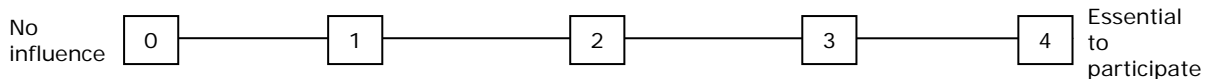
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

*Select the number that is most appropriate.*



C) No clear communication: The province does not explain clearly what is the policy assignment, the aims and 'space' for input are not communicated clearly.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

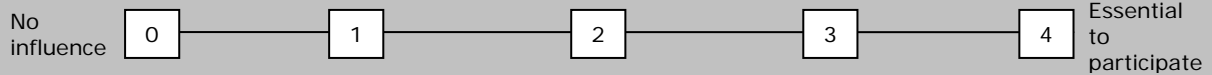
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

Select the number that is most appropriate.



23D) Keep the process going: A farmer only wants to cooperate if he gets a red-for-green arrangement, it takes very long to discuss this in the province and during that time the process stagnates.

How does this action influence your motivation to participate in the governance for the EMS? (max. 3-5 sentences)

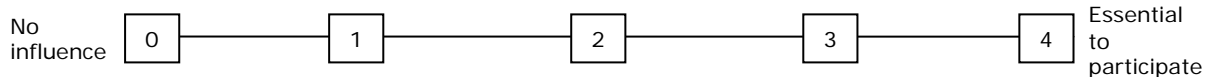
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Does this action motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

How much does this action influence your motivation to participate in the governance for the EMS?

Select the number that is most appropriate.



Please rank the top 3 of most important actions:

- ..... A) Input of local knowledge: The province uses only knowledge of consultancies, the local knowledge of the farmers is not applied.
- ..... B) Not following up agreements: The province said at the start of the process that it is not decided yet where which nature type is to be realized, but during the process it becomes evident that in this matter input of farmers is not possible.
- ..... C) No clear communication: The province does not explain clearly what is the policy assignment, the aims and 'space' for input are not communicated clearly.
- ..... D) Keep the process going: A farmer only wants to cooperate if he gets a red-for-green arrangement, it takes very long to discuss this in the province and during that time the process stagnates.

### Interview part 3

Interview questions for research question 3: How are the perceptions of the local governance system for the Ecological Main Structure influenced by events that are perceived important by the most frequent participants?

*In this section of the interview information about key events is collected. With this information the variation in the answers of section 1 and 2 may be explained.*

#### 3a) Key events during the participation process.

	0	1	2	3	4
3a1) During the participation process the following activities were organised. Please cross the most appropriate number in the columns on the right to express to what extent the activities motivated you to participate in the governance for the EMS. <i>(Scale varies from 0 = not motivating at all to 4 = strongly motivating.)</i>					
Information evening for civilians and farmers.					
Meeting local sub-committee.					
Meeting project team.					
Meeting farmers.					
Individual consultation members local sub-committee.					
Individual consultation farmers.					
Design workshop with (a selection of) all participants.					

3a2) Please rank the top 3 activities that motivated you most to participate in the governance for the EMS:

- ..... Information evening for civilians and farmers.
- ..... Meeting local sub-committee.
- ..... Meeting project team.
- ..... Meeting farmers.
- ..... Individual consultation members local sub-committee.
- ..... Individual consultation farmers.
- ..... Design workshop with (a selection of) all participants.

3a3) Did any events occur during the participation process that motivated or discouraged you to participate in the governance for the EMS?

No.

Yes.

3a4) If yes, please give a short description of the events (max. 3-5 sentences per event).

.....

.....

.....

3a5) Did these events motivate or discourage you to participate in the governance for the EMS?

Motivate.

Discourage.

3a6) Why did this event motivate or discourage you to participate in the governance for the EMS? (max. 3-5 sentences per event)

.....  
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.....

