

Two vertical bars of different shades of olive green are positioned to the left of the title. The first bar is wider and has a small grey shadow to its left. The second bar is narrower and is positioned slightly to the right of the first one.

Voluntary re-allotment in the Netherlands

A case study about the processes of
voluntary re-allotment in Heusden,
Epe-Vaassen and Kempen-Broek

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This thesis is written as a final assignment for the master Landscape Architecture and
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Abstract

This research focuses on processes of voluntary re-allotment. The research draws on three cases, which are three areas wherein voluntary re-allotment takes place; In Heusden, Epe-Vaassen and Kempen-Broek. The research shows that trust as well as institutions are relevant in the processes of voluntary re-allotment to guide behavior of actors and to deal with uncertainties about the behavior of other land owners. In the core of the activities to arrange exchanges, trust is important and the (formal) intuitions (to guide behavior) are more on the background. At the end of the processes formal institutions also play a big a role. Most costs for a voluntary re-allotment are costs for the process towards exchanges, like consulting and negotiating. Although these costs are perceived as high, the costs are also accepted because of the way a process is arranged; participation on a voluntary basis and the individual approach. Besides, it is also accepted because through processes of voluntary re-allotment, more resources become available and more goals of actors can be achieved.

Keywords: voluntary re-allotment, uncertainties, trust, institutions, transaction costs

Preface

This report is the result of a research into processes of voluntary re-allotment. With the completion of this thesis, I almost completed the master program Spatial Planning at Wageningen University. I experienced doing this research as a valuable and interesting process, in which I learned a lot. I went through ups and downs during the research. Especially at the beginning of the process I experienced some problems. Nevertheless I am very satisfied with the final results. I hope that after reading the thesis, you share this opinion with me.

First, I would like to thank my supervisor, Raoul Beunen, of the Land Use Planning Group, for sharing his knowledge with me, his flexible attitude, the interesting conversations we had and providing me with new insights for the research many times. I would also like to thank Stan Gloudemans, the director of Optifield, for inspiring me to do a research into voluntary re-allotment and for providing a lot of detailed and interesting information. Besides this, I would like to thank all the interviewees for spending their time and providing me interesting information for this research. Finally, I would like to thank my friends who supported me during the research.

I hope you enjoy reading the thesis,

Sabine Kool

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Summary

Voluntary re-allotment takes place in every part in the Netherlands. The WILG (In Dutch: Wet Inrichting Landelijk Gebied) provides two instruments to achieve goals that are formulated for the development of rural areas, legal land consolidation (In Dutch: wettelijke herverkaveling) and voluntary re-allotment. These instruments are used to improve the agricultural structure as well as other functions like nature or recreation in rural areas.

Different approaches are applied regarding the instrument of voluntary re-allotment. The most common way to arrange voluntary re-allotment is approaching land owners in an individual way, either with or without a joint meeting at the beginning of a process. One process manager is the central and intermediary person; he consults land owners individually, makes plans for exchange, negotiate with them about the proposed plans, etc. This approach is applied by advice agencies, foundations for nature, governmental organizations and foundations. Another approach is applied by DLG, Kadaster and LTO wherein land owners make plans for exchange in groups. This research focuses on the first mentioned approach, wherein land owners are consulted in an individual way.

Especially since the start of the projects of DLG, Kadaster and LTO, there are discussions about the approach of voluntary re-allotment among parties that organize voluntary re-allotment, like advice agencies, governmental organizations and foundations. There are divided opinions about the advantages and disadvantages of the approaches in practice. Next to this, it is unclear what role trust plays within voluntary re-allotment and how this relates to the transaction costs and (perceived) outcomes.

The aim of this study is to provide insight in processes of voluntary re-allotment. More specific, the research gains insight in the organization, the applied methods, the behavior of actors, the outcomes and the relation between these aspects. This research focuses on institutions and the concept of trust. Those two concepts are interconnected to each other and both look at behavior of actors. Next to this, the research looks at what role interdependence and uncertainty play in voluntary re-allotment. The main research question is formulated as:

How are processes of voluntary re-allotment organized and how does the approach relate to the development of these processes, the behavior of actors and the outcomes?

The research investigated three cases, which are three areas wherein voluntary re-allotment takes place: In Heusden, Epe-Vaassen and Kempen-Broek. To obtain information about these three cases, interviews and a document study are used. The interviewees were held with process managers, farmers, nature organizations and governmental organizations.

This research shows that participants as well as the process manager perceive the participation other participants (land owners) as the most relevant uncertainty. The research shows also that trust as well as institutions are relevant in the processes of voluntary re-allotment to deal with those

uncertainties. Institutions and trust are two concepts that address the way how actors deal with uncertainties about the behavior of other actors.

Institutions are rules to guide behavior. They provide structure to social, political and economic exchanges. Important to mention is that the effectiveness of the enforcement of rules is relevant to function properly. In other words, rules can only function properly if they are accepted. This means also that trust in institutions is relevant. Next to trust in institutions, trust in persons and organizations plays a role in voluntary re-allotment. Trust is way to deal with uncertainties about the behavior of other parties. If one actor trusts another, he assumes that the other will behave as expected and take also the interests of him into account; this makes the actions of others less uncertain.

In the core of the activities to arrange exchanges in voluntary re-allotment, trust is important and the (formal) institutions (to guide behavior) are more on the background. However, at the end of the processes also formal institutions play a big a role.

Trust in other land owners as well as trust in the process manager plays an important role within the voluntary re-allotment processes. Trust in the process manager is relevant since he or she is the central and intermediary person within the process. Though, trust in other land owners remains also important since a decision about participation is always made by a land owner himself.

Most costs for a voluntary re-allotment are costs for the process towards exchanges, like consulting and negotiating. These costs are perceived as high by the involved actors. The high costs are accepted because of the way the process is arranged; participation on a voluntary basis and the individual approach. Next to this, high costs are also accepted because through processes of voluntary re-allotment, more resources become available and more goals of actors can be achieved. The combination of resources of different actors leads to results where a lot of various parties benefit from. Every participant benefits from the process.

For the process managers, commissioners and land owners the processes of voluntary re-allotment are, especially in the beginning uncertain, uncertain about who will participate and in what way. It is important to accept this uncertainty. Especially in the beginning of the processes the informal and the voluntary character is perceived as the strength of the voluntary re-allotment.

This research shows that approaching actors individually is a good way to arrange a process in planning. However, it also means that the parties that are responsible or related to the organization should also be able to be flexible and adapt to each new situation with a (new) land owner. If a process manager consults actors individually, he gains insight in their personal wishes, goals, ideas, future plans. The process manager gets to know what is going on in an area on a local level, from an individual point of view. Besides this, if actors are consulted individually, the complexity a process is reduced for them, only what is relevant for the concerning actor is discussed and therewith they appreciate an individual approach. And that can then again contribute to the development of trust, which contributes to the quality of processes.

Samenvatting

Vrijwillige kavelruil vindt plaats op het platteland in alle delen van Nederland. In de Wet Inrichting Landelijk Gebied (WILG) zijn twee instrumenten verankerd: vrijwillige kavelruil (ruilverkaveling bij overeenkomst) en wettelijke herverkaveling. Deze twee instrumenten kunnen worden ingezet ter verbetering van de agrarische structuur en ook ter verbetering van andere functies zoals natuur, infrastructuur of recreatie op het platteland.

Er zijn verschillende aanpakken toegepast om het instrument vrijwillige kavelruil in te zetten. De meest gebruikelijke manier is grondeigenaren individueel benaderen, met of zonder een gemeenschappelijke bijeenkomst aan het begin van een proces. Er is daarbij een proces manager die functioneert als een centraal figuur en tussenpersoon. Hij voert individuele gesprekken met grondeigenaren, maakt ruilplannen en voert onderhandelingen met de grondeigenaren m.b.t. de voorgestelde plannen. Deze aanpak wordt toegepast door adviesbureaus, natuurorganisaties, overheden en stichtingen. Een andere aanpak wordt toegepast door DLG, Kadaster en LTO waarin grondeigenaren zelf en met elkaar ruilplannen maken. Dit onderzoek richt zich op de eerst genoemde aanpak, waarin grondeigenaren individueel worden benaderd.

Vooraf sinds de komst van de projecten van DLG, Kadaster en LTO, zijn er discussies ontstaan over de aanpak van vrijwillige kavelruil. Deze discussies leven onder organisaties die vrijwillige kavelruil organiseren zoals adviesbureaus, overheden en stichtingen, maar ook onder partijen die op een andere manier met vrijwillige kavelruil te maken hebben. De meningen zijn verdeeld over de voor en nadelen van de aanpak. Daarnaast is het niet duidelijk hoe relationele aspecten, zoals vertrouwen een rol spelen en hoe dit bijvoorbeeld zich relateert aan de proceskosten en de (ervaren) resultaten.

Het doel van deze studie was inzicht verkrijgen in het procesverloop van vrijwillige kavelruil. Het onderzoek richtte zich op de aanpak, de organisatie, het gedrag van actoren, de uitkomsten van het proces en de relatie tussen deze genoemde aspecten. Dit onderzoek richt zich daarom op instituties en het concept vertrouwen. Deze twee begrippen zijn met elkaar verbonden en allebei geven inzicht in het gedrag van actoren. Daarnaast richt het onderzoek zich op de rol van interdependence en onzekerheden binnen vrijwillige kavelruil. De hoofdvraag van het onderzoek is geformuleerd als:

Hoe zijn processen van vrijwillige kavelruil georganiseerd and hoe relateert de aanpak zich aan de ontwikkeling van deze processen, het gedrag van actoren en de uitkomsten van het proces?

Het onderzoek richtte zich op drie cases, dit zijn drie gebieden waar vrijwillige kavelruil plaats vindt: in Heusden, Epe-Vaassen en Kempen-Broek. Om informatie te verkrijgen over deze cases, is een document studie uitgevoerd en zijn interviews gehouden met een 4-tal type groepen: proces managers, boeren, natuurorganisaties en overheden.

Dit onderzoek laat zien dat zowel de deelnemers (grondeigenaren) als de proces manager de deelname van (andere) grondeigenaren als meest relevante onzekerheid zien. Dit onderzoek laat daarnaast ook zien dat zowel vertrouwen als instituties (regels) een rol spelen in het omgaan met deze onzekerheden.

Instituties zijn regels die het gedrag van actoren kunnen beïnvloeden. Ze geven structuur aan sociale, politieke en economische transacties. De effectiviteit van regels is relevant om ze goed te kunnen laten functioneren; regels moeten ook geaccepteerd worden. Dit betekent dat vertrouwen in regels ook een rol speelt. Naast vertrouwen in instituties (regels), speelt vertrouwen in personen en organisaties ook een rol in processen van vrijwillige kavelruil. Vertrouwen is een manier om, om te gaan met onzekerheden over het gedrag van anderen. Wanneer een deelnemer een ander vertrouwt, dan gaat hij er vanuit dat de ander zich zal gedragen zoals hij verwacht. Op deze manier wordt op basis van verwachtingen de onzekerheden over de acties van een ander kleiner.

Op de eerste plaats speelt vertrouwen tijdens de activiteiten om een vrijwillige kavelruil neer te zetten een belangrijke rol. (Formele) regels zijn ook relevant, maar spelen een rol op de achtergrond. Naarmate een proces vordert, gaan de (formele) regels een grotere rol spelen en spelen ook verplichtingen vanuit een sociaal perspectief een rol. Vertrouwen in zowel (andere) grondeigenaren als de proces manager speelt een belangrijke rol. Vertrouwen in de proces manager is relevant omdat hij de centrale figuur en tussenpersoon is tijdens een proces. Echter, is vertrouwen in (andere) grondeigenaren is ook relevant omdat de uiteindelijke beslissing om mee te doen in een ruil, altijd gemaakt wordt door de landeigenaar zelf.

De meeste kosten voor vrijwillige kavelruil zijn gerelateerd aan activiteiten van de proces manager, dus voor het voeren van individuele gesprekken, het maken van ruilplannen en het onderhandelen hierover. Hoewel de kosten als hoog worden ervaren door de betrokken actoren, zijn deze kosten echter ook geaccepteerd. Dit heeft twee redenen, allereerst vanwege hoe het proces is georganiseerd; de individuele benadering en het vrijwillige karakter. Ten tweede, door vrijwillige kavelruil komen meer middelen(grond) vrij, die gecombineerd kunnen worden en dat levert weer een betere bijdrage aan de doelen van de diverse betrokken grondeigenaren.

Voor proces managers, opdrachtgevers en grondeigenaren is het proces van vrijwillige kavelruil vooral aan het begin onzeker, onzeker over wie mee zal doen en op welke manier. Het is belangrijk om deze onzekerheid te accepteren. Vooral het informele en vrijwillige karakter in het begin van een proces wordt gezien als een sterkt punt van vrijwillige kavelruil.

Dit onderzoek laat zien dat de individuele benadering van grondeigenaren een goede manier is om een proces te organiseren. Het betekent echter ook dat partijen die verantwoordelijk of betrokken zijn bij een proces, om moeten kunnen gaan met de flexibiliteit die hierbij komt kijken. Wanneer een proces manager actoren individueel en persoonlijk benadert, krijgt hij inzicht in de persoonlijke wensen, doelen, ideeën en toekomstplannen van elke actor. De proces manager krijgt inzicht in wat er speelt in een gebied op een lokaal niveau, vanuit een individueel perspectief. Wanneer actoren individueel worden benaderd, de complexiteit van een proces is voor hen gereduceerd tot allen de aspecten die relevant zijn voor hen. Daarnaast waarderen actoren het wanneer zij individueel en persoonlijk worden benaderd, dat kan weer bijdragen aan de ontwikkeling van vertrouwen en dat draagt ook weer bij aan de kwaliteit van het verdere procesverloop.

1 ■ Introduction

This research focuses on processes of voluntary re-allotment (In Dutch: vrijwillige kaveldruil). The idea for this research is based on an initiative of a company called Optifield. This company had a request for a research into various approaches of voluntary re-allotment, to gain insight in results, costs and other aspects. The writer of this report elaborated further on this idea from a broader perspective.

Next section starts with a short description of the history of land consolidation (In Dutch: herverkaveling) in The Netherlands. It ends with the situation nowadays, with a focus on voluntary re-allotment. After that, section 1.2 elaborates on the scientific relevance of this research into voluntary re-allotment, followed by the objective of this research and a research question (section 1.3). The chapter ends with a guide to the reader.

1.1. In brief, 100 years of land consolidation in The Netherlands

Land consolidation has a long history in the Netherlands. It started more than 100 years ago on a very small scale: farmers exchanged parcels to improve their agricultural land, there was no law for land consolidation and the involvement of the Dutch government was minimal. (Brink and Mollema, 2008). After the First World War, land consolidation gained more attention from the government. Because of the decline in world trade, the Dutch economy should be more self-sufficient. Next to the development of the industrial sector, the Dutch government focused also on the development of the agricultural sector. The efficiency of farming and food production should be enlarged. The government started to take an active role in raising the productivity of agricultural land. Next to the reclamation of new land and improving land drainage, land consolidation should contribute to the improvement of the Dutch agricultural sector and to an enlargement of food production. The instrument became more institutionalized, the first law on land consolidation (Ruilverkavelingswet) was established in 1924 (Hidding, 2006, Brink and Mollema, 2008).

After the Second World War, due to economic and social changes, the government actively initiated land consolidation. More projects than before were carried out. In this period of reconstruction, the Dutch population and welfare increased quickly. The Dutch government considered that the agricultural sector needed to be improved, more food than before had to be produced to feed the increasing Dutch population. Land consolidation was an instrument that could contribute to that. In this period land consolidation changed from an instrument of the farmers towards a planning instrument. Governmental organizations could steer the development of the agricultural sector and rural areas. Therewith, the processes of land consolidation were arranged by law, all steps were prescribed. That resulted in that steering by the actors out of the area themselves became less possible. Farmers started to see land consolidation as something that just happened to them. To illustrate, between 1946 and 1957 requests from farmers themselves for land consolidation decreased from 25% to 4% of all requests. In the same period requests from water boards and municipalities increased from 43% to 64% of all requests (Bergh, 2004).

In the period 1950 until 1985, land consolidation enjoyed its heydays. Andela (2000) calls this the 'heroic' years of land consolidation in the Netherlands. Besides the enlargement of the number of projects, the projects themselves were also implemented on a bigger scale (Bergh, 2006). New roads were incorporated, plots were enlarged, farms were moved from villages into the fields and the water system was adapted to agricultural use. Through these projects, the Dutch landscape changed radically.

From 1970 the ideas among land consolidation changed (Andela, 2000, Bergh, 2006, Brink and Mollema, 2008). The Dutch countryside was starting to change from a pure agricultural space towards a space where also other functions should have a place like nature and recreation. For land consolidation this meant that not only goals related to agriculture should be achieved, also other aspects, like nature or recreation, to improve the Dutch countryside as a whole should be integrated in land consolidation projects (Bergh, 2004, Rienks et al., 2009). Therefore, the Land Consolidation Act (In Dutch: Ruilverkavelingswet) from 1954 changed into the Land Use Act (In Dutch: Landinrichtingwet) in 1985. This law aimed more on balanced interests between the various interests in rural areas (Bergh, 2004).

In the 90ties voluntary forms of re-allotment came (back) into practice. The big projects of legal land consolidation as described above decreased. Voluntary re-allotment is on a smaller scale than the legal forms and the procedures regarding voluntary re-allotment are not described by law. The process is based on voluntariness. To illustrate, in the 90ties several foundations that focus on voluntary re-allotment were established. For example, in 1991 the 'Stichting Bevordering Kavelruil Gelderland' was established (SBKG, 2012) and a year later, in 1992, the former WLTO (A department of the Dutch Federation of Agriculture and Horticulture) established the 'Stichting kavelruil Zuid Holland' (Stichting kavelruil Zuid-Holland, 2012).

After 2000, most of the large land consolidation projects with a legal procedure under the Land Use Act came to an end (Rienks, et al., 2009). To this day there are still running a few projects coming from the 80ties and 90ties and there are a few new projects started up in legal land consolidation. In 2012, there were 14 projects running, which concerned in total an area of 212.000 ha (Kadaster, 2012).

In 2007, the Reconstruction Act of 1985 is replaced by the Law on the development of rural areas (In Dutch: Wet Inrichting Landelijk Gebied hereafter referred to as: WILG). Nowadays, the WILG provides two instruments to achieve goals that are formulated for the development of rural areas. Besides legal land consolidation (In Dutch: wettelijke herverkaveling), also voluntary re-allotment is described in this law (Kadaster, 2011). In practice there are more variations on these two instruments. For example, DLG (The Government Service for Land and Water Management) distinguishes the following:

- purchase on a freely basis
- planned sectorial voluntary re-allotment
- planned integral voluntary re-allotment
- legal land consolidation (expropriation can also be applied)

The first three instruments have a voluntary character. Within the fourth, legal land consolidation, the process of how to arrange this is prescribed by the WILG, it has a mandatory character and it has more certainties in achieving multiple goals, compared to the voluntary forms of land consolidation (DLG, 2008).

To choose between one of the instruments, DLG formulated several criteria to determine which instrument is the most appropriate. These criteria are: number of goals to be achieved, the target level, flexibility in boundaries of location, change of functions, time pressure, support and political ambition (DLG, 2008). DLG makes a distinction between more objective criteria (number of goals, target level, boundaries) and more subjective criteria (time, political ambitions, support). The subjective criteria are approached in a way that these can be valued and measured in an objective way (Beunen, 2011); the levels of all criteria are divided in three levels: high, average and low.

Relational aspects of the instruments are important, as also mentioned during the symposium 'Doelgericht Verkavelen' which was held in 2011. Within the scheme of DLG to choose between the four instruments relational aspects, like trust, politics and emotions are undermined. The relational aspects in particular are important when working with land owners within processes of voluntary re-allotment (Beunen, 2011). The role of trust in voluntary re-allotment is relevant since the processes are based on voluntariness. There are no legal rules to force land owners to participate.

The most common approach to arrange a voluntary re-allotment is consulting land owners in an individual way, either with or without a joint meeting at the beginning of a process. Optifield is one of the organizations that applies a method related to the mentioned above. Optifield mainly works with a project group that consists out of a project leader and a 'confidential person' (in Dutch: Vertrouwenspersoon). A project leader makes plans for exchange based on individual interviews with the different land owners (Optifield, 2007 and 2012). This way of working (or something similar) is also applied by other parties like associations, advice agencies, foundations for nature, governmental organizations, etc.

Since 2011, DLG, Kadaster and LTO apply an approach wherein land owners make the plan for exchange themselves in an interactive way, which is called 'Verkavelen voor Groei'. DLG, LTO and Kadaster accompany and facilitate the projects (DLG, 2012).

Especially since the start of the projects of DLG, Kadaster and LTO, there are discussions about the approach of voluntary re-allotment among parties that organize voluntary re-allotment, like advice agencies, governmental organizations and foundations. Therewith, what role of relational aspects in voluntary re-allotment, like trust. There are divided opinions about the advantages and disadvantages of the approaches in practice. Besides, it is not completely clear how effective different ways of working are and in what situation fits what kind of method the best. It is also questionable to what extent is it possible to achieve agricultural goals as well as public goals related to nature and water in the voluntary projects, and where does this depends on?

1.2. Scientific relevance

In the past 50 years, the Dutch society became more dynamic due to the growth of welfare, economic developments and technical developments. In the 70thies, questions rise about whether spatial planning, can deal with the increasing dynamics of the society, it is too rigid and has a lack of flexibility in order to deal with the increasing dynamics. Therewith, the ideas about the government should, and is capable to steer society on its own, changed (Hidding, 2006).

There is a large amount of scientific literature about the shift from the traditional top-down government towards the more bottom-up governance structures (see e.g. Hidding, 2006, Ark, 2005, Edelenbos, 2005, Vreke et al., 2009, Domingo and Beunen, 2012, Eshuis, 2006, Van Assche, 2007, Edelenbos and Klein, 2007, Stoker, 1998). The voluntary re-allotment processes can be seen as an example of governance; various actors are involved to achieve their own goals and also to contribute to goals of others or public goals. Initiatives are initiated by actors out of the area itself.

The ideas of governance assume that the state or government is not capable to steer the society on its own, it aims on horizontal interactions between the state, citizens, ngo's, companies etc. Moreover, no single stakeholder is fully capable to solve a problem itself due to interdependence between stakeholders (Hidding, 2006), resources (e.g. knowledge, money or land) are spread among different actors (Edelenbos and Klein, 2012). Besides, if the number of involved actors increases, a situation becomes more complex and uncertain because of their different perceptions, values or interests (that can be conflicting) and then also the behavior of different involved stakeholders (Ark and Edelenbos, 2005, Vries, 2008). When there is interdependency between these actors, uncertainty about the behavior and intentions of others becomes more relevant (Eshuis, 2006).

Edelenbos and Klein (2007) write that uncertainties in horizontal relations, or cooperative projects, cannot be dealt with by using hierarchical power. Trust seems an important aspect in these more horizontal relations. Also others write about the importance of trust among actors in governance structures (Ark and Edelenbos, 2005, Vries et al., 2007) It is considered as an important aspect for cooperating in complex situations because of several reasons. First, it is a way to deal with uncertainties. If actors trust each other, they assume that the other will behave less opportunistic. This makes the actions of others less uncertain (Ark and Edelenbos, 2005).

Another assumption is that trust reduces transaction costs (Edelenbos and Klein, 2005). If the participating parties trust each other, there has to be less invested in the process because there is more certainty of the strategies of other actors. However, there are others that write to create trust, time effort and money is required. So, to create trust it is possible that transaction cost will be higher. Besides that, low transaction costs can generate trust and the perceptions on costs differ from the actual made costs.

Related to the mentioned above Klein et al. (2010) conclude in their article about management in governance networks that a higher level of trust leads to outcomes that are experienced more positive by the involved actors, this is applicable for the process as well as the results. Edelenbos et al. (2011) do pay attention to the fact that in most environmental projects multiple actors are involved with different goals and interests. Therefore it is hard to measure in an objective way the outcomes of a process since perceptions on results differ. Besides that, they state

that they did not investigate whether in projects with better (perceived) outcomes the level of trust is also higher, so it is questionable if this will be achieved simultaneously. In addition to this, Klein et al. (2011) mention that generalization of their research must be taken with care, it is based on a quantitative research on governance networks in the field of environment and planning (projects in building houses and business terrains, water and environmental development). This thesis is indeed in the field of spatial planning but the focus is on another subject, voluntary re-allotment which takes place in rural areas. This differs in context compared to the subjects of the article of Klein et al. (2011), which are all projects in urban areas. This means that it is not completely clear if the previous conclusions of the article are also applicable in the field of voluntary re-allotment.

Next to trust as a way to deal with uncertainties about the behavior of others, expectations about behavior of others can also be based on institutions. Institutions are rules to guide behavior (Eshuis, 2006) and organizations, actors or persons are the players (North, 2005). Developing and enforcing institutions is a way for actors to deal with uncertainties about the behavior of others. Institutions, or the institutional conditions or arrangements, determine to a certain extent the behavior of actors in networks.

It is not clear how trust and transaction costs are related to each other. Also further research about the relation between trust and the outcomes of a process can be done. It is also interesting to find out how the perceived outcomes and costs are related to, for example, the actual achieved outcomes and costs. Next to this, it is interesting to find out how uncertainties, trust as well as institutions, play a role in the processes. These two concepts both provide insight in the behavior of actors. Thereby, trust in institutions is also relevant. Next to this, it is not clear what kind of effect these aspects have on the outcomes and perceived outcomes.

1.3. Objective and main research question

The objective of this research is to gain insight in processes of voluntary re-allotment. More specific, the research gains insight in the organization, the behavior of actors, the outcomes and the relation between these aspects. This research focuses on institutions (the rules that play a role) and the concept of trust. Those two concepts are interconnected to each other and both can be used to analyze and understand the behavior of actors.

Next to this, the research should gain insight in the advantages and disadvantages of the different methods applied in voluntary re-allotment projects and how to deal with disadvantages. The main research question is then formulated as:

How are processes of voluntary re-allotment organized and how does the approach relate to the development of these processes, the behavior of actors and the outcomes?

1.4. Guide to the reader

Next chapter presents the theoretical framework which is used in order to answer the main research question. This framework elaborates on interdependence, uncertainties, trust, institutions and transaction costs and their interrelations. Based on this theoretical framework, the main research question is divided in five sub-research questions.

Chapter 3 elaborates on how the research was carried out in order to find an answer to the research questions. The research focuses on three cases, which are three areas in which voluntary re-allotment takes place, it are the areas Heusden (Brabant), Epe-Vaassen (Gelderland) and Kempen-Broek (Limburg).

Chapter 4 elaborates on the cases that are investigated in this research. This chapter also presents briefly aspects of voluntary re-allotment in the Netherlands in general that are related to the three cases.

After that, the three cases are compared to each other in chapter 5, in order to illustrate the differences and similarities between them. This chapter provides also explanations by referring to the theoretical concepts as presented in chapter 2. The final chapter, discussion and conclusions, presents the most important findings of this research, recommendations for practical applications and suggestions for further research.

2. Theoretical Framework

First, this chapter elaborates on governance, interdependence and cooperation in networks. Networks of actors exist because different actors need each other to achieve certain goals. In voluntary re-allotment different types of land owners participate together and exchange property rights of parcels and that should contribute to their goals. Because of different types of involved actors, decision making processes become complex. Within these complex decision making processes uncertainty is inevitable. Section 2.2 elaborates therefore on uncertainties, expectations and conflict. Because voluntary re-allotment is on a voluntary basis and land owners depend on each other's participation, uncertainties about the participation of (other) land owners plays an important role. This uncertainty can be decreased by institutions, which are in this research described as rules that structure behavior, section 2.3 elaborates on that. Besides this, trust also plays an important role in decreasing uncertainty about the participation of others, section 2.4 elaborates on the concept of trust. Thereafter, section 2.5 elaborates on the transaction cost theory. This theory provides insight in the costs of processes of voluntary re-allotment and its determinants. The final section presents the conclusions and the sub-research questions.

2.1. Governance, interdependence and networks

In the literature a lot is written about the shift from the traditional top-down government towards the more bottom-up governance structures (see e.g. Hidding, 2006, Ark, 2005, Edelenbos, 2005, Vreke et al., 2009, Domingo and Beunen, 2012, Eshuis, 2006, Van Assche, 2007, Edelenbos and Klein, 2007, Stoker, 1998). In a governance structure different parties cooperate together in a more horizontal way in order to achieve policy goals (Edelenbos and Klein, 2007). Nowadays, the traditional top-down approach whereby the government decides on its own is not applicable anymore in today's Dutch society (Ark, 2005). The society demands different forms of steering by the government.

Spatial planning changed from a technical oriented discipline toward a more social one (Domingo and Beunen, 2012). The traditional role of a planner changed from expert towards roles as mediator, negotiator or facilitator in order to deal with various actors in a policy process. There is not one perfect technical solution for a problem but various stakeholders with different values and interests construct different ideas about what the problem actually is and what best solution could be. In other words, spatial planning has to deal with the multiple perceptions of reality of involved actors (Vreke, et al., 2009, Domingo and Beunen, 2012).

Within governance more horizontal interactions between the state, citizens, NGO's, companies, etc. are applicable. The state (or government) is not capable to steer society on its own. Moreover, no single stakeholder is fully capable to solve a problem on its own (Hidding, 2006). Resources that are necessary to achieve certain goals are spread among stakeholders and therefore various actors have to cooperate together. In practice different stakeholders are involved in spatial

planning processes. The process itself becomes more important: Who is involved? What roles do they have? How should a plan or decision be arranged? It also means that responsibilities among stakeholders are shared, as not only the government is responsible in a policy process, but also private sectors and citizens (Stoker, 1998). Instruments for steering, based on persuasion, facilitation and support are applied (Vreke et al., 2009). For example, the Dutch provinces provide funding to parties who improve the quality of rural areas by arranging voluntary re-allotment.

Besides this, processes within spatial planning are influenced by power, politics and the context is important (Domingo and Beunen, 2012). This means that not every method is applicable in every situation, another context might ask for another approach to solve a problem. Moreover, actors themselves construct a context and what the 'best' solution could be (Van Assche, 2007).

Many stakeholders are involved in spatial planning practices. Therefore situations become more complex and uncertain due to different perceptions, values or interests (that can be conflicting) of the involved stakeholders (Ark and Edelenbos, 2005, Domingo and Beunen, 2012).

2.1.1. Interdependence

In processes in which more than one actor is involved, there exists interdependence between these actors most of the time. Alexander (2001) writes the following in his article about interdependence:

'Interdependence means that some private or particular aims cannot be realized without interaction with others and their participation.'

(Alexander, 2001, p.315)

Every actor has its own unique capacities. These capacities are resources that an actor possesses to influence choices. It are physical recourses like land or money, access to information (for example the information about property of land, the use of GIS), technological capacities, knowledge and also personal skills like skills related to communication or negotiation (Ark, 2005). Since these resources differ per actor, those resources are spread among different actors (Edelenbos et al., 2011). A parcel exchange coordinator has the knowledge of an area as a whole. He knows better than the individual land owners themselves who owns which parcel.

However, scattered resources on its own do not lead to interdependence. This is the case when one actor wants to achieve a certain goal whereby it needs resources that the individual actor does not have. Actor X needs resources of actor Y and the other way round; actor Y needs resources of actor X. These two actors are then 'forced' to cooperate. Besides resources and goals of actors, actions of actors are also related to interdependence. For example, within plans that the government makes for the development of ecological network (EHS) plots designated as 'new nature'. This will have an effect on a farmer that owns that plot; he might become limited in the use of that plot or the plots that are located next to the plots that are designated as 'new nature'. Ark (2005) writes that networks of actors exist as a result of the exchange of resources, and thus interdependence.

In the case of interdependence among actors, not only self-interested or private goals of an actor can be achieved. Next to private goals, Alexander (2001) distinguished common goals and mutual goals. Common goals are goals that are applicable for every actor in a bigger societal group. The third type, mutual goals, are goals that were private goals of an individual actor, but are accepted in the bigger group as one of the common goals.

Because of these three types of goals actors need to act in a strategic as well as a communicative way; strategic action to realize self-interested goals, communicative action for mutual goals and common goals, understanding and consensus (Alexander, 2001). Acting in a pure strategic way might result in others that will not cooperate, because one only strives for his own goals. Acting in a pure communicative way might result in only achieving mutual and common goals, but self-interested goals will not be achieved. For example, a farmer that participates in a voluntary re-allotment wants to take advantage out of it. Though he also knows that he depends more or less on the participation of another land owner and therefore mutual concessions should be taken.

2.1.2. Interaction in networks

The network approach from public administration provides insights in the interdependence between different actors in networks. It assumes that policy networks are characterized by interdependence among different stakeholders. Dependency relations are crucial for the emergence and existence of networks (Edelenbos et al., 2011). Social aspects, like trust, are important (Ark, 2005). This decreases uncertainty about the behavior of others. The network approach analyses policy networks and in addition to that, stakeholders have a certain independence in determine their own behavior, which is based on the power they possess in a network. Interactions between stakeholders are complex, objectives are interrelated and the interactions between stakeholders do have certain stability but are also dynamic and change continuous (Ark, 2005).

In order to understand a process that occurs in a network, it is important to gain insight in the context of the network as well as the behavior of individual actors within the network. The context is important because it provides boundaries or rules for how the network can function and how the actors behave in it. The behavior of individual actors is important to gain insight in, because in the end this behavior is to a certain extent determined by the actors themselves. Ark (2005) presents in his book three levels for analyzing a network (based on March, 1998):

- The macro level - This is the level of the environment of the network, the institutional conditions that are not part of the network itself.
- The meso level - This is the level of the network itself, by that is meant the actors and their mutual dependence.
- The micro level - This is the level of the actors (persons) themselves and their personal relationships (Ark, 2005. p.63).

2.1.3. Network management

The concept of network management provides a way to deal with interactions in networks (Klijn et al., 2010). Interaction is important to achieve self-interested, common as well as mutual goals (Alexander, 2000). Besides that, it is important to address conflict and achieve consensus (Domingo and Beunen, 2012). Actors' ideas or opinions about certain issues, are not only a state of mind, these ideas arise and change constantly due to interaction with others (Dewulf et al., 2009).

Network management creates and influences the processes of interaction; goals and resources are confronted and exchanged with each other. Part of the process is the negotiation about goals, solutions and resources among interdependent actors. (De Bruijn et al. 1993 cited in Ark, 2005). Klijn et al. (2010) also elaborate on network management, they describe it as:

'Network management initiates and facilitates interaction processes between actors (Friend et al., 1974), creates and changes network arrangements for better coordination (Rogers & Whetten, 1982; Scharpf, 1978), creates new content (e.g., by exploring new ideas; Koppenjan & Klijn, 2004), and guides interactions (Kickert et al., 1997; Mandell, 1990).'

(Klijn et al., 2010, p.7)

According to Klijn et al (2010) network management should also strengthen and develop trust. Klijn et al. (2010) divide different network management strategies into four categories: *connecting*, *exploring content*, *arranging*, and *process rules*. Edelenbos et al. (2011) write that if a lot of strategies are used together, the perceived outcomes will be better, than when less strategies are applied.

Activities related to *connecting* are necessary to start the process; actors or resources should be activated. Creating a situation that becomes attractive for actors to invest their resources in, is part of that. *Exploring content* is related to identify problems and solutions. The goals of actors should be clarified. For example, within a process of voluntary re-allotment the process manager makes an inventory of the agricultural structure, relevant spatial policy claims of the government, the willingness to participate of land owners and their wishes. Next to this, the *arranging* activity means that (temporary) structures for consultation, interaction and deliberation are established (Edelenbos et al., 2011). For example, an invitation for different action groups to negotiate and discuss via organized meetings (Klein et al., 2010). The fourth cluster of activities is *process rules*. It are activities that are related to setting rules for interaction between the actors, it should structure the behavior of actors and it should protect core values of actors (Edelenbos et al., 2011). This fourth group of activities can also be seen as institutions, since it provides rules or structure for what is allowed to do (or not) and in what way. Important to mention is that a part of these rules already existed and they might be changed or redefined within the process itself.

2.2. Uncertainties, expectations and conflict

Uncertainty is inevitable in complex decision making processes. It influences the choices that actors have to make in their behavior. Therefore, the perception of actors on uncertainties is important. Abbott (2005) formulates the following definition of uncertainty:

'A perceived lack of knowledge by an individual or group, that is relevant to the purpose or action being undertaken.'

(Abbott, 2005, p.238)

People and organizations want to make decisions that will lead to their desired outcome. To make a decision, there will always be different uncertainties that might have an influence on that desired outcome and then another decision could be more applicable.

Abbott (2005) makes a distinction between two types of uncertainty. First, uncertainty from the planning context, the environmental uncertainty, this type of uncertainty is perceived by everyone in the environment, for example demographic developments or climate change. Second, is the uncertainty from the planning process itself, this type of uncertainty is only perceived by the involved actors and it is called process uncertainty (Abbott, 2005, Domingo and Beunen, 2012).

Within these two types of uncertainties a further distinction is made in different dimensions of uncertainty. Important to mention is that there is also some overlap between the environmental and process uncertainty. See also table 2.1.

Table 2.1. Uncertainties and their dimensions (based on: Abbott, 2005)

Dimensions of environmental uncertainty For planning	Dimensions of process uncertainty From planning
Truly unknowable chance events - Chance uncertainty	Uncertainty in knowledge of the environment - Value uncertainty
Uncertainty about the external environment - External uncertainty	
Uncertainty about intentions of others - Organizational uncertainty	
Uncertainty in knowledge about basic causal relationships - Causal uncertainty	

Within environmental uncertainty, the dimension chance uncertainty are uncertainties about future events that are truly unknown and affect a situation, like a flood disaster or the outbreak of an animal disease on farms. Next to this, uncertainties about the external environment are uncertainties about the wider social environment that can have an effect on the case, for example: the economic development in China or political decisions of the national Dutch government.

In both types (environmental uncertainty and process uncertainty) two dimensions are applicable: organizational uncertainty and causal uncertainty. Causal uncertainty is uncertainty in knowledge about causal relationships of the local environment of the case itself. Organizational

uncertainty is about the intentions and behavior of other people or organizations (Abbott, 2005). An example of this type is about whether a farmer is willing to cooperate in a voluntary re-allotment project or not, and if so, with what land and for what price.

Some authors argue that uncertainty about the behavior of others can be decreased by more coordination. In other words, provide rules that structure behavior of others. However, this does not guarantee that actors will behave as another wants. Uncertainty about the intentions of others can decrease when trust is present between actors. Trust is a way to deal with the uncertainty about how another will behave. If someone trusts another, he assumes that the other will behave as expected. It decreases the perceived uncertainty about how the other will behave. (Ark and Edelenbos, 2005, Klein et al, 2010).

In voluntary re-allotment is, as already in the name, on a voluntary basis, this means that there is in these projects no legal instrument used to 'force' land owners to cooperate, this gives uncertainty in whether someone will cooperate or not and to what extent. This means that trust in individuals is important.

Within process uncertainty a dimension about appropriate value judgments is also included, called value uncertainty. This dimension is related to how different actors perceive and value information differently (Abbott, 2005). Because actors have different perceptions on the world out there, they will also value information differently. As already mentioned in section 2.4, this can lead to higher transaction costs in a process because of discussions on the validity of the found information. Value uncertainty can also be relevant to voluntary re-allotment, since there are more actors involved, sometimes with different backgrounds and (conflicting) interests are cooperating together.

Related to uncertainties are the expectations among actors. Those are perceptions of actors regarding the future. Domingo and Beunen (2012) describe expectations as:

'Current perceptions of a future situation that people consciously and unconsciously develop in order to deal with an unknown future'

(Domingo and Beunen, 2012, p.4).

Expectations are based on events in the past, current uncertainties and conflict. Through time they can change, become more positive towards, for example a plan for exchange of plots, but expectations can also become more negative. Expectations are not fixed; they change constantly through new insights of stakeholders (Domingo and Beunen, 2012).

Expectations and uncertainties can be perceived differently by stakeholders, when this is the case conflicts may appear (Domingo and Beunen, 2012). Alexander (2000) describes conflict as:

'The result of differences: divergence between values or opposition between self-interested aims and goals of specific individuals, groups or societal units.'

(Alexander, 2000, p.315).

Conflicts are differences in frames about an issue. Framing is a concept about how persons make sense of the world out there (DeWulf, et al., 2009). Each actor has different perceptions based on his own personal background like education, culture, religion, work, friends, etc. When these perceptions or frames differ, conflicts may arise. Is the opposite of acceptance (Domingo and Beunen, 2012).

2.3. Institutions

The concept of institutions can be used to gain insight in the interactions and behavior of actors. Developing and enforcing institutions is way for people to deal with uncertainties is by making rules on how to behave. Institutions, or the institutional conditions or arrangements, affect to a certain extent behavior of actors in networks. It restricts behavior but it also makes behavior possible. Institutions are rules to guide behavior (Eshuis, 2006) and organizations are the players (North, 2005). North (1990) formulated a definition of institutions as follows:

'The humanly devised constraints that shape human interaction. They reduce uncertainty by providing a structure to political, social, and economic exchange.'

(North, 1990, p.182)

It means that institutions reflect the human beliefs about how we think the world is and how it works and how a society should function, it is way to structure society in order to achieve desired outcomes (North, 2005) It also shows also how a society values and evaluate ideas (Ark, 2005). Rules are established by the ones that have the power to do so. These rules will only be effective if they are accepted by others. This differs per rule and per part of a society; rules can be accepted the whole society or only in small parts of it. It is also possible that others will avoid or resist rules, and behave in a way they think is the norm. It means that the effectiveness of the enforcement of rules is relevant. In other words not only rules themselves shape 'the game', the rules should be accepted and fit in the norms and values of a society (North, 2005).