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**3b) Key events prior to participation process.**

3b1) Did any events occur prior to the participation process that motivated or discouraged you to participate in the governance for the EMS?

- No.
- Yes.

3b2) If yes, please give a short description of the events (max. 3-5 sentences per event).

.....  
.....  
.....

3b3) Did these events motivate or discourage you to participate in the governance for the EMS?

- Motivate.
- Discourage.

3b4) Why did this event motivate or discourage you to participate in the governance for the EMS? (max. 3-5 sentences per event)

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**Consent form to use data.**

**Research after the motivations to participate in local governance for the Ecological Main Structure.**

**Please put a cross in the relevant square.**

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I, .....[name interviewee], give my consent to Anne Velenturf to use the information collected with this interview.	
My name may be used in the research.	
Or	
I would rather remain anonymous.	
The results may be used for further research and work related to this research such as presentations, reports and publications.	
In a later phase of the research the researcher may contact me again if further information is required.	
I understand that I can withdraw my consent for the use of the information by contacting Anne Velenturf.	
Please send me a copy of this declaration.	

Signature interviewee.....Date.....

Signature researcher.....Date.....

Contact information:

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Norwich  
NR4 7TJ

Phone: +31 6 27457409/ +44 7 502405889

Email: [anne.velenturf@gmail.com](mailto:anne.velenturf@gmail.com)

## Appendix 5: Comparison of the case study areas.

Assessing the relevance for the study and differences between the study areas.

	<b>Groot Wilnis-Vinkeveen</b>	<b>Westelijke Langstraat</b>	<b>Utrechtse Vecht en Weiden</b>
<b>Degree of integration:</b>	High: nature, water and landscape addressed at once	Medium: nature and water at once	Low: nature addressed after water
<b>Link to national context?</b>	Process started at moment that integration of policies was a hot item.	Unclear when process started, ongoing developments from initiating of EMS at national level. Appears like the approach in the process follows changes in national policy context and the availability of money.	Process started at moment of changing trend: sectoral as much as possible, integral what needs be.
<b>Geographical scale</b>	Province Utrecht. Agricultural area in vicinity of cities.	Province Noord-Brabant. Compared to other areas less peripheral.	Province Utrecht. Agricultural area in vicinity of cities.
<b>Relative space to discuss location EMS</b>	Much: officially the area was not designated for EMS.	Little: almost whole area is designated for EMS.	Medium: designated EMS, end and start fixed, middle can be determined in cooperation with local stakeholders but limited options due to infrastructure.
<b>Current space to discuss location</b>	Little: process is finished and (roughly?) determined where which type of nature will be established.	Little: still almost whole area is designated for EMS.	Medium: same cause process just started.
<b>Aim participation process</b>	Interactive integral process with local stakeholders.	Until early 2009 informing local stakeholders as legally obligated. In 2009 project 'private nature management' with farmers, producing a vision for implementation of nature into farm management.	Co-production of local stakeholders.
<b>Link aim to national context?</b>	For the province first trial of this interactive participatory approach.	At end of procedure in 2008 the province opened EMS for private nature management in and soon after the project private nature management started.	Conform norms for local implementation of EMS.
<b>Current phase</b>	Finished participation process for planning stage in April 2010.	Unclear: Restarted planning phase?	Started planning stage April 2010.
<b>Governance structure</b>	The process can be divided in an individual and institutional approach that ran simultaneously.	Procedural approach, but now new approach?	The process can be divided in an individual and institutional approach that ran simultaneously.
<b>Activities/methods</b>	Information evening for farmers and citizens. Meeting project team. Meeting farmers. Meeting local sub-committee. Individual consultation members local sub-committee. Individual consultation farmers. Design workshop with land-users, local groups, project team, and local sub-committee.	Information evening farmers. Meeting project team private nature management. Work-meeting farmers. Meeting official advisory group. Individual consultation water authority, NFS and province.	Information evening for farmers and citizens. Meeting workgroup. Meeting project-team. Meeting of farmers.