Norms and values differ in time and place, this means that institutions also evolve. First of all, the rules (institutions) and the players (organizations or actors) are interacting and that shapes institutional change (North, 2005). Due to ongoing interaction between actors, actors gain new insights and opportunities and that will result in insight for new institutional arrangements. Edelenbos (2005) writes:

'Institutions are constantly being perceived, interpreted, and reinterpreted. Rules do not just make the interaction game, but are also confirmed or changed during the policy game.'

(Edelenbos, 2005, p.115)

Institutions play an important role in the composition of a policy network, they influence who will be involved and who not and who has access to the decision making and who not. It also affects to a certain degree the power of involved actors (Ark, 2005, North, 2005). Besides that, rules or

institutions are constructed within or for a process itself, but there are also institutions/rules that arose from outside the process itself and do affect a process (Edelenbos, 2005). Institutions also shape the roles of actors, which can be seen as a specific type of rules. Roles determine what an actor is allowed to do or not, what competences belong to them or not and determines to some extent the power that actors have (Edelenbos, 2005).

Institutions are seen as part of the context wherein a process of interacting actors in a network takes place. The set of rules do affect the outcomes, since institutions influence the choices that actors can make. However, the actual choices on how to behave are made by actors themselves (Ark, 2005). This means that actors themselves make 'rules' about how to behave and that will result in rules or institutions that change continuously.

Although institutions are to some extent flexible, a system of institutions is not completely flexible in its development, there is also rigidity in the development of institutions. They are also shaped by developments in the past, which is described by the concept of path dependency, which can be defined as:

'Rigidity in the development of organizations, institution or society, that can be ascribed to legacies from the past.'

(Van Assche et al., 2011, p.1001)

In other words, decisions that are made in the past have a strong effect on how institutions function today. To summarize, there is always some flexibility but also rigidity in the development of institutions.

2.4. Trust

Previous section discussed institutions, which is a way to deal with uncertainties about the behavior of others. Institutions can only function properly if they are accepted; it means that trust in institutions is also relevant. Dealing with uncertainties about the intentions of others, can also be based on trust in the other. When actors trust each other, they assume that the other behave as expected.

Because voluntary re-allotment is based on, as already in the name, voluntariness, it contains uncertainties, especially about the behavior of others and it are complex processes. Trust is an important aspect to deal with these complex and uncertain situations (Ark and Edelenbos, 2005). There are various reasons for this.

First and as already mentioned, it is a way to deal with uncertainties of the intentions of others. If actors trust each other, they assume that the other will not behave opportunistic and will take also the interests of the other into account (Ark and Edelenbos, 2005). Even when a possibility rises to behave opportunistic, one will assume that the other will behave as expected (Klein et al, 2010). Important to mention is that there is no guarantee for that in the form of a formal contract or anything similar. In addition to assuming that one will not behave opportunistic, it reduces conflicts between actors.

A second advantage of trust is related to the first one. Trust increases the change that actors will invest their resources (money, knowledge, land, etc.) in cooperation (Klein et al, 2010). This increases the stability in cooperation. Related to this, in a situation when another is trusted, the exchange of knowledge increases. As already mentioned in previous sections, knowledge and resources are divided among different actors. Combining this knowledge from different point of views can lead to better solutions (Klein et al, 2010).

Another assumption is that trust reduces transaction costs (Edelenbos and Klein, 2007). If the participating parties trust each other, there has to be less invested in the process because there is more certainty about the strategies of other actors. At the other hand, to create or acquire trust among others, you need to make (transaction) costs. So, to get trust from others it is possible that transaction cost will be higher. Related to this, Eshuis (2006) concludes in his research on trust and transaction costs in agricultural nature management that trust and transaction costs are influencing each other. Indeed, trust reduces the transaction cost, but to create trust you need to make some transaction costs. An example of the other way round is that low transaction costs can generate trust. If a process has low transaction costs, the chance rises that actors get trust in it the process because it delivers relatively more results, in addition to this, perceptions on costs can also differ. In other words, trust and cost are influencing each other simultaneously.

Trust in processes

Trust has a dynamic character which is related to the dynamics of planning processes wherein interaction between individuals and organizations play a big role. Eshuis (2006) writes about trust in process which is a positive expectation about the development of the process and its outcomes. It is dynamic, trust of actors in a process is not predictable how it will develop and there is not something like an end stage of trust. Every action of an actor can influence trust; therefore it is dynamic since all the actions of actors are also dynamic and not predictable. Trust in a process is composed out of three objects of trust: trust in individuals, in organizations and in institutions.

Trust in individuals is trust in a person. It is based on behavior, intentions and competencies of the one trusted. Trust in a person takes time to establish, a positive history of interaction with that person contributes towards trust in him or her. It is an important condition in building relations in policy processes (Vries, 2008, Eshuis, 2006). When actors start to interact with each other, it is in the first place based on commercial, economic or political related motives, after a while interactions:

'Often become overlaid with social content that carries strong expectations of trust and abstention from opportunism.'

(Granovetter, 1985 p.490 cited in Eshuis, 2006)

Important to mention is that trust in individuals is linked to the capacities of an actor related to maintaining relationships and communicative skills (Eshuis, 2006). Secondly, trust in or between organizations is based on knowledge and expectations of an organization as a whole. It is important for the cooperation between organizations (Vries, 2008).

The third object of trust is trust in institutions or in institutional arrangements, it are the rules (in its broadest sense of the word) that structure the cooperation between, and the behavior of actors, it makes behavior possible but at the same time it restricts behavior. The reputation of institutions is important for trusting those (Eshuis, 2006). If all actors accept institutions it will provide some grip on the process (Vries, 2008). Institutions structure behavior and that reduces uncertainties of behavior of others. However, if institutions are too rigid and have too much control in it, it will result in non-acceptance of the institutions (Vries, 2008) and that will lead to institutions that do not function properly.

Another distinction in types of trust that the distinction between confidence and trust by Luhmann (1988). Confidence is a type of trust wherein an actor does not have to think about alternative options, actors perceive those kinds of occasions as self-evident (Ark, 2005). For example, we assume that the Dutch monetary system functions properly and we assume that our property rights of real estate are registered correctly in The Netherlands. Confidence is always present in a passive way in our everyday lives. Confidence is related to trust in institutions or institutional arrangements (Ark, 2005). In comparison with confidence, 'trust' is conceptualized by Luhmann (1988) as a more conscious choice to trust another or not. An actor takes a risk to trust another based on expectations.

Trust in individuals has a different character as trust in organizations, in institutions or confidence. For trust in individuals personal interactions are important. On the other hand institutions provide structure and reduce uncertainty in behavior but it also does not guarantee that an actor will behave as expected. Besides that, a lack of trust or confidence in institutions can lead to a lack of trust in individuals. Cooperation between individuals will not succeed if there is no basis of personal trust between them (Ark, 2005).

2.5. Transaction- and process costs

To gain insight in the costs of processes wherein uncertainties, trust and institutions play a role, the transaction costs theory used. Transaction cost are the costs that have to be made to reach agreements between two (or more) parties, it is about economic as well as social processes (Eshuis, 2006). The transaction cost theory has its roots in the New Institutional Economics (NIE). This theory provides insights to analyze organizational structures and explain them within their institutional context.

Different types of transaction costs can be distinguished. A main distinction within transaction costs is based on activities. These are cost ex-ante: search- and information costs, costs to draft, cost to negotiate and costs to conclude a contract. Cost ex-post: monitoring costs, enforcement costs and costs for planning and evaluation (Groenewegen et al., 2010, Eshuis, 2006). *'Ex-ante costs are incurred to reduce ex-post costs as much as possible.'* (Groenewegen, et al., 2010, p.23) However, due to bounded rationality, opportunistic behavior and uncertainties, decisions or agreements will always be to some extent incomplete. This means that cost ex-post might arise (Groenewegen et al., 2010).

Eshuis (2006) states that transactions in a policy process are more versatile compared to economic transactions. In most policy processes various actors with various stakes cooperating together. Therefore activities that are applicable in a policy process are also important. For example, gaining attention for a specific problem, applying changes in a existing network of actors, developing and maintaining relations with actors, building coalitions, are also important to bear in mind.

With these aspects added, the transaction costs can also be seen as process costs. Process costs can be expressed in time and resources, examples of resources are money and labor/effort/energy (Eshuis, 2006).

Determinants of transaction costs

According to the perspective of NIE, transaction costs are influenced by uncertainty, asset specificity and frequency of transactions and behavioral assumptions of actors: bounded rationality and opportunistic behavior (Ark, 2005, Eshuis, 2006, Groenewegen et al., 2010, Bijman, 2012). Eshuis (2006) adds to this that the perception of actors also has its influence on transaction (or process) costs, which is especially applicable in processes wherein various actors are participating.

First, the aspect of uncertainty. Uncertainty causes transaction costs because measurements have to be taken to decrease uncertainty, for example, searching for in-depth information or preparation of contracts (Eshuis, 2006). It includes uncertainty about the behavior of others, which is related to opportunistic behavior and about the question if the participating actor is competent. Also uncertainties from in the environment are always present and influence transaction costs like, political decisions, economical developments or climate change. Some uncertainties in the environment are truly unpredictable, since we live in a world that change continuously. North (2005) refers to a non-ergodic world we live in, which means that our world changes continuously and it will never be the same as it was before. It has more the tendency to change through legacies of the past.

Also the frequency of transactions has influence on the height of transaction costs. When transactions take place more frequently, knowledge will be built about that transaction, it can develop certain routines and that will lower the transaction costs (Eshuis, 2006, Groenewegen et al., 2010). There is not the need to find again and again new appropriate and trustable partners. Actors can build on long-term relationships, which will enlarge the knowledge of the other and that can build on mutual trust among actors.

Also asset specificity causes transaction costs, it is the extent to which a resource of a transaction, can be used in another transaction with another context without loss of its value (Eshuis, 2006). It is related to uncertainties, risks and interdependency among actors. Actors that arrange a transaction for a resource with a high degree of asset specificity, become dependent on each other since they need the others that own (or will own) that specific resource or good. Through the interdependency among these actors, uncertainties and risks related to the transaction become more relevant. More transaction cost are made in order to decrease uncertainties and risks related to that transaction with those specific resources and the involved actors. It is likely that actors will gain a lot of information about the other before they will make the transaction official. It means also that all aspects related to risks and uncertainties should be included in a contract between the parties. However, due to bounded rationality it is impossible to include all possible events related to that transaction in a contract (Groenewegen et al., 2010, Eshuis, 2006, Ark, 2005, Bijman, 2012).

Different types of asset specificity can be distinguished, a resource can be bound to a location, bound to specific knowledge, bound to its specific physical characteristics, etc. (Ark, 2005, Bijman, 2012). Within voluntary re-allotment the property rights of land (and sometimes buildings) are transferred. Land and buildings are 'goods' that have high asset specificity since it is bound to a location and to its physical characteristics.

Related to the aspects of a transaction itself, behavioral assumptions of actors also influence transaction costs. First, bounded rationality is about that agreements between different actors are always to some extent incomplete because of limited rationality of the human mind. Although humans have the intention to be completely rational and take every aspect into account, the human mind is simply not capable to cope completely with the complexity of the world out there (Ark, 2005, Williamson, 2000). In other words, we are not (fully) rational decision makers, we do not shape the optimal solution, but we shape a satisfactory one. This means that it not possible to take into account all possible events related to a transaction and uncertainties remain (North, 2005).

Another aspect that influences transaction costs is the assumption of opportunistic behavior of actors (Ark, 2005, Bijman, 2012). This causes uncertainties about the behavior of others, costs are made to make sure the other will not behave opportunistically. Especially in situations where one is dependent on the other, opportunistic behavior will lead to more transaction costs. The other has to deal with that particular person or organization, and cannot easily go to another partner (Eshuis, 2006), transaction costs are made to decrease opportunistic behavior.

Eshuis (2006) puts attention towards the fact that NIE assumes that one can calculate the cost and benefits in a neutral way. However, in processes where different actors with different backgrounds are involved, the perception on the costs is also important. Due to differences in backgrounds of actors, actors have different interpretations of the world out there and that will result in differences about transaction costs and it has consequences for the transaction costs itself.

First, perceptions on costs can differ because of actors can have various ideas on how a process should or could be organized and that has consequences for the transaction costs. But also about what are cost and what not? What takes a lot of effort or not? What is too expensive? Who pays for it or who puts energy in it? An example of this is about the distinction between public and private costs. This distinction can be important to refer to in re-allotment processes, since the perception on public or private transaction costs can be different. Private transaction costs are for a company immediately noticeable, public transaction costs not, and thus those may be perceived differently (Eshuis, 2006).

Second, actors with different values participating in a process and that has consequences for the transaction costs itself, especially for the search- and information costs. Because of different perceptions of actors, costs are not only made for the actual search for information but also for discussions about the different interpretations of the found information. Abbott (2005) refers to this as uncertainty in value judgments.

2.6. Conclusions and sub-research questions

Different types of actors, with different backgrounds, values ideas and interests are cooperating in networks, these actors are dependent on each other to achieve goals, defining and solving problems. This interdependence is a result of resources that are spread among different actors that are required to achieve their goals.

Within complex decision making processes in which different actors are cooperating, these actors perceive uncertainties. It are uncertainties related to the environment, from outside the planning issue, like climate change or economic developments and uncertainties related to the planning process. These two types are related to each other.

Uncertainty of the behavior of others is one of the mentioned dimensions of uncertainties in the planning process. Especially this type of uncertainty is relevant in voluntary re-allotment. Voluntary re-allotment does not have legal rules to force land owners participate. The voluntary basis results in that the participation of others is more uncertain compared to legal land consolidation. Besides this, uncertainty about others becomes more relevant when one actor depends on the other actors (Eshuis, 2006). In other words, if someone doesn't need the other to reach a particular goal, then it is also not relevant how other will behave. However, this is rarely the case in spatial planning issues and most of the time actors need each other to achieve goals.

Uncertainty about value judgments of actors can also play a role, due to different perceptions of actors, actors value information differently. This can lead to a lot of discussions about what the best solution could be. Besides that, it can also increase the transaction costs.

(Positive) expectations towards an issue are related to uncertainties, expectations change continuously due to new insights of actors that they gain through interaction with others. Expectations and uncertainties can be managed through the interactions of different stakeholders. But important to mention is that: *'different expectations and uncertainties are always present and, although partly manageable, they will never disappear and will always influence planning processes.'* (Domingo and Beunen, 2012, p.5). It is important to bear this in mind when managing a process.

Institutions influence the process of interactions in a network and structure the behavior of actors within the network. First, rules/institutions from outside a voluntary re-allotment process affect the processes. For example, in voluntary re-allotment processes are (to some extent) dependent on the funding of provinces and the funding is differently applied in the different provinces in the Netherlands. Related policy fields, for example the development of the National Ecological Network (EHS), have also its influence on the processes.

Second, also rules that are set are part of the network management itself can be seen as institutions that structure the behavior of actors. In the network management approach is referred to this as process rules. These rules or guidelines can be, for example, determined by a process manager or a commission. It provides the rules and roles; each actor should stick to it in order to run the process of interaction smoothly and honestly. These rules also determine who is involved and to what extent. However, actors themselves do have certain autonomy to determine their behavior.

This means that they can make their own rules how to behave and that will result in institutions that are in continuous change.

An aspect that is related to this is that the persons that can determine the rules are also part of that network themselves. This is part of the following as Ark (2005) explains. He writes that the structure of a network and the actions of the actors in the network influencing each other. On the one hand, networks are the structures that show the preferences of the actors within the network. On the other hand, actors change these structures by their behavior, which will result in a different context. At the other hand, institutions are also limited in their flexibility, they cannot just be changed without restrictions. This rigidity in change is related to legacies from the past. It means that decisions made in the past have a strong influence on how institutions are as they are today.

Expectations about the behavior of others can be based on the institutions. Though, it can also be based on trust in the other. Trust is an important aspect in interaction between actors. It can influence the behavior of actors. If one actor trusts another, he assumes that the other will behave as expected and will not behave opportunistic. Next to trust in persons, trust in institutions can be important because it can provide structure within voluntary re-allotment processes. Voluntary re-allotment is on voluntary basis, which means that there is in these projects no legal instrument used to force land owners to cooperate, this gives uncertainty in whether someone will cooperate or not and to what extent. This means that trust in individuals becomes more important.

Transaction costs are made within each process to reach agreements between two or more parties. These costs are influenced by several determinants: bounded rationality, opportunistic behavior, uncertainties, asset specificity and frequency of the transactions. Besides that, the differences in perceptions of actors also play a role in transaction costs. These determinants can help to explain the development of processes.

Perceptions of actors play a big role in networks wherein actors have different backgrounds. It influences transaction costs, but also uncertainties are perceived differently and expectations towards a subject can be different.

Within the cases of voluntary re-allotment different types of actors are participating in networks. It is not clear how these actors behave and interact with each other in that network. Besides this, a question that rises is: How do institutions as well as trust affect the behavior of the different actors within these networks? Next to this it is not clear how the approach of a voluntary re-allotment affect the development of the process and how is this related to its (perceived) outcomes?

Sub-research questions

As stated in the introduction, the main research question is: *How are processes of voluntary re-allotment organized and how does the approach relate to the development of these processes, the behavior of actors and the outcomes?* Based on the theoretical framework, the following sub-research questions are formulated to answer the main research question:

1. What role play perceived uncertainties in processes of voluntary re-allotment and how is dealt with that?
2. How are the different processes of voluntary re-allotment organized?

3. How do relevant policies, regulations and process rules (institutions) play a role in voluntary re-allotment processes?
4. How does trust play a role in voluntary re-allotment processes?
5. How do actors perceive the transaction costs of a voluntary re-allotment process and what causes transaction costs?
6. How do actors perceive the outcomes of the processes?

Next chapter, Research design, elaborates on how to answer the research questions. The cases, which are described in chapter 4, should provide answers to the research questions.

3. Research Design

This chapter elaborates on how this study was carried out in order to find an answer to the research questions. Three different cases are used because differences in contexts can help to explain the findings in the cases. In every case there is difference in history, physical structures, social structures, policies of governments with objectives related to nature, agriculture, water or infrastructure, etc. Also the organization of the process for the voluntary re-allotment itself differs in each case. To obtain information of each case, a document study as well as interviews with different types of actors are conducted. Interviewing different types of actors gains insight in their perceptions. Therefore, this chapter elaborates first on a concept related the perception of actors, which is framing. Thereafter, section 2.3 presents the approach of the research.

3.1. Framing

Different actors are cooperating together in networks. This research assumes that actors have different perceptions, which is based on their personal background, values, stakes, interests, etc. Actors behave differently, they make different choices based on their personal perceptions. *'That is the way the mind interprets and the information it receives'* (North, 2005, p.61).

The question that rises now is: How are these perceptions constructed? In this research is assumed that people, individuals or actors, make sense about the world around them themselves, reality is constructed by people. Perceptions of people are selective due to different backgrounds that people have, like education, culture, values, religion, friends, work, etc. These aspects play a role when people constructing meaning about the world around them. Not all information can be observed, selected and proceeded; we select (subconscious) information that is relevant for our own interests, in other words, we focus on the aspects that are the most interesting for ourselves (Isendahl et al., 2009).

A concept related to the mentioned above is *framing* (Isendahl et al., 2009, Dewulf et al., 2009). Framing is a concept about how people make sense of the world. Dewulf et al. (2009) distinguishes in their article two different approaches: cognitive framing and interactional framing, respectively *'frames as cognitive representations'* and *'framing as interactional co-constructions'* (Dewulf et al., 2009, p.156)

Within the cognitive framing approach frames are knowledge structures, stored in the human mind and can be applied on different contexts, situations, etc. It is not a state of the world but a state of the mind. At the other hand the interactional framing approach assumes that reality is not a state of the world and also not a state of mind (as within the cognitive framing) but it is 'framed' within the interaction between different actors (Dewulf et al., 2009). Meanings are constructed in the ongoing process of interaction.

3.2. The approach of the research

The research started with a literature/document study to gain first insights in the field of land consolidation in the Netherlands. In this literature study scientific papers as well as documents from practice are read. Besides that, some orientating interviews are done with different persons that are involved in voluntary re-allotment. These are representatives of the following organizations:

- Kadaster (Land Registry and Mapping Agency)
- DLG (Government Service for Land and Water Management)
- LTO (Dutch Federation of Agriculture and Horticulture)
- Stivas (Foundation for the improvement of (agricultural) spatial structure)
- Optifield (Advisory for rural areas)

These interviews and document study are used to widen the study. These interviews gained insight in voluntary re-allotment in the Netherlands in general. The main focus of the research will be on the three selected cases.

3.2.1. Case study

To answer the research questions three cases are investigated. Case study is used to explore in depth processes of voluntary re-allotment. The cases are examples of a processes of voluntary re-allotment in a specific context. The three cases differ in context and that can help to explain differences in each case (Flyvbjerg, 2004, Cresswell, 2009). In every case there is difference in history, physical structures, social structures, policies of governments with objectives related to nature, agriculture, water or infrastructure, etc. Besides this, the research questions aim at providing an answer for an issue that is closely related to real life situation, actually, it is about a real life situation.

This research focused on three cases, which are areas where voluntary re-allotment takes place. The cases focus on the process of exchange of ownerships of parcels until the moment that the deeds are signed and the new situation of ownerships is set in the Kadaster. It does not focus on the (new) use of the land itself by the new owner. The cases which are used, should meet some criteria meet the following criteria:

- The method used in the project is based on a voluntarily basis and it is voluntary re-allotment according the law WILG.
- The voluntary re-allotment in the area has a link with different goals related to the improvement of the agricultural structure, nature, water or infrastructure.
- All three projects have a (slightly) different approach.
- Exchange of ownership of land has occurred, in other words actual deeds have been signed.

Besides this, also practical reasons played a role in the selection of the cases, like the availability of documents and participants that wanted to cooperate. The selected cases are:

1. Kavelruil Heusden

This voluntary re-allotment is done on a project based way. It exists out of three separated projects, which succeed each other through time. It started in 2000 and since then 1950 ha is exchanged in 15

deeds among 215 unique participants. The main focus is on the improvement of agricultural structure, however also nature related goals, like the development of the ecological network plays a role in this voluntary re-allotment (Optifield, 2007).

2. Kavelruil Epe-Vaassen

The area Epe-Vaassen is located to the east of the Veluwe. In the past 10 years, 429 participants exchanged 1130 ha of land in 50 deeds for improvement of agriculture in this area. Also 110 hectare exchanged for the improvement nature, water and infrastructure (Brummelaar, 2012).

3. Kavelruil Kempen-Broek

Initiators of this voluntary re-allotment are ARK Natuurontwikkeling, Habitura and Rentmeesterskantoor van Soest. On behalf of the province of Limburg, these three parties have the task to realize the ecological network (EHS) As a mean voluntary re-allotment is used, this project does not only aim at nature related goals, but also aims at the improvement of agriculture. The project started in 2010, and since then 3 deeds have been signed wherein 49 unique participants participated.

3.2.2. Document study and interviews

For each case interviews and a document study are used to obtain information. The information gives insight in contextual aspects, like the history of the area, the physical aspects, relevant spatial policies, the way of applying voluntary re-allotment in the area, formulated goals beforehand and achieved goals. Besides that, information about how the different involved persons, organizations and companies perceive the process and way of working, achieved goals, transaction costs, how do they look to other parties, the context and how do they interact with each other.

The combination of the two methods, interviewing and document study, should overcome the disadvantages of the other. Assuming that information in documents is written down in a thoughtful way, a document study provides additions to interviews. It also gains insight in the language and use of words by the actors in the cases (Cresswell, 2009). A document study is suitable to find out about the organization of the processes, who has which roles, descriptions of the areas, budgets, funding, etc.

At the other hand, a disadvantage of a document study is that the written information might be incomplete; only information which the writer finds important is written down. Interviews as one of the methods to collect data can (partly) overcome this. The interviewees can provide historical information about the case and tell about their personal view related to the process of the project (Cresswell, 2009). Interviews provide insight in the diversity of the meanings of the respondents. The interviews are especially interesting for investigating concepts trust, uncertainties, expectations, which mostly are not captured in documents and do also differ per person. However, it is important to bear in mind that it is possible that interviewees will give socially desirable answers.

These different sources should provide a complete as possible overview of the cases. Within the document study the following documents are investigated for each case:

- Websites of involved actors (process managers, governmental organizations, nature organizations, representatives of farmers (LTO departments))
- Local newsletters and newspaper articles
- 'Official' documents: plan of action, project proposals, progress reports, final reports
- letters to the providers of subsidy
- letters of intent, draft purchase agreements
- diagrams of voluntary re-allotments

For each case persons with different roles are interviewed, all interviews are done individually to let the interviewee tell as much as he wants. The interviews were semi-structured and open-ended questions were used in order to elicit views and opinions from the interviewees. The interviewed persons are divided into four categories, namely: process managers, farmers, nature organizations and governmental organizations. This distinction is made because these groups have different interests. The following persons are interviewed:

For the case Heusden:

- Process manager: the project leader (Optifield)
- Three farmers
- Two governmental organizations (Water Board Aa and Maas and the municipality of Heusden)
- A nature organization (Natuurmonumenten)

For the case Epe-Vaassen:

- Process manager: the parcel exchange coordinator
- Two farmers
- A governmental organization (Water Board Veluwe)
- A nature organization (Gelders Landschap)

For the case Kempen-Broek:

- Process manager: the steward of Rentmeesterskantoor van Soest
- Two farmers
- A nature organization (Stichting ARK)

After conducting the information by interviews and the document study, the information is analyzed. The interviews were transcribed and after that they are coded. The codes are based on the theoretical framework. The following terms were used: interdependence, goals and motivations of actors, organization of the process, uncertainties, expectations, conflict, institutions, trust in persons, trust in organizations and trust in institutions. Terms related to costs that were used are: money, effort, time and the determinants of transaction costs. These terms are also referred to in combination of each other. The terms are used to gain insight in similarities and differences between each case, the actors within each case and to compare the cases and its actors together.

4. Results

Voluntary re-allotment takes place in every part of the Netherlands. There are many processes and projects running, on a small scale with three owners, to a bigger scale wherein up to 40 parties cooperate, participate or at least have a link with each other. Voluntary re-allotment is arranged on a national level by law in the development of rural areas act (In Dutch: Wet Inrichting Landelijk Gebied, hereafter referred to as: WILG). This chapter elaborates first on this law, followed by a short elaboration on what kind of voluntary re-allotment projects and processes are running today in the Netherlands. Thereafter, a short elaboration on the different scales of allotment in different parts of the Netherlands is presented. From paragraph 4.2 this chapter zooms in on three cases: Heusden, Epe-Vaasen and Kempen-broek.

4.1. Voluntary re-allotment in the Netherlands

Development of rural areas Act (WILG)

Voluntary re-allotment is regulated by the WILG, which contains rules for the implementation of policies that are related to the development and management of rural areas. It contains rules about programming, financing and implementation of spatial policies. According to this law, the provinces are responsible for the establishment of the spatial policies (In Dutch: gebiedsgerichte beleid) (Staatsblad, 2009). The provinces can cooperate with, and delegate tasks to other organizations, like municipalities, water boards, NGO's, nature organizations, consultancies, etc. These other organizations also take the initiative themselves to improve rural areas with all kinds of different projects, thus also re-allotment projects.

The WILG provides two instruments for the development of rural areas, voluntary re-allotment and legal land consolidation. Voluntary re-allotment, is in the WILG denoted as re-allotment by agreement (In Dutch: ruilverkaveling bij overeenkomst), which is described as in the WILG as:

'The written agreement, that shall be registered in the public records, in which three or more owners commit themselves to merge certain, by them owned real estate together, parcel it out in a certain way and divide it among themselves by notarial deed.'

(Translated out of Dutch, WILG, 2007, Article 85)

In the former act which arranged re-allotment (Landinrichtingswet 1985) the ministry of LNV had to approve a re-allotment, but with the WILG that was introduced in 2007 this is no longer required. If a project meets the conditions of the WILG, as mentioned below, it is considered a re-allotment project (SBKG, 2012).

The terms and conditions for (voluntary) re-allotment are as follows: First, at least three owners offer real-estate and two owners will receive real-estate. Buildings and relocations of companies can be part of a re-allotment. It is also possible that a participant only gets real estate by

paying a certain amount of money, or the other way round, a party provides real estate and receives a certain amount of money (SBKG, 2012).

In addition to this, in the Decree of development of Rural areas (In Dutch: Besluit Inrichting Landelijk Gebied, from here referred to as: BILG) additional conditions are formulated that the involved real estate should meet (SBKG, 2012). The following real estate may not be included:

- Parcels that are part of urban areas (In Dutch: bebouwde kom);
- parcels that are part of a bigger spatial assembly of parcels that are in use (or will be developed according to spatial plans of governmental organizations) as: housing, holiday homes and companies with a non-agricultural use;
- parcels where excavation (In Dutch: ontgronding) will take place, except for parcels that will be used after it for agriculture, nature or small-scaled recreation. (SKBG, 2012, Staatscourant, 2009).

These types of real estate are not included because these types do not lead to an improvement of the organization of rural areas. Besides that, the instrument of voluntary re-allotment is not meant to contribute to the establishment of a kind of use of land that will deprive their rural character (Staatscourant, 2009).

Next to this, considering the diverse functions of rural areas, also the exchange of land and buildings that do not belong to an agricultural company, can lead to an improvement of rural areas. Therefore, individual parcels or buildings that have a non-agricultural use, for example: machinery contractors (In Dutch: loonwerkbedrijven), riding stables, citizens homes with cultivated land, former farmhouses, etc. can be included in voluntary re-allotments (Staatscourant, 2009).

With the transfer of property rights, the new owner must pay 6% real estate transfer tax on the value of the real estate. For parcels in agricultural use there is an exemption from transfer tax if the land will be used for agricultural purposes for the next 10 years. The WILG provides exemption of transfer tax on land as well as buildings. This means for agricultural land that it does not have to be used for agricultural purposes in the next 10 years (SBKG, 2008).

Funding by provinces

Part of the WILG is the investment budget for rural areas (In Dutch: Investeringsbudget Landelijk Gebied hereafter referred to as: ILG). This funding was meant to achieve national goals of rural areas in the Netherlands. The ILG was intended for a period of 7 years, from 2007 until 2013. However due to financial cuts, the National government decided to stop the ILG earlier, in the end of 2012 (IPO, 2012, Rijksoverheid, 2012)

Within the ILG, the provinces were responsible for providing funding to projects that improve rural areas. Every province could do that according to their own point of view, each province could decide themselves if, and under which conditions funding will be provided for voluntary re-allotment (Staatscourant, 2009, Subsidiesdesk, 2013). In provincial multiannual programs (In Dutch: Provinciale meerjarenprogramma's), the provinces present their goals and budgets for the next 7 years. Funding based on ILG could be provided to parties that contribute to these goals and objectives (Subsidiesdesk, 2013, Unie van Bosgroepen, 2013).

Examples in practice

In all parts of the Netherlands voluntary re-allotment takes place, on a small scale wherein three land owners exchange their property rights for more effective land use. And on a bigger scale with a more systematic character that combine up to 50 land owners in a plan exchanging their property rights. Nowadays, processes of voluntary re-allotment are arranged by various parties like advice agencies for agriculture or rural areas, foundations for nature, associations, governmental organizations, etc. For example, in the northwest of the Netherlands, the foundation Stivas takes care of the improvement of (agricultural) spatial structure and applies voluntary re-allotment in the Province of Noord-Holland (Stivas, 2013). In the Province of Overijssel LTO Noord, Kadaster, DLG and the province established the cooperation 'Coördinatiepunt Kavelruil Overijssel', to take care of the improvement of agriculture structure in the province using voluntary re-allotment (Cko, 2013). Since 2011, DLG, Kadaster and LTO have arranged together 'Verkavelen Voor Groei' projects, wherein land owners make the plan for exchange themselves in an interactive way (DLG, 2012). Also the company Optifield arranges exchanges in the west and the south of the Netherlands and the foundation 'Stichting Bevordering Kavelruil Gelderland', supports and applies voluntary re-allotment.

Agricultural structure in the Netherlands

Although today's voluntary re-allotment is about the exchange of ownership of a parcel and buildings, and not about merging parcels together with other physical measurements, the allotment of an area is still relevant for voluntary re-allotment processes, therefore a short elaboration.

In the Netherlands agricultural parcels have an average size of 2,5 ha (Rienks et al., 2009). Though, it is important to mention that the size of agricultural parcels varies a lot among the different areas in the Netherlands. Areas with mainly parcels of a size of 5 ha and bigger are only located in the provinces of Zeeland, Groningen and the IJsselmeerpolders. Very small parcels are located in parts of 'Het Groene Hart' (Brabant), southwest of Province of Groningen, Eastern Friesland and on the edges of the nature area Veluwe (Rienks et al., 2009).

There is a clear distinction between the size of agricultural plots per owner in the north and west of the Netherlands and the east and south of the Netherlands. In the north and west of the Netherlands plots are mostly bigger with mainly a size between 5 and 15 ha. In the east and south of the Netherlands the parcels are relatively small, with a size mainly between 1 (and less) and 5 ha (Rienks et al., 2009). Figure 4.1 shows this distinction in a map. Moreover, the number of plots per owner is in the east and the south of the Netherlands higher as it is in the north and the west of the Netherlands.

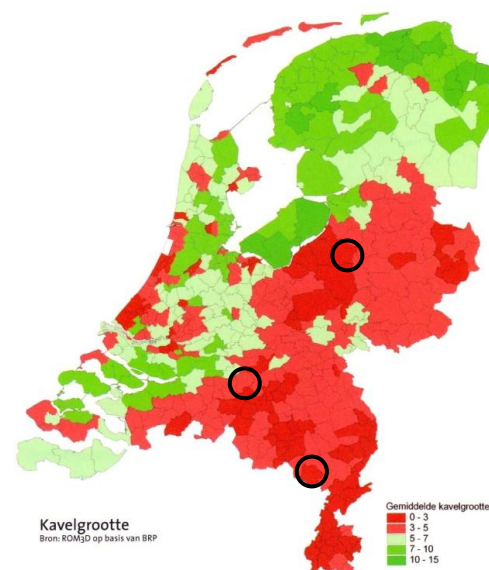


Figure 4.1. Average size of agricultural plots per owner per region in the Netherlands and the location of the cases (Rienks et al, 2009)

The relatively small size of agricultural parcels and plots, together with a relatively high number of owned plots in the east and south of the Netherlands means that it is likely that the costs of agricultural land use (i.a. soil tillage) in those areas will be higher than in the north and the west of the Netherlands. For the processes of voluntary re-allotment, in areas with smaller plots it is likely that there are relatively more owners in an area, which can result in more consulting and also the cadastral costs can be relatively higher per hectare. All three cases which this research focuses on are located in the south or the east of the Netherlands, which are relatively small scaled areas (figure 4.1).

Cases

The following paragraphs elaborate on three cases. These three cases are all located in a different part of the Netherlands, all cases have a different organization structure and the approach is slightly different. All three cases have in common that one process manager gains insight in the wishes of the participants and makes plans for exchange.

The first case, Heusden, is located in the province of Noord-Brabant. This case has a project based approach and the company Optifield implemented it. The second case, Epe-Vaassen, is located in the province of Gelderland; in this case an individual coordinator guided by a workgroup arranges the process of voluntary re-allotment. The third case, Kempen-Broek is located in the province of Limburg; the process of voluntary re-allotment is arranged by partnership of a foundation for nature, ARK Natuurontwikkeling and two companies.

4.2. Heusden

In the area of Heusden, which is located in the South of the Netherlands, voluntary re-allotment has been applied since the end of 1999. First, this paragraph presents the motivation and the results of the process, thereafter in section 4.2.2 the area of Heusden is described in brief. Section 4.2.3 presents the organization, method and the development of the process. Section 4.1.3 elaborates on different involved parties. In the final section (4.1.4) conclusions are presented.

4.2.1. Reasons to start the process and results

The voluntary re-allotment in Heusden was initiated by the local department 'Oostelijke Langstraat' of the ZLTO (Federation of Agriculture and Horticulture in the south of the Netherlands). In 1998 this department made a plan for development of the agricultural sector in the area (In Dutch: Landbouwontwikkelingsplan). Part of this plan was to improve the agricultural structure and therefore the allotment of the agricultural companies. Due to inheritance, agricultural companies that stopped and enlargement of companies, ownership of parcels became more and more scattered. Besides this, farmers owned parcels that are designated as new nature (EHS) by the government. (Optifield, 2007). Voluntary re-allotment will be applied to solve these issues. (Optifield and ZLTO, 2012, Gemeente Heusden, 2002, Gloudemans, 1999) The company Optifield was contracted by the local ZLTO department and took care of the implementation of the project.

The estimation for the first re-allotment project is to exchange 150 hectares of land with 25 participants. At least 20 of these participants will gain a better allotment of their company and the voluntary re-allotment will contribute to development of nature and landscape at least on three places (Gloudemans, 1999).

Next to the plan of the local ZLTO Oostelijke Langstraat to improve the agricultural structure, there were also other plans that concerned the area, which got a link with the voluntary re-allotment. Besides the development of new nature as part of the EHS, also ecological connection zones (in Dutch: ecologische verbindingszones, hereafter referred to as EVZ) should be developed in the area to connect several (new) nature areas. Figure 4.2, presents a map with the EHS and EVZ's in the area. The three areas 'Sompen en Zooislagen', 'De Hooibroeken' and 'Vlijmens Ven' are designated as 'natte natuurparels', which means that these areas have a high priority for the development and improvement of wet nature according to the Province of Noord-Brabant (Provincie Noord-Brabant, 2013, Waterschap Aa en Maas, 2008).

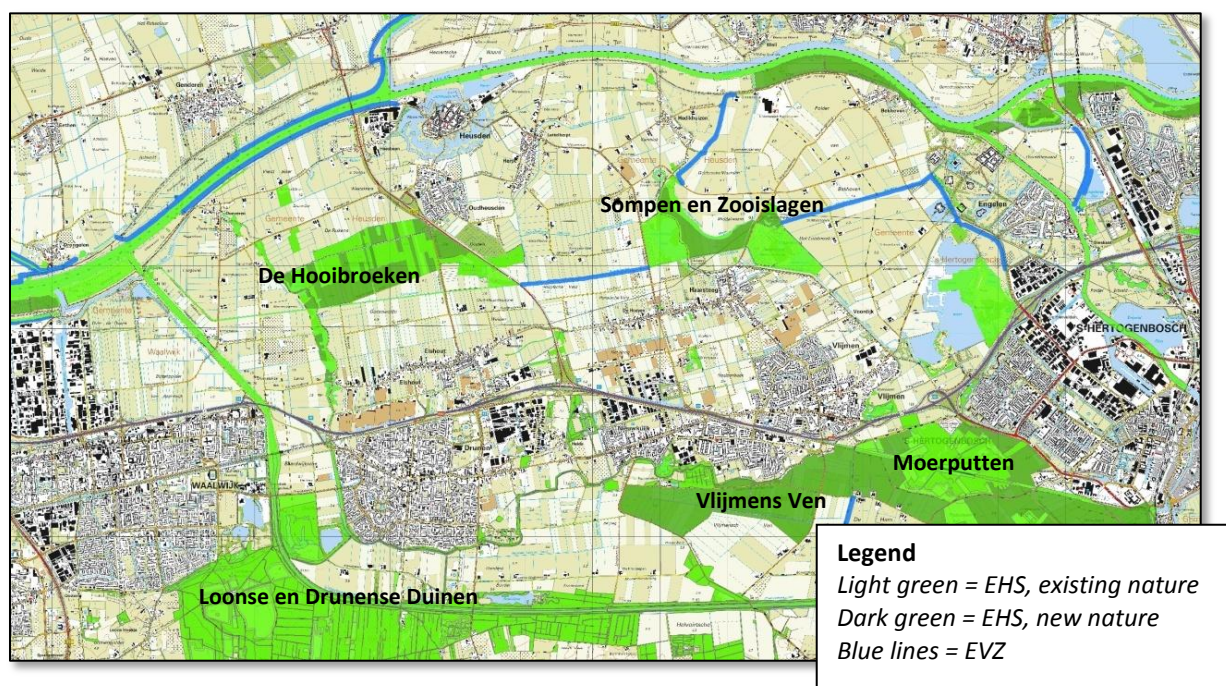


Figure 4.2. EHS and EVZ in the area (based on: Optifield, 2012)

Results of 12 years of voluntary re-allotment

Between 1999 and March 2012, 1943 ha was exchanged among 215 unique participants. Of these 1943 exchanged ha, 1646 ha was exchanged for the improvement of the agricultural structure, 267 ha is exchanged for the development of (new) nature for the ecological network and 30 ha is for the development of ecological connection zones (Optifield, 2012, Optifield and ZLTO 2012). Table 4.1 presents some key figures to illustrate the case in brief and table 4.2 shows the exchanged hectares with the related goal, per year.