## Appendix 6: Assessment of interactions by interviewees

Table a and b: Comparison between and within study areas, of perceived importance of motivating and discouraging actions between (a) province and individual farmers and (b) National Forestry Service and individual farmers (<sup>1</sup>Likert-score, -4=strongly discouraging, 0=no influence, +4=strongly motivating; <sup>2</sup>range Likert score; <sup>3</sup>rank, 1=most important and 4=least important of question series; <sup>4</sup>range of rank), for each theme three actions were measured in three question series (A=actions were likely positive, B=neutral, C=negative).

a)

Province perception of individual farmers actions				Individual farmers perception of province actions			
Actions sorted per theme	GWV	WL	UVW	Actions sorted per theme	GWV	WL	UVW
<b>Openness</b>				<b>Openness</b>			
A)Open agenda allowing others to add topics: The farmers wish to continue farming as usual but are open to explore how nature could be incorporated into their farm. Therefore the farmers ask for other types of nature in the design of the ecological main structure, that are more compatible with the farm.	<sup>1</sup> L0 <sup>2</sup> (-3, +3) <sup>3</sup> R2.5 <sup>4</sup> (4,1)	L+2 (+2) R3 (3)	L+3 (+3) R1 (1)	A)Open agenda allowing others to add topics: the province starts the participation process to implement the nature policy assignment, but has an open agenda allowing farmers to add topics from the agriculture agenda.	<sup>1</sup> L+2 <sup>2</sup> (+1, +3) <sup>3</sup> R3 <sup>4</sup> (1,3)	L+2.5 (+2, +3) R2.5 (4,1)	L+2 (+2) R1 (1)
B)The participants have a different perception of the problem leading to misunderstanding each other: The farmers do not understand why new nature needs to be realized and try to understand the province by asking openly 'Why does the new nature need to be realized?'	<sup>1</sup> L+2 <sup>2</sup> (+2) <sup>3</sup> R4 <sup>4</sup> (4)	L-2 (-2) R4 (4)	L+2 (+2) R3 (3)	B)The participants have a different perception of the problem leading to misunderstanding each other: The province explains clearly why the new nature needs to be developed.	<sup>1</sup> L-0.5 <sup>2</sup> (+2,-3) <sup>3</sup> R3 <sup>4</sup> (3)	L+1.5 (+3,0) R3 (3)	L-2 (-4,0) R3.5 (3,4)
C)Do not express differences of opinion among the people that it concerns: The farmers are dissatisfied with the process and express this dissatisfaction in the media instead of during meetings with the farmers and process managers, by expressing this through the media the difference of opinion starts to get a 'life on its own'.	<sup>1</sup> L-4 <sup>2</sup> (-4) <sup>3</sup> R1 <sup>4</sup> (1)	L-3 (-3) R2 (2)	L-3 (-3) R1 (1)	C)No clear communication: The province does not explain clearly what is the policy assignment, the aims and 'space' for input are not communicated clearly.	<sup>1</sup> L-3 <sup>2</sup> (-3) <sup>3</sup> R2.5 <sup>4</sup> (2,3)	L-1 (0,-2) R3.5 (4,3)	L-3.5 (-3,-4) R2.75 (3, 2.5)
<b>Contents</b>				<b>Contents</b>			
A)Input of local knowledge: Farmers show on a map which nature-qualities are already present in the area, the design of the ecological main structure can incorporate their knowledge of the area.	<sup>1</sup> L+1.5 <sup>2</sup> (0,+3) <sup>3</sup> R2.5 <sup>4</sup> (3,2)	L+2 (+2) R4 (4)	L+3 (+3) R2 (2)	A)Input of local knowledge: The province wants to collect local knowledge for the development of the plan, and asks the farmers at an information evening to write the current nature-qualities on a map.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R3 <sup>4</sup> (4,2)	L+2.5 (+3,+2) R2 (2)	L+1.5 (+3,0) R3.5 (3,4)
B)Practicability of the various solutions: The participants of the process, among others the province and individual farmers, make a field excursion to see how the solutions would work out in practice.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R3 <sup>4</sup> (3)	L+2 (+2) R3 (3)	L+3 (+3) R2 (2)	B)Practicability of the various solutions: The participants of the process, among others the province and individual farmers, make a field excursion to see how the solutions would work out in practice.	<sup>1</sup> L+3.5 <sup>2</sup> (+3,+4) <sup>3</sup> R1.5 <sup>4</sup> (2,1)	L+2.5 (+3,+2) R4 (4)	L+1.5 (+3,0) R2.5 (2,3)
C)Input of local knowledge: The farmers refuse to make a field excursion with the province, the aim of	<sup>1</sup> L-3 <sup>2</sup> (-3)	L-1 (-1)	L-1 (-1)	C)Input of local knowledge: The province uses only knowledge of consultancies, the local	<sup>1</sup> L-4 <sup>2</sup> (-4)	L-3 (-3)	L-4 (-4)