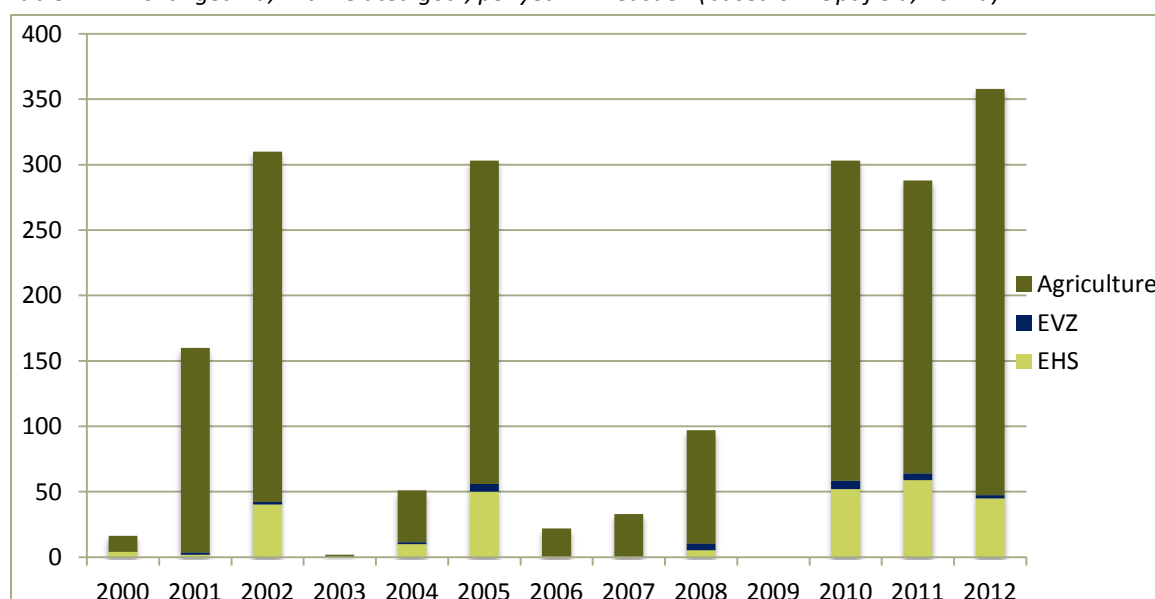
Table 4.1. Key figures of Heusden (based on: Optifield, 2012a, Optifield and ZLTO, 2012)

Duration (note 1)	1999 - March 2012
Size of the area (note 2)	8500 ha
Exchanged land in ha	1943 ha
Average exchanged ha per year	162 ha
Related to what purpose:	
- improvement of agricultural structure	1646 ha
- improvement of nature (EHS)	268 ha
- improvement of nature (EVZ)	30 ha
Percentage exchanged land in the area	24 %
Total number of participants	215 participants
Signed deeds	15
Average number of exchanged ha per deed	130 ha
Average number of participants per deed	25 participants
Lowest and highest number of participants in a deed	Min: 3 max: 66

Note 1. The project was officially closed in March 2012. Nowadays there are still processes of voluntary re-allotment running, with a different organizational structure.

Note 2. There are no strict boundaries.

Table 4.2. Exchanged ha, with related goal, per year in Heusden (based on: Optifield, 2012a)



4.2.2. The area

The area in which the voluntary re-allotment took place, is located in the southern part of the Netherlands, in the Province of Noord-Brabant between the cities Den Bosch and Waalwijk (see figure 4.3). The river Maas is the northern barrier of the area and the boarder in the south is the nature area 'Loonse en Drunense Duinen' (Optifield and ZLTO, 2012).

The main focus of the projects was within these boundaries. However, these boundaries are not strict. If a participant owns parcels located outside these boundaries and he or she prefers to exchange those, the project leader would try to arrange that.



Figure 4.3. Location of Heusen

The area in which the voluntary re-allotment took place has a size of about 8500 ha and about 1500 ha are villages. The southern boundary of the area is the nature area 'Loonse and Drunense Duinen', this nature area is one of the areas that is designated as Natura 2000 area. Also the area 'Vlijmens Ven' which is located to the South of the village Vlijmen is designated as a Natura 2000 area. Together with the areas 'Sompen en Zooislagen', which is located to the north of the village Haarsteeg and 'De Hooibroeken', located to the south-east of Heusden, the 'Vlijmens Ven' is appointed by the Province of Noord-Brabant as an important 'natte natuurschap' (ANV Oostelijke Langstraat, 2012). Figure 4.2 on page 29 presents the location of these areas.

In the period 1960-1970 there was a major legal land consolidation in the area of Heusden. Figure 4.4a presents a map of the northern part of the area in 1959. Farms were located in the village itself and there were hardly home plots, the parcels were, compared to the current situation, small and property rights of the parcels were scattered. The land consolidation that took place in the years that followed, changed the area drastically. Parcels were merged together, new roads were constructed and farms were placed outside the villages to make sure that every farmer could get a home plot. Also the river Maas was straightened and the water system of the parcels was made more suitable for agricultural use. Figure 4.4b shows the situation in 1969 after the legal land consolidation. All this was done mainly to enlarge the production of the agricultural sector in the area. (Rienks, et al., 2009).

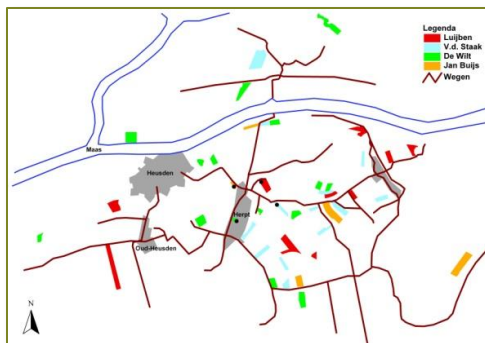


Figure 4.4a. Heusden in 1959

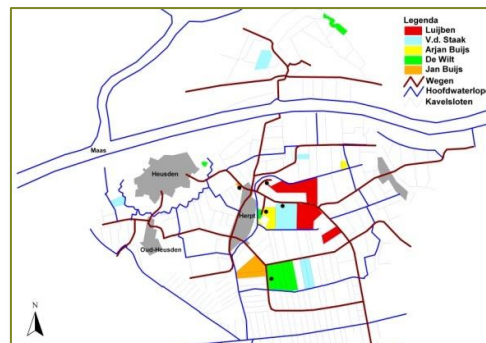


Figure 4.4b. Heusen in 1969 (Rienks et al., 2009)

Today, the area is characterized by cattle farms, horticulture and greenhouses. Almost half of all agricultural companies in the area are cattle farms and over a quarter are horticulture companies (CBS, 2012, Optifield and ZLTO, 2012). In the South, between the highway A59 and the nature area 'Loonse- en Drunense Duinen', there are mainly cattle farms located. In the North, on the river clay soils, mainly cattle farms as well as arable farms are located. Horticulture and greenhouses are located in the middle of the area, between the villages Elshout, Haarsteeg and Vlijmen (ANV Oostelijke Langstraat, 2012).

The agricultural parcels in the area are relatively small scaled and plots are scattered. In table 4.3 some characteristics are presented of the agricultural structure of the area. The average size of parcels is about 2,5 ha. In 2009, the size of plots per owner is between the 3 and 5 ha and the average of number of owned plots is between the 7 and 9 plots (Rienks, 2009), which is relatively scattered.

Table 4.3. Size of parcels and plots (based on: Rienks et al., 2009)

Average size of parcels	2,5 ha
Average size of plots per owner	3 - 5 ha
Average number of plots per owner	7 - 9 plots

4.2.3. Voluntary re-allotment in Heusden

The voluntary re-allotment in Heusden had a project based approach. The process was divided in three projects:

1. Vlijmensch Ven, which ran from the end of 1999 until 2003 and focused mainly on the southern part of the area.
2. Heusden Noord, as already in the name, focused mainly on the northern part of the area, it ran from 2003 until 2006.
3. Heusden 3, which started in 2007 and was officially closed in March 2012, it covered the whole area.

At the beginning of each the three projects estimations were made about the financing and goals to achieve in hectares, for what purpose and number of participants. At the beginning of the first project, Vlijmensch Ven, a startup meeting was held for all possible stakeholders in the area, the plan for the project was presented and there were possibilities for feedback.

The organization of the projects is presented in figure 4.5. The commissioner of the three projects was the local department 'Oostelijke Langstraat' of the ZLTO (Optifield and ZLTO, 2012). The management board of the department composed the platform, which kept an eye on the progress of the projects. The platform existed out of three persons, they were members of the ZLTO and two of them are also farmers in the area. The platform had several tasks, it checked if the progress of the project is in line with the objectives, it was responsible for annual reports and it was able to propose expansion or shrinkage of the project. The platform provided boundaries for implementation of the projects and it was also responsible for request of funding from the Province of Noord-Brabant and other financial aspects (Optifield, 2007).

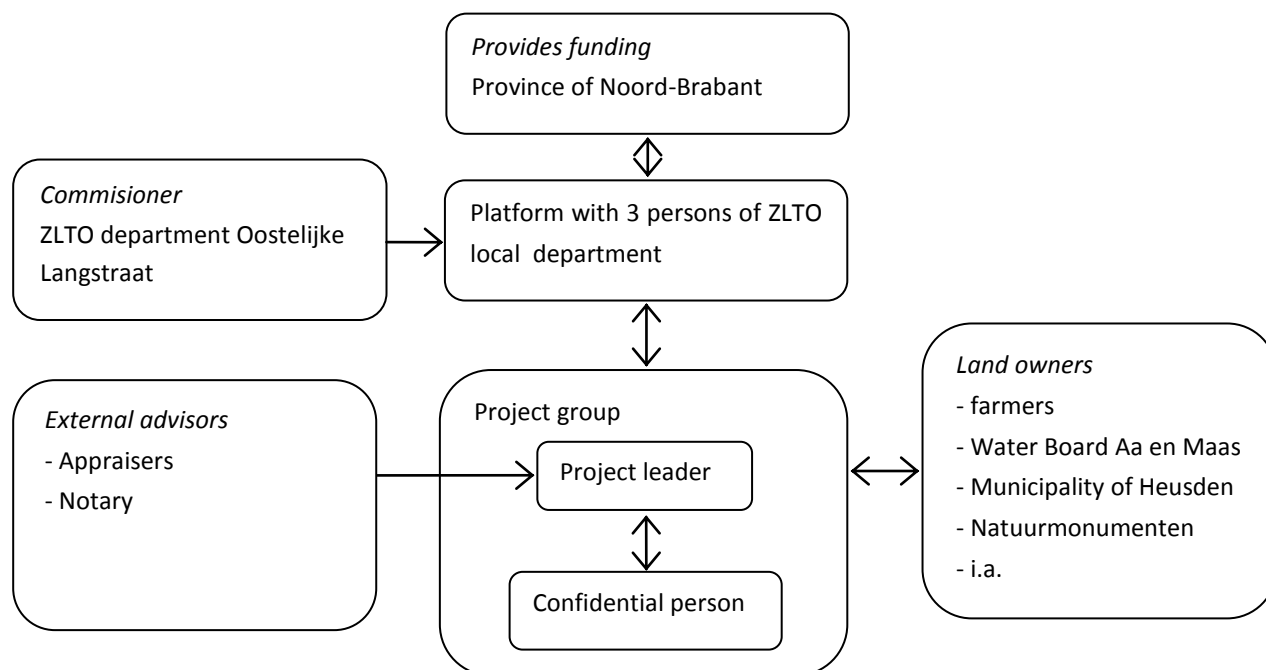


Figure 4.5. Organization of the voluntary re-allotment in Heusden (based on: Optifield, 2007)

On top of the scheme is the Province of Noord-Brabant. Next to its own financial resources, the province is responsible for providing funding based on resources of the Dutch State and the European funding for the development of Europe's rural areas (In Dutch: Plattelandsontwikkelingsprogramma, hereafter referred to as: POP). Within the POP funding, a part of the funding for the development of rural areas is provided by the EU, with a maximum of 50%. The first term for the POP funding ran from 2000 to 2006, followed by POP2 which runs from 2007 until 2013. Since 2007, is the ILG part of the European funding POP2 (Regiebureau POP, 2013). For this voluntary re-allotment the requested and provided funding was based on POP.

The project group (in the middle of the diagram) took care of the implementation of the projects according to the guidelines of platform. This is the inventory of the wishes of the land owners during individual conversations with different land owners with various interests, like farmers, nature organizations, municipalities and other parties. They made proposals for exchange and did negotiations with the owners. The project group existed out of two persons: a project leader and a confidential person (in Dutch: vertrouwenspersoon) (Optifield, 2007).

The project leader is the person that was responsible for the process of the re-allotment; he planned and managed the process, took care of the communication, he advised the platform and participated in meetings of the platform. Besides this, the project leader took care of writing minutes of conversations, he provided insight in ownership of land, he made proposals for exchange, prepared transfers of land, etc. The role of project leader is performed by the company Optifield.

Next to the project leader, a confidential person participated in the project group. This person knows the area well, he knows what kind of projects are running in the area and he knows the persons that live and own land in the area. This person is also well known by the persons in the area, he has good respect of the inhabitants and they trust him. Together with the project leader, he

participated in conversations with land owners about their wishes and about the proposals for exchange (Optifield, 2007).

The participating land owners paid a certain amount of money. For farmers, this is based on a utility calculation (In Dutch: nutsberekening). This is based on the driving distance to parcels, the number of parcels, enlargement of home plot and size. Appendix B includes an example of this utility calculation. The paid amount of money varied from € 500,- up to € 5.000,-.

Other parties like the water board, municipalities, nature organizations like Natuurmonumenten and Staatsbosbeheer do pay a contribution based on the following. If those organizations could exchange land from 'outside' new nature towards land that is designated as new nature, they paid 400 Euro per exchanged hectare. If the organization could obtain land that is designated as new nature directly via the voluntary re-allotment, then they paid 850 Euros per hectare. And if the origination gained land that could be used in future exchanges than they also paid 400 Euros per hectare.

Parcel exchange activities

The activities of the project group to arrange the exchange of parcels can be divided in the following steps: inventory, proposal for exchange, property valuation, mediation and letter of intent. Some of these steps are in interaction with each other, figure 4.6 shows the different steps and the feedback loops.

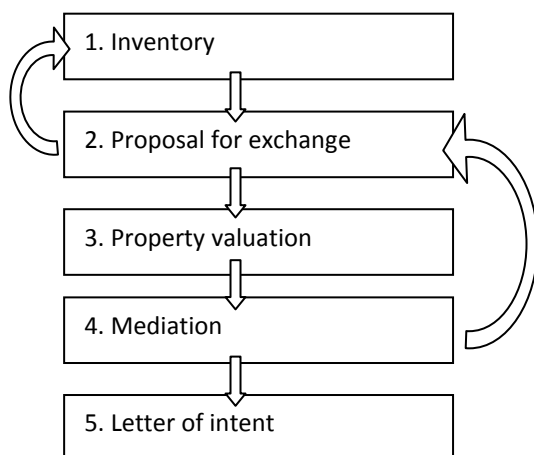


Figure 4.6. Steps of parcel exchange activities in Heusden

In the first step, the inventory, the project group gains insight in who owns and uses what land. At first, this is done by knowledge of the area by the confidential person and other persons that know the area well. This provides insight in what possibilities there are for exchanges and which land owners should be approached. Based on first insight in ownerships, the project group contacts some land owners. The project group asks whether the land owner is interested in participating in the project. If so, the project leader and confidential person have a first conversation about the wishes of the land owner.

After the inventory the project group makes proposals for exchange. The project leader uses GIS to link different possibilities to exchange together. The plan that the project leader makes in GIS, is based on the most feasible options. Other options are written down and might be used to gain insight in other possibilities if the plan for exchange should be adopted. The project group presents

the proposal for exchange to the land owner. Only property that the land owner will own if the proposal will be implemented is shown in a map. If the owner does not agree with the proposed exchange, the plan should be changed, mostly this requires some new information and some new conversations with other land owners that might be willing to cooperate. Sometimes it is possible to immediately calculate and propose a new situation with the use of GIS during the conversations with the land owners.

When several land are positive about the plan for exchange, the concerning property will be valued. This is done with two appraisers, one nature and one agricultural appraiser. After the valuation the project group presents the valuations to each land owner individually. In this stage there are only little adjustments in the proposal for exchange possible. If a participant doesn't want the land for the valuation, which can mean that he will not participate or there will be some little adjustments in the proposal for exchange.

When a land owner is positive about the proposed exchange, the project leader makes a letter of intent and the land owner signs it. This letter of intent includes which parcels the land owner buys and sells, for what price and it includes preconditions about how to provide the parcels, like clean ditches and soil, no lease, etc. The letter also includes a part wherein is stated that if the new owner will make profit out of the land with other activities than agriculture, like building activities, the former owner will also benefit from that profit (In Dutch: meerwaardeclausule).

These five steps are done which each land owner individually. This means that, for example, in one week one owner signs the letter of intent, another owner has a first conversation and again another is in the mediation phase. When these five steps are done several times successfully, all letters of intent are combined in one deed. A notary makes one deed wherein all participants will exchange their real estate. An example of exchanging parties is shown in a scheme in figure 4.7.

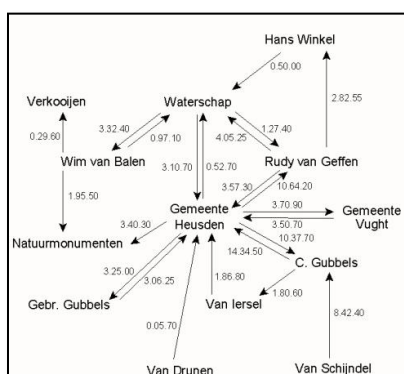


Figure 4.7. Example of a scheme of exchanging parties (Optifield, 2008)

Developments of the process through the years

At the end of 1999 the project plan for voluntary re-allotment estimated that there will be three deeds signed, 25 participants participate and they will exchange 150 ha of land. At least 20 of these participants will gain an improved allotment for their company and the re-allotment will contribute to development of nature and landscape at least on three places (Gloudemans, 1999).

At the beginning of the project, a start-up meeting was held to inform the area about the project. About 50 to 60 persons were present, after the meeting 6 farmers were interested to participate. Despite the low number of interested persons, the project group starts the project. To meet the wishes of the six interested land owners, other owners were also contacted. This provides more opportunities for exchange. Step-by-step more participants got involved.

In 2003, at the end of this first project, 4 deeds were signed, and about 450 ha was exchanged for the improvement of agriculture, 41 was exchange ha for the development of nature (EHS and EVZ) and 75 different parties participated (Optifield, 2003). This was more as estimated in the beginning.

With the positive experiences in the past, the project group made an estimation for the second project (Heusden Noord). In the following two years (from 2003 to 2005) 250 ha will be exchanged for the improvement of the agricultural structure, 35 ha will be exchanged for the improvement of nature and 50 persons will participate. The project would end in 2005 (Optifield, 2003a). However, the project was extended with one year and closed in 2006. The results were again more positive as expected. In the period from mid-2003 until 2006, 300 hectares were exchanged for the improvement of agriculture and 67 ha for the improvement of nature (EHS, EVZ) among about 70 participants.

The project Heusden 3 started in the end of 2007. Although it is always hard for the project leader to indicate exactly how many ha can be exchanged, based on the previous positive experiences of the project group, the indication for Heusden 3 was to 350 ha in three years.

In 2010 when the project almost closed, the platform decided together with project group to extent the project to March 2012 and the prognosis of the number of hectares to exchange was adapted to 755. The platform decided to do this on the advice of the project group because of positive results and a lot of interest from the area. At the end of third project, 1046 ha was exchanged in 5 years and that was even more than expected (ZLTO and Optifield, 2012).

Although there were positive expectations towards the number of hectares that can be exchanged there were some developments that influenced the projects. From the end of 2010 the national Dutch government decided to stop the financing for the national ecological network (EHS). This had some consequences for the funding for the project. The funding was linked to the budgets for the development of the EHS. Although the Province of Noord-Brabant still wanted to continue with the development of the EHS, it became uncertain if there was really funding for the voluntary re-allotment project.

Another aspect related to the funding of the Province of Noord-Brabant was time pressure that the project had to deal with. The deeds had to be signed before the end of March otherwise the province would not provide the POP funding.

After signing the last deed on the 23 of March, 2012, property rights were officially transferred, and in that sense the project is closed. However, after signing the deeds, the financial completion is not finished at this point. At the end of 2012 the request for the POP funding was not officially approved. This means for the ZLTO that the project cannot be closed officially in 2012. Still, the ZLTO department has positive expectations that the funding will be approved and that it will be paid out (ZLTO Oostelijke Langstraat, 2012).

4.2.4. Actors

This section elaborates on the interests and perceptions of the different actors that had a role in the voluntary re-allotment projects. This section will not elaborate on all parties that played a role, but on the most important ones and the ones with different interests, these are the project leader, farmers, governmental organizations and nature organizations.

Project leader

The role of project leader is performed by the company Optifield. The project leader took care of arranging the process of the voluntary re-allotment. He operates in commission of the ZLTO Oostelijke Langstraat and he arranged the exchanges in the area for the improvement of the agricultural sector as well as goals like the development of nature.

The project leader states that the biggest uncertainty is whether land users and owners provide sufficient cooperation (Optifield, 2007). Due to this uncertainty, it is impossible to guaranty results to the commissioner. However, the more experience the project group gained in the area, the easier it became to make estimations about how much work they have to do in order to achieve results.

Another uncertainty perceived by the project leader was regarding whether other parties purchase land for public goals on their own. The project leader tries to combine the purchase of land for public goals as much as possible in the voluntary re-allotment. It happened a few times that the water board purchased some small pieces of land for one of their projects beyond the voluntary re-allotment project. The project leader does not perceive this as competition.

The project leader spends, together with the confidential person, a lot of time to consult other parties in order to get them participating in the voluntary re-allotment. It differs per person to what extent a he wants to participate, some see immediately the benefits and others hesitate more. When persons hesitate, the project group has more meetings with them to discuss possibilities. Besides this, the project leader states that time is also necessary to let persons think about the ideas he proposes. However, it is not desirable that everybody stays hesitating, the project leader has to make progress and achieve results. At a certain point the project leader tells the land owner he has to make a decision, otherwise the project would delay.

Meetings with land owners were always with the project leader and the confidential person. Especially at a first meeting the confidential person plays a big role, he is already known by the land owner as an independent and competent person. The confidential person was always participating in meetings with other parties, in order to prevent that he misses some information.

The project leader arranged valuation of land only when he thought it was quite certain that the land owners will participate. Valuation takes time and cost money and besides this, it also creates expectations among participants.

Uncertainty about the participation is decreased through signing letters of intent by the land owners. At a late stage in the process the participants sign a letter of intent. In this document the land owner declares that he has the intention to participate within the voluntary re-allotment. The project leader states that he lets land owners sign the letter of intent only when he has a high certainty that a land owner will participate. At the other hand, when a land owner signs this letter, it gains again more certainty on the participation of that land owner. The process is still on a voluntary basis but it enlarges the commitment. Besides this, it gives the process manager some time to arrange other letters of intent and thereafter link all these letters together in one deed. A risk related to this is that when land owners find out that they are one of the 'missing links', they realize that they are in a powerful position and want to participate but want to gain more benefits out of it for themselves.

The use of GIS is for the project leader very important, it is a way to deal with the complexity of the processes he arranges. With the use of GIS he can keep the overview of who owns and leases what, the wishes of the owners, make proposals for exchange and link it to the prices of land. It is quite easy to adapt a plan if a land owner does not agree. During a meeting with a land owner the project leader can make and show possible adaptations of the proposed exchange, including financial consequences.

The greater the number of participants and exchanged hectares is, the cheaper the project becomes relatively. The costs for the process, Kadaster, notary, etc. can be shared among the participants. Therefore, the project leader tries to arrange as many participants in one deed. Two times with 25 persons is more expensive than one with 50 persons. Moreover, if there are two processes running at the same time in the same area, the process manager has to pay extra attention to the process. He has to bear in mind who is involved in what deed, which makes it too complex for the process manager.

Another aspect related to the number of participants is that there is also a maximum of participants that can be included in a deed. The project leader thinks that 50 participants in one deed is for him the maximum. According to him, he does not have the complete scheme of exchange in his mind, but that is also not necessary since GIS keeps and calculates everything for him. The maximum of 50 participants is because there is 50 times the chance that there will be some problems that have a social or emotional character. That are very diverse problems and occasions, it can happen that a farmer wants to use his new land already or persons that just doubt about participating.

Farmers

As mentioned earlier, most of the participants were farmers, in the past 12 years, 1646 ha is exchanged among more than 150 farmers, and some participate more than once. The main focus of the voluntary re-allotment is on the improvement of the agricultural structure.

In 1999, when the voluntary re-allotment started in this area, it was 30 years ago that a legal re-allotment took place in this area. Today, almost half of all farms are cattle farms and more as a quarter are horticulture companies. Most of the farmers that participated in the voluntary re-

allotment have a dairy farm but also other types of agricultural companies participated. Dairy farmers benefit the most of having land close by their home.

When farmers participate in the voluntary re-allotment, they want to improve the allotment of their agricultural company. This can be an enlargement of the home plot, fewer plots, plots closer by the farm or enlargement of owned land in general. More land closer by the farm shortens the driving distance to parcels and that saves working time and costs for fuel, machines, contractors, etc. Besides this, if parcels are located directly next to each other it is more easy and effective to tillage the land. Farmers also participate when they own land that is designated with another function as agricultural.

In general, a farmer participates when he recognizes the economical benefit for his company. There are of course differences in how farmers think about participating in the voluntary re-allotment. Some think economically and see immediately the benefit from land more closely by home or lesser plots. Others hesitate more because of for example, they add more value to land that they already own. They state that their land has the best physical qualities or it was inherited from grandpa. Sometimes, it occurs that a farmer does not want that their neighbor also can benefit from the project. There are also farmers that are active and are looking for chances themselves. One farmer told that he bought a piece of land with the idea in mind that he can be use it in the future to exchange it for a parcel that is located at this home plot.

When farmers are consulted by the project group, their expectations were different. Some farmers had immediately trust in the project group that there will be results where a farmer can benefit from. When a farmer participated in some meetings or land was exchanged in favor of that farmer, the expectations towards the processes became more positive. One of the interviewed farmers told that he did not know what to expect from the project leader and he did not know how the process would evolve at the first time he had a meeting with the project group. After he exchanged some land for the first time, he did know what to expect, he got to know the project leader and he saw that there were results he benefits from, he is positive and would participate again if there are possibilities for him.

The farmers are positive about the 'third' party (project group) that does the negotiations with the counter party. Land is something special for farmers and therefore negotiating about that should be done with care. It is easier to talk to an intermediary party, because then personal aspects play a smaller role. A farmer told that he as a farmer he cannot arrange the process himself because he cannot get the land that the other party wants. And if it was possible, he does not have the time to arrange that. The project leader can arrange that since he had already contact with other parties and knows the area as a whole better.

Most farmers think that the confidential person had added value especially when the project group consults a farmer for the first time. Most of the farmers didn't know the project leader when he met a farmer for the first time, but most farmers did know the confidential person from other events in the area. It is also a person that does not have conflicting interest with other farmers. Later on, when a farmer had a few meetings with the project group, the importance of the confidential person decreases, since they also got to know the project leader and they get trust in him.

As mentioned before, some farmers are more hesitating than others, the confidential person plays then an important role in consulting these hesitating parties. The confidential person is well known in the area, he has a good image and he shows understanding in the personal story of that farmer. It takes more time to arrange an agreement with those hesitating parties but that is acceptable because that time is also necessary and important to let someone think about the proposed new situation. If a farmer is pushed too much, it can result in that he will not participate. However, farmers also state that too much time to decide is not good because than other farmers have to 'wait' on the decision of the other. The project must continue. So, there must be a balance between these two 'extremes'.

The interviewed farmers stated that it is good that at a certain point a letter of intent is signed, this gives the project leader as well as other farmers more certainty about the participation of the other. Although it is not a legal binding contract, it still has a mandatory character. One of the interviewed farmers told that from a social point of view it is not acceptable if someone decide after signing that he does not participate. It shows that someone has lack of good manners. When someone suddenly decides not to participate, it can have consequences for many other parties. Luckily, this hardly happened.

According to the farmers the amount of money that they have to pay based on the utility calculation is acceptable. Farmers benefit from the project, so it is reasonable that one pays some amount of money for that. One interviewee adds to it that he cannot arrange those kinds of processes himself. Therefore it is also acceptable that a farmer pays for the arranged results. The interviewed farmers also state that if there was no funding from the province, it would be too expensive to pay for all the costs themselves.

The amount of time that farmers need to spend for meetings with the project group, reading a letter or part of a deed is not much and that is experienced as positive. It differs per situation how much time a farmer has to spend. Though, overall it is an acceptable amount of time.

The duration of the process, starting from a first meeting towards signing the official deed differs also per situation. It differs per number of involved parties in a deed and it depends on whether you are the first land owner that is approached to participate or one of the last. Overall, the farmers are also satisfied with the duration of the process.

Sometimes there is time pressure, which is caused by the deadline of the funding by the province or the start of the growth season. For the management of the farms it is important that it is completely clear who will use what parcel in the new situation, before the start of the growing season. A farmer told about a situation wherein it was not yet completely clear right before the start of the growing season. When this is not completely clear it is better to move the exchange to after the season. Though, another farmer states that it is also a pity if nothing can be exchanged before that particular season.

The interviewed farmers say that it is always uncertain if the other party participates until the deed is signed. Related to this, is that it is important that others should not begrudge each other. If everybody realizes that that you can benefit from the voluntary re-allotment, trust another and then participates, it contributes to the success of the project.

The interviewed farmers said that the municipality Heusden had an important role in the processes. The municipality owned a lot of agricultural land and if they did not cooperate than it was not possible to exchange so much land. With the participating municipality the project leader could always make the exchanges correct. If there were some left-over hectares, the municipality could own these temporally. Besides this, it was also important that the province, the water board and the nature organizations had a positive attitude and participate in the process.

Municipality of Heusden

Within this process of voluntary re-allotment, next to the municipality of Heusden, the municipalities of Den Bosch, Vucht, Waalwijk and Haaren also participated. This voluntary re-allotment covers the whole area of Heusden and only small parts of the areas of the surrounding municipalities. The municipality was involved in 13 of the 15 deeds, which is the most of all involved land owners and users (Optifield, 2012a).

For the municipality of Heusden there were several reasons to cooperate in the project of voluntary re-allotment, the two main reasons are the development of ecological connection zones and improvement of the agricultural sector. Together with the Water Board Aa and Maas the municipality had the task to realize EVZ's (ecological connections zones). All these EVZ's are located among creeks and streams. Stripes of land right next to these creeks and streams of land are required to develop these EVZ's. Next to this, the municipality states in their policy that they wanted to provide assistance in the improvement of the agricultural sector in the municipality (Gemeente Heusden, 2002). It paid also attention to reduction of environmental pollution and the improvement of traffic safety, improvement of the agricultural structure can contribute to that, since it will decrease agricultural traffic.

As land owner, the municipality of Heusden owned (and still owns) a lot of agricultural land that is leased by farmers. Nowadays, it owns about 700 to 800 ha which is about 20 percent of the area. Agricultural land is leased by farmers in two ways, regular leasehold and free or liberalized leasehold. In the end of 2012, the municipality owns about 500 ha of regular leased land and about 120 ha of free leasehold. Free leasehold are contracts with a duration of a year, every year a new contract between the municipality and a farmer is established. Second, the regular leasehold, which are contracts of 6 years and is always extended if the farmer still wants to lease it. In other words, the municipality cannot dissolve the contract, only the farmer can. This has consequences for the voluntary re-allotment. Land that is in regular leasehold should be included.

The representative of the municipality states that he has to spend a lot of time regarding the voluntary re-allotment, but the municipality also benefits from it since the amount of money that they gain from regular leasehold is lower than the interest rate if the land is sold. Next to this, the duration is quite long but that is necessary to gain trust from other participants.

An uncertainty perceived by the municipality is about that only the project leader knows (to a certain degree) what happens in the field and the municipality (and other parties) do not know that. Moreover, the project leader cannot have everything under control, the processes are simply too complex. At the other hand, if the project is less complex than more time is necessary and there less exchanged hectares. The strength of the process is that the project leader can link exchanges together. That is also the success of the project, everybody can benefit from the exchanges in their own way. Besides this, the municipality contributes a lot which made a lot of exchanges possible.

Water Board Aa and Maas

The Water Board Aa and Maas takes care of the water quality and quantity of the area Heusden. The water board has several objectives to work on from their own policies, or delegated from other governments.

First, the water board had as objective to develop nature friendly banks, these banks should be less steep as they are now and that meant that the water board needed small stripes of land to design that. Next to the nature friendly banks, the water board develops ecological connection zones (EVZ) together with the municipality of Heusden. The zones contain a wet and a dry zone and will be equipped as a whole, the water board needs for the EVZ's small strips of land along the waterways. Next to this, in the project 'HoWaBo', which is a project to prevent the city Den Bosch from flooding, there are areas designed for water retention, Also part of this project are the development of 'kades'. 'Howabo' is linked to the development of 'natte natuurplel' 'Vlijmens Ven', which is also part of the tasks of the water board. Next to the 'Vlijmens Ven', the water board also participates in the development of other 'natte natuurplels'. These areas part of the EHS and have a potential for high ecological values that depend on water. The water board is responsible for the water management in these areas and cooperates together with the land management authorities (In Dutch: terreinbeherende instanties).

When the water board got involved in the project, it was not clear for the organization what would happen and how the process would evolve. A little bit later on the water board noticed that the commission had a lot of support from the area and that increased the expectations for positive results. Besides this, the water board noticed that farmers are willing to sell land if they also can get good land in return.

According to a representative of the water board, the project took considerable amount of time, effort and labor. Partly for the development of the EVZ the water board would have had that anyway. If the water board had to arrange the process towards purchase the stripes of land for the EVZ themselves, than the water board had to spend more time and effort to arrange that. First because farmers are more suspicious to a water board as organization than when a voluntary re-allotment is arranged from an organization or company that has more links with the agricultural sector. It would take the water board more effort to gain trust from farmers than at as it is now arranged. The employee of the water board adds to it that he doesn't have the knowledge about the area from an agricultural point of view and he thinks that is important to have.

Sometimes, the water board did participated in exchanges which did not immediately contribute to their policies and projects. The water board participated because it could contribute to their image.

The water board is satisfied with the results they achieved via the voluntary re-allotment, which is 30ha for the development of the EVZ. According to the organization, the success of the project depended several aspects. It depends on the project leader, the one that arranges the purchase of land. He knows the area well and is accepted by many land owners in the area. Also the availability of land of the municipality and other parties that could be used as a mean for exchange, and the availability of funding, contributed to the success of the project.

Natuurmonumenten

Natuurmonumenten is one of the organizations that takes care of the management and development of (new) nature, which is delegated from the national Dutch government to the provinces. For the area Heusden, Natuurmonumenten had the task to develop new nature as part of the EHS, in the areas 'Vlijmens Ven', 'Sompen en Zooislagen' and 'De Hooibroeken' (see for locations figure 4.2 on page 29). To develop these areas Natuurmonumenten needed to purchase the land, the organization realized that they could do that on their own. Therefore Natuurmonumenten also participated in the voluntary re-allotment.

The development of 'Vlijmens Ven' was the biggest task for Natuurmonumenten in this area. At the beginning of the voluntary re-allotment the area was in agricultural use, owned by farmers and the municipality of Heusden, which leased their land to the farmers. Natuurmonumenten did not own anything of that area, except for a tiny forest of a few hectares. The agricultural sector did not support the development of 'Vlijmens Ven'. Natuurmonumenten also had to deal with the local political situation of the municipality and at that time there were supporters and opponents for the development of nature. Natuurmonumenten could purchase a few hectares on its own.

Although Natuurmonumenten did not have high expectations at the beginning of the project, they did purchase land some outside the EHS. This land could be used as a mean for exchange in the future. In this respect, there were some positive expectations towards the development of new nature in future. Though there should be mentioned that, at that time Natuurmonumenten itself had a lot of budgets to buy land.

Consulting went mainly via the project leader and the confidential person. According to Natuurmonumenten this was a good choice. The project depends then more on trust from the participants in the project leader and the other way round. To explain, for Natuurmonumenten is it harder to do business with farmers. A representative of a nature organization is watched with more suspicion by the farmers compared to the project leader.

Besides this, the representative is positive about the fact that there was always the same project leader in the past 12 years. At first, the project leader did not know the area very well, through the time he got to know the area better and the land owners got to know him. Also the confidential person was experienced as positive. It was a person out of the area; he had a strong link with the agricultural sector and was well known by the farmers. Trust is an important aspect within voluntary re-allotment. The project leader has to achieve results where farmers can benefit from. If

the project leader succeed in making a plan were also farmers benefit from, he gained trust from other parties.

The representative of the organization stated that he had a lot of meetings with the project leader and sometimes also with the water board. However, without this process of voluntary re-allotment, Natuurmonumenten could never achieve the results as it is now. Though, the costs to arrange the exchanges are high. Therefore it was important that the province provided some funding for the projects. If all costs had to be paid by the participants, it was too expensive for all participants.

Another aspect that contributed to the success of the projects was the flexibility in the boundaries of the project area. There were no clear boundaries and that resulted in more possibilities for exchange compared to a legal re-allotment. In a legal re-allotment there were strict boundaries and that lead to less flexibility in exchanges. Land that was located outside the boundary of the project plan could not be included.

Natuurmonumenten is satisfied with the achieved results in the area, almost all parts of the EHS are purchased and most of the areas are now in the phase of developing towards nature. According to Natuurmonumenten the hardest part of the realization of the EHS is certainly the purchase of parts of land. Besides this, it is succeeded in the area Vlijmens Ven, of which the organization thought that was more or less impossible purchase the land.

4.2.5. Conclusions

In the past 12 years voluntary re-allotment was arranged by the company Optifield in the area of Heusden in behalf of the local ZLTO department. It had a project-based approach, three projects were accomplished. The main focus was on the improvement of the agricultural structure but also exchanges for goals related to the improvement of nature were incorporated in the projects.

At the beginning of the processes, participants had different expectations towards the process and the results. The most important perceived uncertainties by the participants were about the participation of other land owners.

Most of the process costs are for arranging the processes towards the exchanges. In other words, those are the costs for the activities of the project leader and the trustee. Also the funding of the province was important for the exchanges; otherwise it would be too expensive for the participants. Some governmental organizations perceived also the actions of the process manager as uncertain, since he is the only person that knows about the overall picture of (possible) exchanges.

The competences and characteristics of the project leader (and trustee) were important in order to achieve results. Sometimes, some time pressure on participants was necessary in order to arrange the exchanges, though that was not always is appreciated by the farmers. However, this case also showed that sometimes time is required to let land owners think about proposed ideas. The project leader uses GIS to keep track on all exchanges in the area, which is for him very important. Without that, the overview of the complexity regarding the exchanges will be lost.

Results also depend on the attitude of the participants. This is for example shown in buying land that could be used in voluntary re-allotment later on. Besides this, the participation of the

municipality of Heusden contributed to for the success of the project. They own a lot of land, if they would have not cooperated, the results of exchanged ha wouldn't be so high.

All involved actors stated that the projects were a success. More hectares were exchanged as expected and all participants benefit from the process. Those are different types of land owners that have interests that can be in conflict. This case showed that the interests of nature and agriculture can be combined together in one process.

4.3. Epe-Vaassen

To the east of the nature area the Veluwe, in the area of Epe-Vaassen, voluntary re-allotment has been applied for many years now. Next paragraph elaborates on the motivation and the results of the voluntary re-allotment, followed by a short description of the area in paragraph 4.3.2. After that, paragraph 4.3.3 presents the organization and method. Section 4.3.3 elaborates on different involved parties and the final section (4.1.4) conclusions are presented.

4.3.1. Reasons to start the process and results

Most rural areas in the Netherlands are redesigned by large legal land consolidations between the 50ties and 70-80ties. Epe-Vaassen is one of the areas where this didn't happen. In 1962 there was an initiative but that didn't continue because the majority of inhabitants voted against it.

In 1998 a commission (which is called workgroup nowadays) was established by a former local department of the Farmers Union to improve the agricultural structure using voluntary re-allotment. A few exchanges were achieved but in 2002 outbreak of foot-and-mouth disease (FMD) shut down the whole (agricultural) community including the activities for the exchange of parcels.

After the outbreak of FMD, the national government provided 6 million Euros to improve the area of Epe-Vaassen in its broadest sense. The funding was for the improvement of agriculture, nature, recreation, roads, etc. Most important requirement to obtain funding was that the whole society in the area should benefit from the project or process.

Also the commission started again with initiating new exchanges. The main focus of the commission was on the improvement of the agricultural structure and the roads, there were no goals formulated in a number of hectares that should be exchanged or in a number of participants. The first exchange after the FMD was arranged with recourses of 'Stichting Bevoorderen Kavelruil Gelderland', hereafter referred to as: SBKG and the commission. A few hectares were exchanged and a road of 600 meters was improved. After that, more exchanges followed and roads were improved with the participation of several municipalities and partly with the FMD funds. After that the number of exchanges started to increase and also the Province of Gelderland provided funding for the exchanges.

After 10 years, 50 deeds are signed (situation November 2012), property rights of 1.130 hectares were transferred in the area of Epe-Vaassen and 429 parties were involved. 1020 ha is exchanged for the improvement of the agricultural structure in the area and 110 hectare is exchanged for the development of nature, water, roads and roads for cycling. Table 4.4 shows some key figures of Epe Vaassen.

Table 4.4. Key figures of Epe Vaassen, situation November 2012 (based on: Brummelaar, 2012)

Duration (note 1)	2002 - now
Size of the area (note 2)	About 10.000 ha
Exchanged parcels in ha	1130 ha
Average exchanged ha per year	113 ha
Related to what purpose:	
- improvement of agricultural structure	1020 ha
- improvement of nature, water, roads and recreation	110 ha
Percentage exchanged land in the area	11,3 %
Total number of participants	429 participants
Signed deeds	50
Average number of exchanged ha per deed	23 ha
Average participants per deed	9 persons
Lowest and highest number of participants in a deed	Min: 3 Max: 30

Note 1. The duration has not a clear boundary. Processes to achieve new exchanges are still running.

Note 2. There are no strict boundaries.

4.3.2. The area

The area Epe-Vaassen is located in the east of the Netherlands (see figure 4.8), directly to the east of the nature area the Veluwe. The eastern boundary is the river Gelderse IJssel, in the south the boundary is formed by city Apeldoorn and in the north it is the village Heerde. These boundaries are not strict; it is a rough indication of the field of activity.