the excursion was to let the farmers point out the current qualities of the area and by refusing this the knowledge of the farmers cannot be incorporated into the design of the ecological main structure.	<sup>3</sup> R4 <sup>4</sup> (4)	R4 (4)	R4 (4)	knowledge of the farmers is not applied.	<sup>3</sup> R3 <sup>4</sup> (4,2)	R1.5 (2,1)	R2.25 (2, 2.5)
<b>Core values</b>				<b>Core values</b>			
A)Follow-up agreements: The farmers invest time in the process without requesting financial compensation, as promised at the start of the process.	<sup>1</sup> L+2.5 <sup>2</sup> (+2,+3) <sup>3</sup> R3 <sup>4</sup> (2,4)	L+3 (+3) R2 (2)	L+2 (+2) R4 (4)	A)Follow-up agreements: The province promised to give farmers the possibility to give input for the planning phase of the EMS, and they keep their promise by organising activities where farmers can discuss the EMS with a.o. the province.	<sup>1</sup> L+3 <sup>2</sup> (+2,+4) <sup>3</sup> R1.5 <sup>4</sup> (2,1)	L+3 (+4,+2) R2.5 (1,4)	L+1 (+2,0) R2 (2)
B)Acknowledge each others' interests: The farmers acknowledge the interest of the province to realize the ecological main structure, they offer to exchange land voluntarily resulting in nature at appropriate places.	<sup>1</sup> L+4 <sup>2</sup> (+4) <sup>3</sup> R1 <sup>4</sup> (1)	L+3 (+3) R1 (1)	L+3 (+3) R1 (1)	B)Acknowledge each others' interests: The province acknowledges the interests of the farmers to realize the EMS with nature types that are compatible with the farm management, and has a flexible attitude to realize at some places different types of nature than aimed for in the first place.	<sup>1</sup> L+3 <sup>2</sup> (+2,+4) <sup>3</sup> R1.5 <sup>4</sup> (4,2)	L+3.5 (+4,+3) R2 (2)	L+2.5 (+2,+3) R1.5 (1,2)
C)Not following up agreements: The individual farmers promise to cooperate with a voluntary land-exchange, after months of deliberation the moment of the actual exchange is there and then some farmers suddenly refuse to cooperate.	<sup>1</sup> L-3 <sup>2</sup> (-3) <sup>3</sup> R2 <sup>4</sup> (2)	L-3 (-3) R1 (1)	L-1 (-1) R3 (3)	C)Not following up agreements: The province said at the start of the process that it is not decided yet where which nature type is to be realized, but during the process it becomes evident that in this matter input of farmers is not possible.	<sup>1</sup> L-4 <sup>2</sup> (-4) <sup>3</sup> R2 <sup>4</sup> (3,1)	L-3 (-3) R1.5 (1-2)	L-3.5 (-3,-4) R3.75 (4, 2.5)
<b>Speed</b>				<b>Speed</b>			
A)Keep the process going: The farmers actively contribute to the process activities, progress is made.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R2 <sup>4</sup> (1,3)	L+3 (+3) R1 (1)	L+3 (+3) R3 (3)	A)Keep the process going: The province continues the process, even when a party quits the process, but in the mean time the province does try to solve the problem with the party that quit.	<sup>1</sup> L-1 <sup>2</sup> (+2,-4) <sup>3</sup> R3.5 <sup>4</sup> (3,4)	L-1.5 (0,-3) R3 (3)	L-1.5 (-3,0) R3.5 (4,3)
B)Keep the process going by putting something to win ahead: The farmers propose an agreement to the province, they will cooperate realizing nature in the area when the province promises to compensate their loss of land with land elsewhere.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R2 <sup>4</sup> (2)	L+3 (+3) R2 (2)	L+3 (+3) R4 (4)	B)Keep the process going by putting something to win ahead: If the farmers cooperate with the realization of nature in the area, the province promises to make an effort compensating land with land.	<sup>1</sup> L+3.5 <sup>2</sup> (+3,+4) <sup>3</sup> R2.5 <sup>4</sup> (1,4)	L+3.5 (+3,+4) R1 (1)	L+4 (+4) R2.5 (4,1)
C)Keep the process going: The farmers slow down the process because they keep asking 'Why does this new nature need to be realized?'	<sup>1</sup> L-2 <sup>2</sup> (-2) <sup>3</sup> R3 <sup>4</sup> (3)	L-2 (-2) R3 (3)	L-2 (-2) R2 (2)	C)Keep the process going: A farmer only wants to cooperate if he gets a red-for-green arrangement, it takes very long to discuss this in the province and during that time the process stagnates.	<sup>1</sup> L0 <sup>2</sup> (+4,-4) <sup>3</sup> R2.5 <sup>4</sup> (1,4)	L0 (0) R3.5 (3,4)	L-2.5 (-2,-3) R1.75 (1, 2.5)