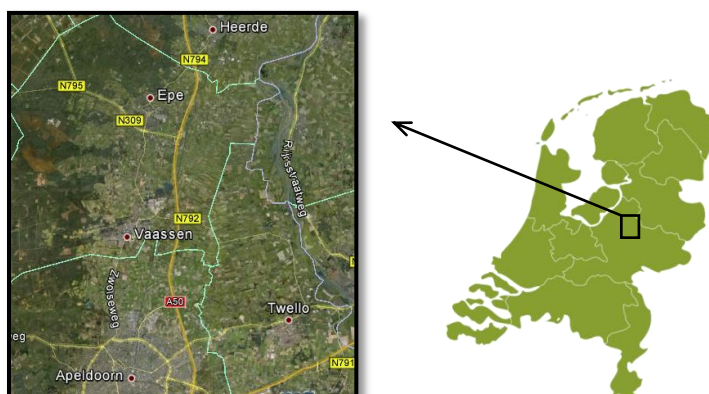


Figure 4.8. Location of Epe-Vaassen

Epe-Vaassen is one of the most small scaled areas of the Netherlands (Rienks et al. 2009), table 4.5 illustrates this with the average size of agricultural parcels (smaller than 2,5 ha) and plots (between 0 and 3 ha) and the number of average plots per owner, which can go up to 35 parcels (in 2009).

Table 4.5. Size of parcels and plots (based on: Rienks, 2009)

average size of parcels	< 2,5 ha
average size of plots:	0 - 3 ha
Number average plots per owner	9 - 35 plots

Epe-Vaassen is an area with a lot of dairy farms, almost 75 percent of all agricultural companies are dairy farms (CBS, 2012) Compared to the average of the Netherlands most of the dairy farms are relatively small with an average of 50 to 60 milking cows. Next to this, there are also some bigger dairy companies and there are farms with calves, horses or pigs and some arable farms.

Next to the agricultural activities, there live a lot of citizens in the rural areas of Epe-Vaassen. Since the area is directly located to one of the biggest nature areas of the Netherlands, it has a lot of influence of that area. The edges function as a transition of the landscape from the Veluwe to the surrounding area (Provincie Gelderland, 2005). Many small recreation companies, like camp sites, are located in the area of for holidaymakers that visit the Veluwe and its surrounding areas.

4.3.3. Voluntary re-allotment in Epe-Vaassen

The activities for the exchanges are arranged by a parcel exchange coordinator, he is the central person in the processes and maintains contact with SBKG, land owners, the commission and other external parties like the notary. Figure 4.9 presents the organizational structure of the voluntary re-allotment and shows the connection between the coordinator and the other parties

The coordinator contacts the land owners, gains insight in their wishes. He makes proposals for exchange, arranges valuation of property, draft purchase agreements, etc. and he participates in the meetings of the workgroup which are held once every two months.

The workgroup keeps track on the developments of the voluntary re-allotments in the area. The composition of the workgroup changed over the years and nowadays it exists out of a representative of the LTO department of Epe, two farmers out of the area, and since 2009 also a representative of the organization Gelders Landschap and a representative of the Water Board Veluwe (Since January 2013 Vallei en Veluwe). These 5 persons are appointed by the Provincial Executives (In Dutch: Gedeputeerde Staten) of the Province of Gelderland but they do not have any formal or legal powers.

On top of the scheme (figure 4.9) is the Province of Gelderland, the province provides funding for the voluntary re-allotment, which is arranged by the SBKG (in the scheme below the province).

The funding of this voluntary re-allotment exists out of two parts. First, the costs for the process to arrange exchange of parcels, which are the costs for the activities of the parcel exchange coordinator (arranging meetings, making a plan for exchange, etc), so called 'supportive re-allotment' (in Dutch: Ondersteunende kavelruil) (SBKG, 2012). This funding is does not depend on the number

of exchanges, the coordinator declares his ours and that will be reimbursed. Also the costs for the workgroup are incorporated in this part of the funding. This funding was provided for some years by the province and was extended every few years. Next to this, costs for the notary and cadastral costs are also funded by the Province of Gelderland. To gain this funding from the province, the plan for exchange should meet the legal requirements as described in the WILG and the plan should contribute to a more effective use of grounds are (or will be) used for agriculture, nature, landscape water infrastructure or recreation (SBKG, 2012) The costs to arrange a voluntary re-allotment in this area are for 100 percent funded.

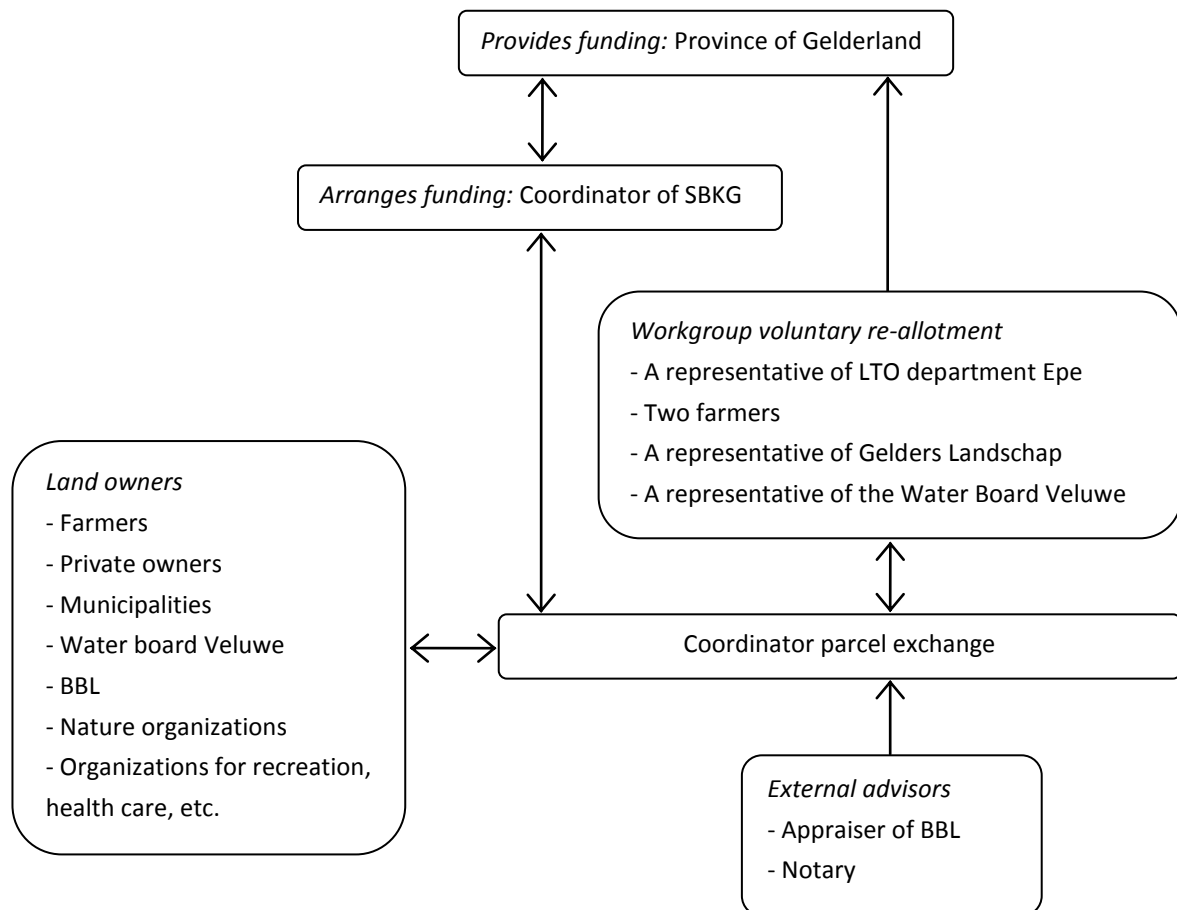


Figure 4.9. Organization of the voluntary re-allotment in Epe-Vaassen

Land owners that participate in the voluntary re-allotment are diverse and have different interests. It are farmers, governments like the municipality of Epe and the Water Board Veluwe, private land owners, foundations that take care of nature and landscape, BBL (Government Service for Land Management) and others like a foundation for health care, a recreation company and large land owners. These different land owners are consulted by the coordinator to participate and sometimes they take the initiative themselves to arrange an exchange. Since the Province of Gelderland funds the re-allotment for 100 percent, the participants do not have to pay the process costs and also not for the notary and the Kadaster (SBKG, 2012).

Parcel exchange activities

The activities for the exchange of parcels can be divided in 5 steps: inventory, create proposal for exchange, property valuation, mediation and draft purchase contract. Some of these steps are in interaction with each other, figure 4.10 shows the steps.

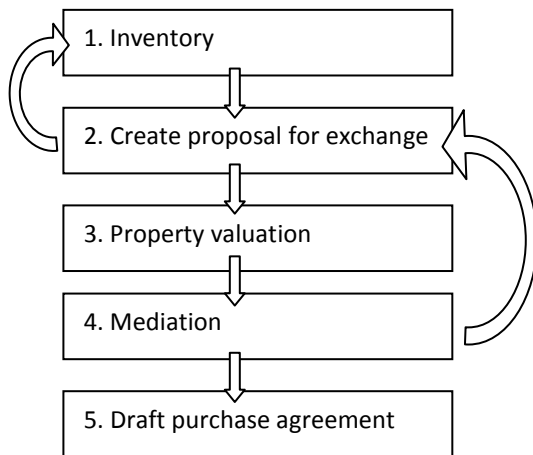


Figure 4.10. Steps of parcel exchange activities in Epe-Vaassen

The coordinator starts with an inventory based on requests from different parties, this can be a governmental organization, like the water board or farmers. The parcel exchange activities are always based on an initiative or a request of a stakeholder in the area.

With the request(s) in mind, the coordinator gains insight in the properties that might be relevant via the Kadaster and he uses his personal knowledge about the area. The coordinator contacts the concerning land owners via a personal letter. He asks in this letter whether the owner is interested in a voluntary re-allotment and if the owner does not respond, the coordinator assumes that the owner is not interested. When there are some responses on the letters, the coordinator has a personal conversation with the land owner, they discuss what the owner prefers and what possibilities there might be and checks whether the information about the ownership of the Kadaster is correct and complete. Sometimes, the coordinator discusses with the land owner who could be contacted to meet the wishes of the owner and who shall contact that party: the coordinator or the land owner. Based on these conversations the coordinator gets more insight in the possibilities for exchange. When it is necessary, and most of the times it is, the coordinator will contact other land owners that did not respond on the letter to link different wishes of land owners together.

After the inventory, the coordinator makes a plan for exchange. He discusses with each owner individually whether he agrees with this plan. If an owner does not agree, the coordinator will try to adapt the plan for exchange. If the owners agree, then the coordinator arranges the validation of the involved real estate. The valuation is done by a valuator of BBL.

After the valuation, the land owners can agree with the price, then they will sign a draft purchase agreement. If owners do not agree they can decide that they will not participate in the voluntary re-allotment or they can negotiate with the other party. The negotiating is something that the land owners do themselves. The coordinator only participates in this part as a messenger.

These five steps are done which each land owner individually. When these five steps are done several times successfully, all the draft purchase agreements will be combined in one deed. The exchanges are then official.

4.3.4. Actors

The following actors with different interests will be elaborated on: process manager, which is in this case the parcel exchange coordinator, farmers, Gelders Landschap and the Water Board Veluwe.

Parcel exchange coordinator

The parcel exchange coordinator is a person that has lived his entire life in the area of Epe-Vaassen. He knows the area and a lot of farmers well from his former profession (economic advisor for agricultural companies). The other way round, a lot of farmers know him via former activities, which is mainly the former job. Nowadays he arranges voluntary re-allotments for 1 or 2 days per week during his retirement. He receives an amount of money for his working hours from funding of the Province of Gelderland, which is about 30.000 Euro to 40.000 euro per year.

The coordinator thinks that it is important to know the area and their inhabitants well and the other way round, be well known by the land owners. Both parties know what to expect from each other. It is then easier to consult the land owners and arrange exchanges. It is also important to take initiative and see possibilities in the area. Besides this, a coordinator should be independent, so no conflicting interests and a coordinator should be neutral. For example, the coordinator emphasizes that he is a messenger during mediation; he is not in favor or against someone.

The coordinator states that the personal or 'human' aspects, like the consulting, the negotiating and the appointments with the land owner are the most important aspects of a voluntary re-allotment. That takes the most time and effort to arrange; the appointments with the different parties. Technical aspects have less influence on the processes. The coordinator thinks he has about five meetings with a land owner to arrange an exchange. However it is never predictable how the processes will evolve, every participant has a different attitude and is influenced by a lot of other aspects. Through the years, the coordinator (together with the commission) noticed that acting more 'strict' gains more results.

The effort of the coordinator to arrange an exchange depends on several aspects, i.a., the scale, type of goal and type of participants. The area is relatively small scaled and ownership of land is scattered among these small parcels, this means that there are a lot of parties with small plots. This will increase the effort that is required to achieve exchanges. Related to this, the small plots are sometimes owned by private owners. For the coordinator it is more difficult to do business with private land owners, since they do not benefit from the re-allotment in a way a farmer does. To compare, an agricultural company can benefit from the re-allotment by achieving land that improve the allotment of the company. A private person will sell some of his land and gains money for it.

The effort of the coordinator to arrange exchanges is also influenced by the related objective. An exchange that is related to the development of agriculture as well as improvement of nature takes more time to arrange compared to exchanges for only agricultural improvements. There are also exchanges that are bound to a location, like, exchanges related to the development of an EVZ or

cycle path is bound to a small stripe of land through a lot of parcels. That takes relatively more effort and costs to arrange compared to exchanging complete parcels, due to a lot of owners and costs for the Kadaster.

The participants do not have to pay for the process, neither for the notary and Kadaster, this is all paid by the province. Nowadays, it is uncertain if the province will continue with providing funding in the future for voluntary re-allotment. If the land owners have to pay themselves for the process costs, it would be about 1000 Euro's per exchanged hectare and that is too expensive.

The coordinator states that the voluntary re-allotment is successful. This success is not within the number of exchanged hectares, although that is also quite high. More as 10 percent of the area is re-parceled with voluntary re-allotment, so a lot of owners know that it is happening. Next to this, there were also land owners that participated and did not have a great interest in the voluntary re-allotment. Those were mainly private persons that sold a small stripe of land to construct, for example, a bicycle road. The coordinator considers the number of satisfied participants is more relevant than the number of exchanged hectares. To consider whether the process is successful, the number of positive minded participants is the most important.

Farmers

The Epe-Vaassen area has, compared to the average of the Netherlands, a lot of small farms and a lot of dairy farms. Nevertheless there are also some big farms, especially in the LOG area (In Dutch: Landbouwontwikkelingsgebied). Of all exchanged hectares (1130) in Epe-Vaassen, 1020 hectares were exchanged for the improvement of the agricultural structure in the area.

Farmers mainly participate if they can improve their company, in other words improve their allotment for a more effective management, which can be land closer by the home plot, enlargement of the home plot, enlargement in a general way, or other related reasons. It differs per farmer how much they can benefit from it.

At the start of a process, when farmers are consulted by the parcel exchange coordinator for the first time, some farmers recognize immediately the economic benefit and want to participate. Others gain more value to the emotional aspects, like keeping land that was inherited from grand-pa or they hesitate more due to other reasons. The emotional aspect related to land is, according to some interviewees decreasing, the economic aspects become more important for farmers.

The biggest uncertainty farmers perceive, is the participation and the intentions of another party. An exchange will only succeed if the other also participates. In order to achieve results (in exchanging hectares) farmers state that their colleagues should be flexible, recognize the economic benefit and sometimes also take initiative themselves.

For example, one farmer did not completely agree on the fact that the water board wanted a strip of land from his home plot. He was a little bit suspicious towards the water board as a governmental organization; maybe they could expropriate him in the future? He did participate since he also received some good land back. Nevertheless, he is positive about the voluntary re-allotment. It is a good way to exchange resources and farmers, nature originations and citizens participate together in a way they all can benefit from it (Brummelaar, 2012).

Another interviewed farmer compares the exchanges with the way of working before the FMD, in which he also participated. At that time, there was no coordinator and it took a lot of his time to make drawings, find out about the rules, have meetings with other farmers, etc. After the FMD, the parcel exchange coordinator started to arrange all activities regarding the voluntary re-allotment and that resulted in less work for the land owners themselves. A farmer can now provide a suggestion to the coordinator and the coordinator will check for possibilities. Therewith, if someone does not want to participate, the coordinator will look for other possibilities, he has a more complete overview of the area compared to the farmers. Related to that, the coordinator is an active person and takes the initiative to find solutions.

Negotiations are hardly done about the price, land is valued by BBL and that is in general an acceptable price. One farmer pointed out that if you want to arrange something together of which everybody can take advantage of, everybody should be realistic and not ask for high prices. Additional aspects are negotiated about, like the construction of a culvert.

The duration of a voluntary re-allotment differs a lot, it can take a year until the deed is signed or it is arranged in a few months. Overall, the interviewed farmers are satisfied with the duration of the processes. The duration depends on the number of participants, the extent to which they are flexible, and whether you are the first or the last one that is involved.

Overall, farmers are positive about the exchanges in the area, it arranged better allotment for many agricultural companies. An additional advantage of the voluntary re-allotment is that the province funds all costs for the process, including the costs for the Kadaster and notary. The availability of land of BBL partly contributed to the success of the projects. Also farmers recognize that every kind of party can benefit from it in their own way.

Gelders Landschap

Gelders Landschap takes care of the management and development of nature, landscape and cultural heritage in the Province of Gelderland. It is also one of the organizations that have the task to develop the EHS.

Gelders Landschap receives or purchases land via inheritances and donations and the organization could purchase land with funds of the National government and province. After 2008, the government cuts down the financial budgets and Gelders Landschap could not purchase new parcels anymore via those governmental budgets. After 2008, Gelders Landschap hardly bought lands but with the voluntary re-allotment the organization could make interesting moves with their properties.

Since 2006 Gelders Landschap is involved in the voluntary re-allotment. The expectations towards the voluntary re-allotment were positive. With the process Gelders Landschap could exchange land that would close the 'holes' in their property and obtain interconnected units parcels to develop nature.

Gelders Landschap did have parcels spread through the area. These parcels were too small to develop as nature. In order to develop nature in a lucrative way, interconnected units of parcels are required. If Gelders Landschap owns less land after an exchange, but on the 'right' place, the benefit is than the possibility to develop nature. For example, exchange 10ha for 9ha on a location where nature can be developed.

Besides this, the organization also participated in an exchange in which they didn't benefit from directly. Gelders Landschap participate in order to show that they are not that nature organization that never wants to participate. They wanted to show that they can be a flexible organization, contribute to the development of the area in a more general way and gain support from the area.

The duration of the processes differs per situation. The first exchange in which Gelders Landschap participated was finished within half a year, which is quite fast according to the representative. The exchanges that followed took more time since there were more parties involved. For example, the preparations for what became the 50th exchange, took about three years, for Gelders Landschap that was acceptable but for other parties this could be a little bit too long. The duration is for Gelders Landschap not of high importance because the organization has a long term vision. The representative does point out that agricultural companies and other parties will think differently about that. A process of voluntary re-allotment cannot take years.

The representative of Gelders Landschap spends most of his time for the voluntary re-allotment in meetings with the coordinator and sometimes with other parties. However, in small exchanges, the biggest effort is asking permission to the national government and province. Gelders Landschap always has to do that since the government paid for the lands.

Sometimes it was not clear in the bigger exchanges who exchange exactly what. That caused more effort and time to get that clear. The representative questioned whether that could be prevented from happen since it is a very complex process. Although the coordinator has the most complete overview of the developments of the process, also he cannot know and control every aspect.

Gelders Landschap gained about 15 hectares that can be used for the development of nature, which is a good result according to the representative. It is likely that the organization would not own those parcels without the voluntary re-allotment. In the future, Gelders Landschap wants to gain land via this way again.

An additional advantage of the voluntary re-allotment is that the costs for the process, the notary, Kadaster are funded by the province. If Gelders Landschap could purchase itself (which is also not possible today), they had to arrange the negotiations for purchase themselves and pay for the notary, Kadaster and process themselves. The representative of Gelders Landschap states that the voluntary re-allotment is successful because Gelders Landschap and other parties gain the opportunity to manage their own property in a more efficient way.

Water Board Veluwe

The Water Board Veluwe (Since the first of January 2013, Valei en Veluwe) participates since 2009 in the voluntary re-allotments. They participate in order to achieve some of their goals which are the development of EVZ's (ecological connection zones) and the development nature friendly banks, in the context of the KRW (In Dutch: Kaderrichtlijn water).

The development of the EVZ's was officially a task of the Province of Gelderland and delegated it to the water board. They take care of the development of the EVZ's which are all located along waterways. Due to the cuts in budgets, the province stopped the development of EVZ's. Most

of the locations of the EVZ's are the same as the locations of the nature friendly banks of the KRW. Those banks are still in development in the context of KRW.