b)

National Forestry Service perception of individual farmers actions				Individual farmers perception of National Forestry Service actions			
Actions sorted per theme	GWV	WL	UVW	Actions sorted per theme	GWV	WL	UVW
<b>Openness</b>				<b>Openness</b>			
A)Open agenda allowing others to add topics: The farmers want to continue farming but show an open attitude towards fitting nature into the farm management by sharing willingness to invest in e.g. breeds that are more suitable to combine with nature management.	<sup>1</sup> L+1 <sup>2</sup> (+1) <sup>3</sup> R4 <sup>4</sup> (4)	L+3.5 (+3, +4) R2 (2)	L+2 (+2) R2 (2)	A)Open agenda allowing others to add topics: The NFS wants to develop nature in the area, but are open to exchange land if beneficial for both nature and agriculture.	<sup>1</sup> L+4 <sup>2</sup> (+4) <sup>3</sup> R3.5 <sup>4</sup> (4,3)	L+3 (+3) R1 (1)	L+3.5 (+4, +3) R1 (1)
B)The participants have a different perception of the problem leading to misunderstanding each other: The farmers do not understand why new nature needs to be developed because the area already has important nature values, they try to understand the NFS's point of view by asking openly 'How come you value the nature in NFS's area more than the nature in farmland?'	<sup>1</sup> L+1 <sup>2</sup> (+1) <sup>3</sup> R4 <sup>4</sup> (4)	L+3 (+3) R3 (4,2)	L0 (0) R3 (3)	B)The participants have a different perception of the problem leading to misunderstanding each other: The NFS explains clearly why they sometimes consider nature values in their land more important than the current nature values in agricultural land.	<sup>1</sup> L0 <sup>2</sup> (0) <sup>3</sup> R3.5 <sup>4</sup> (3,4)	L+2 (+2) R3 (3)	L+1 (0,+2) R3 (4,2)
C)Do not express differences of opinion among the people that it concerns: The farmers are dissatisfied with the process because they feel the farmers and NFS are not treated equally and express this dissatisfaction in the media instead of during meetings with the farmers and process managers, by expressing this through the media the difference of opinion starts to get a 'life on its own'.	<sup>1</sup> L-4 <sup>2</sup> (-4) <sup>3</sup> R3 <sup>4</sup> (3)	L-2.5 (-4,-1) R2 (1,3)	L-2 (-2) R2 (2)	C)Do not express differences of opinion among the people that it concerns: The NFS feels the process is dominated by the farmers, and express their dissatisfaction in the media instead of at a meeting with process managers.	<sup>1</sup> L-3.5 <sup>2</sup> (-3,-4) <sup>3</sup> R2.5 <sup>4</sup> (2,3)	L-3 (-3) R2 (2)	L-2 (0,-4) R2.25 (2.5,2)
<b>Contents</b>				<b>Contents</b>			
A)Farmers show on a map which nature-qualities are already present in the area, the design of the ecological main structure can incorporate their knowledge of the area.	<sup>1</sup> L+4 <sup>2</sup> (+4) <sup>3</sup> R3 <sup>4</sup> (3)	L+2 (+2) R4 (4)	L+3 (+3) R4 (4)	A)Input of local knowledge: The NFS shows on a map which nature-qualities are already present in the area, the design of the ecological main structure can incorporate their knowledge of the area.	<sup>1</sup> L0 <sup>2</sup> (-2,+2) <sup>3</sup> R1 <sup>4</sup> (1)	L+1.5 (+3,0) R3.5 (3,4)	L+2 (0,+4) R2.75 (3.5, 2)
B)Practicability of the various solutions: The participants of the process, among others the NFS and individual farmers, make a field excursion to see how the solutions would work out in practice.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R2 <sup>4</sup> (2)	L+3 (+3) R1 (1)	L+3 (+3) R1 (1)	B)Practicability of the various solutions: The participants of the process, among others the NFS and individual farmers, make a field excursion to see how the solutions would work out in practice.	<sup>1</sup> L+3 <sup>2</sup> (+2,+4) <sup>3</sup> R2.5 <sup>4</sup> (4,1)	L+4 (+4) R1 (1)	L+4 (+4) R3 (2,4)
C)Input of local knowledge: The farmers refuse to make a field excursion with the NFS, the aim of the excursion was to let the farmers point out the current qualities of the area and by refusing this the knowledge of the farmers cannot be incorporated into the design of the ecological main structure.	<sup>1</sup> L-4 <sup>2</sup> (-4) <sup>3</sup> R4 <sup>4</sup> (4)	L-1.5 (-3,0) R3.5 (3,4)	L-2 (-2) R3 (3)	C)Input of local knowledge: The NFS refuses to make a field excursion with the farmers, the aim of the excursion was to let the farmers point out the current qualities of the area and by refusing this the knowledge of the farmers cannot be incorporated into the design of the ecological main structure.	<sup>1</sup> L-3.5 <sup>2</sup> (-4,-3) <sup>3</sup> R2.5 <sup>4</sup> (3,2)	L-3 (-3) R4 (4)	L-4 (-4) R2.75 (2.5, 3)

Core values				Core values			
A)Follow-up agreements: At the start of the process it is agreed that the water level is going to change although it is not clear what will be the new water level, the farmers keep this agreement by not sticking to the old water level.	<sup>1</sup> L+4 <sup>2</sup> (+4) <sup>3</sup> R1 <sup>4</sup> (1)	L+3 (+4,+2) R2 (1,3)	L+4 (+4) R3 (3)	A)Follow-up agreements: It is agreed that both nature and agriculture aims are strived for, on land with a nature function a natural water level is realized but a buffer zone on the nature land is applied to prevent water-pressure in the agricultural land.	<sup>1</sup> L+2.5 <sup>2</sup> (+2,+3) <sup>3</sup> R1 <sup>4</sup> (1)	L+3 (+3) R2.5 (2,3)	L-1 (0,-2) R3.75 (3.5, 4)
B)Acknowledge each others' interests: The farmers acknowledge the interests of the NFS to realize good nature values, and offer to do a voluntary land exchange in which the NFS participates as well, in order to get the new nature at appropriate places and to improve the agricultural structure.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R2 <sup>4</sup> (2)	L+3 (+3) R2.5 (2,5)	L0 (0) R4 (4)	B)Acknowledge each others' interests: The NFS acknowledges the interests of farmers to improve agricultural structure, and offers to do a voluntary land exchange, in order to get the new nature at appropriate places and to improve the agricultural structure.	<sup>1</sup> L+2.5 <sup>2</sup> (+2,+3) <sup>3</sup> R2 <sup>4</sup> (2)	L+3 (+3) R2 (2)	L+4 (+4) R2 (1,3)
C)Not following up agreements: The individual farmers promise to cooperate with a voluntary land-exchange in which the NFS takes part as well, after months of deliberation the moment of the actual exchange is there and then some farmers suddenly refuse to cooperate.	<sup>1</sup> L-3 <sup>2</sup> (-3) <sup>3</sup> R2 <sup>4</sup> (2)	L-2.5 (-4,-1) R1.5 (2,1)	L na  R na	C)Not following up agreements: The NFS offers to participate in a voluntary land exchange in which the farmers participate as well, but at the moment of the actual exchange the NFS refuses cooperation.	<sup>1</sup> L-4 <sup>2</sup> (4) <sup>3</sup> R1 <sup>4</sup> (1)	L-3 (-3) R1 (1)	L-4 (-4) R1.75 (2.5, 1)
Speed				Speed			
A)Keep the process going: The farmers actively contribute to the process activities, progress is made.	<sup>1</sup> L+4 <sup>2</sup> (+4) <sup>3</sup> R2 <sup>4</sup> (2)	L+3.5 (+4,+3) R2 (3,1)	L+4 (+4) R1 (1)	A)Keep the process going: The NFS actively contributes to the process activities, progress is made.	<sup>1</sup> L-1.5 <sup>2</sup> (-2,-1) <sup>3</sup> R4 <sup>4</sup> (4)	L+3.5 (+3,+4) R3 (4,2)	L-1.5 (0,-3) R2.5 (2,3)
B)Keep the process going by putting something to win ahead: The farmers propose an agreement, they cooperate with realization of the policy assignment, if the land they rent from the NFS can be managed based on co-production allowing more influence of the farmers on the nature management.	<sup>1</sup> L+3 <sup>2</sup> (+3) <sup>3</sup> R3 <sup>4</sup> (3)	L+3 (+3) R3.5 (3,4)	L+2 (+2) R2 (2)	B)Keep the process going by putting something to win ahead: On the pre-condition that the farmers cooperate with the realization of the policy assignment, the NFS promises that land rented out to farmers can be managed based on co-production allowing more influence of farmers on nature management.	<sup>1</sup> L+2.5 <sup>2</sup> (+3,+2) <sup>3</sup> R2 <sup>4</sup> (1,3)	L+3 (+3) R4 (4)	L+4 (+4) R2 (1,3)
C)Keep the process going: The farmers slow down the process because they keep asking 'Why does this new nature need to be realized?'.	<sup>1</sup> L-4 <sup>2</sup> (-4) <sup>3</sup> R1 <sup>4</sup> (1)	L-2 (-3,-1) R3 (4,2)	L-3 (-3) R1 (1)	C)Keep the process going: The NFS employees are very busy and it is difficult to make an appointment with them, this slows down the process.	<sup>1</sup> L-2 <sup>2</sup> (-4,0) <sup>3</sup> R4 <sup>4</sup> (4)	L-2 (-2) R3 (3)	L-1 (0,-2) R3.75 (2.5, 4)



**VSB**fonds