For the water board, the most relevant uncertainties were about whether a land owner will participate, the water board is with their goals bound to the location of the banks of the water ways, there is only flexibility in the other side of the water way. Therefore the water board is bound to the participation of specific owners, are they willing to sell a small stripe of their land?

Formally, the water board could expropriate the land. However, the Board of Management doesn't want to do that and prefers purchase on a voluntary basis. It is it then useful to own some land that can be used in future exchanges. The water board is allowed to have 20 hectares of land that can be used for future exchanges. Due to the merge with another water board, this internal rule might be changed. It is now allowed to buy land for their land bank, but it must be for a concrete project goal.

Contacts with the farmers go always via the parcel exchange coordinator. Contact with other parties, like Gelders Landschap and Natuurmonumenten goes directly, they have good contacts also outside the voluntary re-allotments.

BBL does the valuation of the land; there are hardly any negotiations about the valued price. The water board has a 'prices policy', wherein the maximum price to purchase land is documented. The representative states that it is impossible to pay to every land owner a different price with varieties of 10 cents per m². For 90% percent of all issues it worked out well, the price was according to the prices policy. Within the other 10%, the municipalities paid the difference. Municipalities paid that because they can achieve their goals, like the development of cycle paths. A municipality pays more for the development of a cycle path per m² compared to the water board for a nature friendly bank does.

The water board participated in about 10 exchanges, the duration of each exchange varied a lot, it could be up to 1,5 or two years, or it was arranged in a few months. It does not only depend on the number of participants, but also on the goals that are involved in it. It is hard to indicate what is too long for the water board, but it is linked to the periods of funding. If a process takes too long, which could result in that the water board will not get his funding for the projects, the water board arranges the purchase itself. It is not part of a voluntary re-allotment.

The representative spends an acceptable amount of time in the activities for the exchanges. However, if it is converted to a price per m², it is relative a lot of time to spend and it costs relatively more. The water board buys small stripes of land, which goes through a lot of parcels with different owners; the cadastral costs are then higher compared to one complete parcel. Also the coordinator needs more time to consult all land owners. All the costs are funded in a voluntary re-allotment. However, the representative states that it remains expensive land since there is always an organization that pays for it.

The interviewed representative is satisfied with the results of the voluntary re-allotment, the number of kilometers of land to obtain for the development of nature friendly banks, are almost all owned by the water board. For the future, the water board plans new projects, so it is likely that the water board will participate again in future voluntary re-allotment processes.

Also for the area in general the water board thinks it is a success. The success is partly possible because there was space on the marked of lands, DLG had land that could be used in the exchanges, and that makes the process easier. Farmers also saw the benefit of the voluntary re-allotment and participated, that made the projects a success.

4.3.5. Conclusions

The activities for the voluntary re-allotment in Epe-Vaassen are arranged by a parcel exchange coordinator, guided by a workgroup and SBKG. In the past 10 years, 1130 hectares were exchanged. The main focus was on the improvement of the agricultural structure (1020 exchanged ha) and 110 hectares were exchanged for other goals like nature, water, infrastructure or recreation.

Overall, the participants have a positive attitude towards the processes, most participants can benefit from it. An interesting aspect in this case is that also private owners participated that did not benefit from the re-allotments as a farmer, nature organization or a water board does. Private persons only sold some parts of their land. Also Gelders Landschap participated in some exchanges which they did not benefit from it directly but to show that they are flexible and gain support from the area.

The coordinator is the central person to arrange the exchanges, all participants have contact with him and contact to other parties goes via the coordinator. In some cases, participants consulted each other directly, like the water board and Gelders Landschap did. The coordinator has an agricultural background, is well known in the area and does not have conflicting interests with the other land owners. Through the years, the coordinator became more 'strict' in his activities, putting some time pressure on the participants and that resulted in more exchanges.

The area is relatively small scaled and has more owners per hectare as a bigger scaled area. This results in more effort to arrange exchanges because there are more owners. Besides this, for the development of an EVZ or bicycle road, the costs for the Kadaster become relatively high due to the many involved parts of parcels. Next to this, the availability of land and therewith also the attitude of participants is important to achieve exchanges.

The Province of Gelderland funded the voluntary re-allotments until 2012. It is uncertain if the province will fund the processes also in 2013 and therefore it is uncertain whether the voluntary re-allotment continues in the way as it is arranged until now.

4.4. Kempen-Broek

In the middle of the Province of Limburg, to the south of the city Weert, voluntary re-allotment has been applied since 2010. The motivation for the process is related to a request of the Province of Limburg, next paragraph elaborates on the motivation as well as the results of the process until now. Thereafter in section 4.4.2 the area of Kempen-Broek is in brief described. Section 4.4.3 presents the organization and method of the process, followed by an elaboration of different involved parties. In the final section (4.4.5) conclusions are presented.

4.4.1. Reasons to start the process and results

In 2010, the Province of Limburg made an agreement with three parties: ARK Natuurontwikkeling, Rentmeesterskantoor van Soest and Habitura. These three parties shall arrange together that in 2016 a total of 250 hectares for the EHS is purchased, developed and in use as new nature and 150 hectares is exchanged for the improvement of the agricultural structure. Voluntary re-allotment is applied to achieve these goals (ARK Natuurontwikkeling, 2011). Figure 4.11 contains a map with the locations of valuable nature and where to develop new nature. In the white colored areas, there is space for agricultural companies to develop. The project is related to the development of the nature park Kempen-Broek and it should also contribute to the quality of recreation, water, landscape and livability (ARK Natuurontwikkeling, 2011).

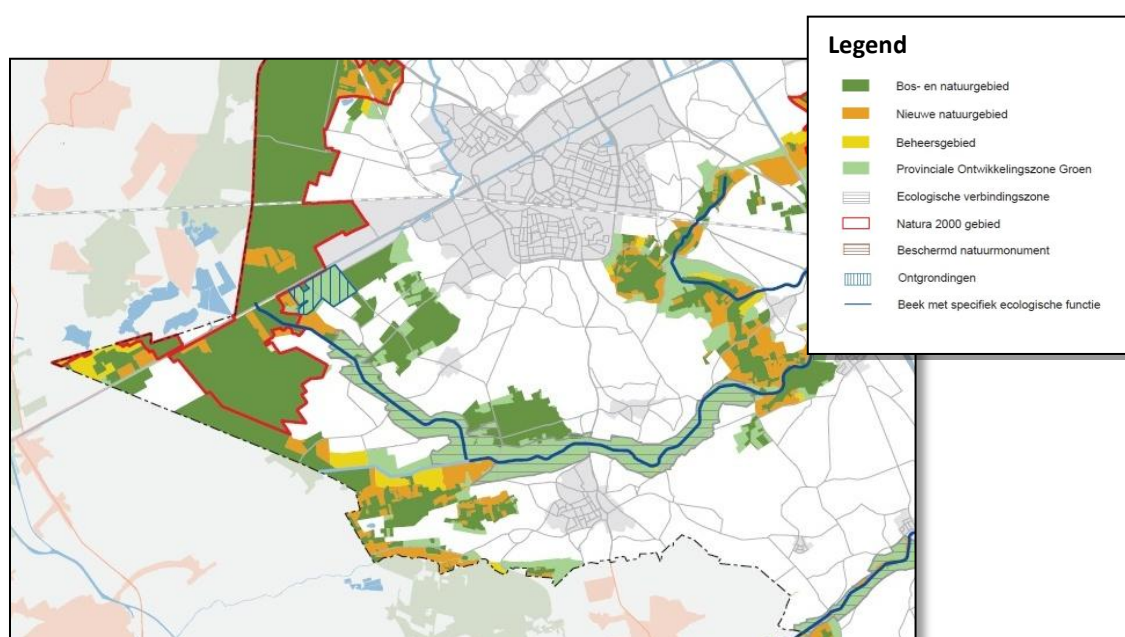


Figure 4.11. Map 'Groene Waarden' (Provincie Limburg, 2011)

At the beginning of the project, ARK bought 86 hectares of land for the development of the EHS and for future exchanges in the voluntary re-allotment. After that, three deeds were signed in the past two years:

- First deed, February 2011: 85 hectares exchanged among 9 parties
- Second deed, December 2011: 248 hectares exchanged among 31 parties
- Third deed, September 2012: 110 hectares exchanged among 16 parties

Until the end of 2012, 529 ha is exchanged among 49 unique participants, which are private land owners, Natuurmonumenten, farmers, other kinds of companies, the municipality of Weert, the water board, BBL and ARK itself (ARK Natuurontwikkeling, 2012). The exchange of 200 hectares contributes to the development of the EHS and 92 ha is for the improvement of the agricultural structure. The other 237 ha will be used in future re-allotments. ARK bought also two complete farms (buildings and land) for their own risk. Table 4.6, presents some key figures of the case and the results until the end of 2012.

Table 4.6. Key figures of Kempen-Broek, in the end of 2012 (based on: ARK Natuurontwikkeling, 2011)

Duration	2010 - 2016
Size of the area <i>(note 1)</i>	About 8.000 ha (estimation)
Exchanged land in ha	529 ha
Average exchanged ha per year	265 ha
Related to what purpose:	
- improvement of agricultural structure	92 ha
- development of (new) nature (EHS)	200 ha
- land for exchange in future exchanges	237 ha
Percentage exchanged land in the area	6,5 % (estimation)
Total number of participants	49 participants
Signed deeds	3
Average of exchanged ha per deed	147 ha
Average number of participants per deed	16 participants
Lowest and highest number of participants in a deed	Min: 9 Max: 31

Note 1. There are no clear boundaries.

4.4.2. The area

The area, in which the voluntary re-allotment takes place, is located in the south of the Netherlands, in the middle of the province of Limburg. Figure 4.12 presents the project location. The exchanged parcels are mainly located in the municipality of Weert, which is located between the boundaries of Belgium and the province Brabant. Also in this case, the boundaries of the project area are not strict. If a participant owns land outside the area and prefers to exchange it, the process manager would try to find a buyer for it.



Figure 4.12. Project area of voluntary re-allotment in Kempen-Broek

The western boundary of the area exists out of forest areas, with some heathland and shifting-sand areas. The villages Weert and Stramproy are the eastern boundary and are located on higher sandy grounds (figure 4.12). The area has a diverse character; it contains some small, high forests, wet areas with agricultural use which contain diverse (positional) ecological values. Most of the parts of the area have a small scaled character (Provincie Limburg, 2008).

The area has a variety of types of agricultural companies. About a third of the companies are dairy farms, a third are arable farms and about 20% of the companies are farms with pigs or chickens (CBS, 2012). Also the size of agricultural parcels varies in the area, between <2,5 ha and 5 ha (table 4.7). In 2009, the average size of plots is relatively low and the number of plots of per owner relatively high (table 4.7).

Table 4.7. Size of parcels and plots (based on: Rienks, 2009)

average size of parcels	<2,5 - 2,5-5 ha
average size of plots (per owner):	0-3 ha
average number plots per owner	9-35 plots

4.4.3. Voluntary re-allotment in Kempen-Broek

The organization of the voluntary re-allotment in Kempen-Broek is presented in a scheme (figure 4.13). Two commercial companies, Habitura and Rentmeesterskantoor van Soest and one foundation for nature, ARK Natuurontwikkeling, are cooperating in a consortium to achieve the goals that were formulated by the Province of Limburg. So, on top of the scheme is the Province of Limburg, which can be seen as the commissioner of the project. The province pays per developed hectare of new nature 50.000 euro's.

Within the consortium, ARK Natuurontwikkeling takes care of the project management. The organization manages the finances and land administration, takes care of the communication about and within the project. They take care of press releases and they maintain contact with other parties in the area like the province, LLTB (Federation of Agriculture and Horticulture in the province of Limburg), Natuurmonumenten, interests groups of the inhabitants, etc. Besides, ARK gives permission to Rentmeesterskantoor van Soest to arrange the exchanges. The second party in the consortium is Habitura. This is a company in regional development and nature development and supports the processes when necessary. The steward (in Dutch: Rentmeester) of Rentmeesterskantoor van Soest arranges the exchanges of land. He consults land owners, makes plans for exchange and he is supported by a notary, an appraiser and a geo expert.

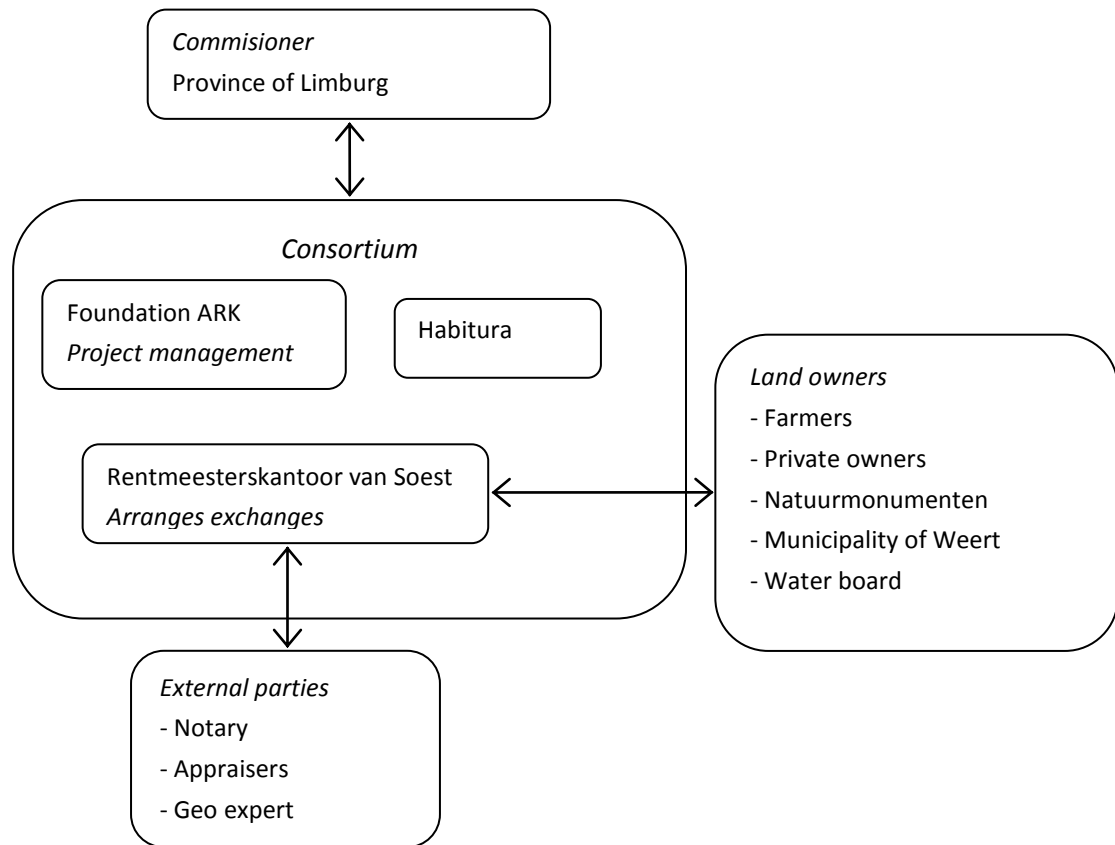


Figure 4.13. Organization of the voluntary re-allotment in Kempen-Broek

Parcel exchange activities

Also in this case the activities for the exchange of parcels can be divided in 5 steps: inventory, create proposal for exchange, property valuation, mediation and draft purchase agreement. Just as in the cases Heusden and Epe-Vaassen, the first and second step and the second and fourth step are in interaction with each other. Figure 4.14 shows these steps.

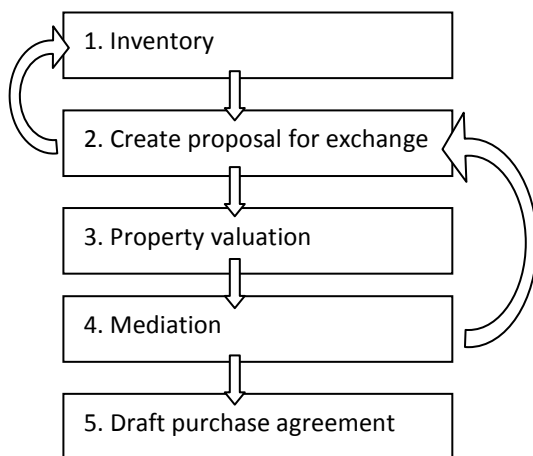


Figure 4.14. Steps of parcel exchange activities in Kempen-Broek

With knowledge about the area and its owners, the steward consults land owners in the field; he asks them whether they are interested to sell land or to participate in a voluntary re-allotment. Mostly, if land owners want to sell land, they want to receive some land in return, i.e. exchange land. The steward gains information about the property of an interested land owner via the Kadaster and he checks whether the owned property is located in the EHS. The steward has an individual conversation with the land owner about his wishes and personal situation. Based on several individual conversations the steward gets more insight in possibilities for exchanges and purchases. After this inventory, the steward makes a plan for exchanges and he discusses those ideas with each land owner individually. If a land owner does not agree, the steward tries to adapt the plan for exchange. If a land owner agrees, the steward arranges the valuation of the involved real estate.

The valuation of land is done by two external appraisers at the same time, which is a requirement of the province of Limburg. After the valuation there are few possibilities to negotiate about the price but the main norm is that the praised value will be paid. Negotiation about other conditions is possible.

The fifth step is signing a draft purchase agreement by the land owner. If a parcel will be sold to ARK as a mean for future exchanges, the agreement contains a part wherein is stated that if the land is sold to another owner, the same price will be paid as ARK buys it from the concerning land owner.

When these five steps are done several times successfully, draft purchase agreements are combined in one deed. A notary will make one deed wherein all the exchange of property rights is documented officially.

4.4.4. Actors

This section elaborates on the interests and perceptions of three different actors that are involved in this process of voluntary re-allotment: ARK Natuurontwikkeling, Rentmeesterskantoor van Soest and farmers.

ARK Natuurontwikkeling

ARK Natuurontwikkeling is an independent foundation for nature. One of their goals is the development of nature. Besides this, they aim to combine the development of nature with other functions like water management, recreation and urban development. Within the voluntary re-allotment the organization takes care of the project management and buys land for nature development and for future exchanges. In December 2012, ARK owns 437 hectares of land. 200 hectares are for the development of the EHS, the remaining 237 hectares are for exchanges in the future.

The goal of ARK is not to make profit in money but profit in 'social' goals like the development of nature and gain attention and support for nature development and management. Within the process of voluntary re-allotment, the goal for ARK is to develop nature. ARK attaches high value to a good image in the concerning area. The project leader states that without a good image no party wants to do business with ARK.

According to the project leader of ARK, voluntary re-allotment is a good mean to gain land that can be used for the development of nature. Mostly, farmers do not want to sell their land for money, they do want to sell if they can receive another parcel that also improves the situation of their company. Therefore the land that ARK owns located outside the EHS, will be used as a mean for future exchanges.

ARK gets paid by the Province of Limburg based on results in hectares of developed new nature within the EHS. It means that the process should be organized in an effective way, since they get paid based on results. It also means that all risks regarding the purchases are for ARK. The project leader of ARK thinks that the purchase of land does not contain a high risk, since land is stable in value. There is a big risk in the purchase of buildings. ARK bought two complete farms and it is uncertain whether they can sell them and for what price.

The voluntary re-allotment is, as already in the name, on a voluntary basis. ARK states that it is acceptable if someone does not want to participate. The process is based on everybody's individual choices. Every land owner should gain benefit out of the process. When a land owner does not recognizes the benefits he can gain out of it, that is acceptable. Besides this, ARK does not have the intention to act in a way the prices of land increases. Therefore it happened a few times that land was purchased right before ARK wanted to buy it. ARK accepts that, it is part of the game as the project leader states.

The project leader thinks that arranging a voluntary re-allotment should not take too long. It can happen that situation of agricultural companies change, ideas of land owners change, policies of the government change and that requires adaption of a plan for exchange. The consortium can arrange exchanges within 5 months. This is possible since the project leader has a lot of responsibilities regarding budget and approving plans. The project leader is allowed to decide about the proposals of the steward regarding buying land and buildings as part of the exchanges. Arranging a voluntary re-allotment within 5 months is also an amount of time that is acceptable for land owners. To explain, arranging the exchanges too quick is also not preferred since farmers and other land owners need some time to think about the proposed plans for exchange.

The project leader of ARK is positive about the achieved results until now (December 2012). Although there are some great risks taken (the purchase of two complete farms) the project leader e project is on scheme, the project leader expects that in the end of 2016 there will be much more achieved than the goals set beforehand since they have achieved until now more results as expected.

Steward of Rentmeesterskantoor van Soest

The steward of Rentmeesterskantoor van Soest arranges the exchanges in the field. He contacts land owners and makes the plans for exchange. He cooperates in a consortium with Stichting ARK and Habitura. The steward uses his personal knowledge of the area and its owners and inhabitants to find land owners that might want to sell land or participate in the voluntary re-allotment.

The steward argues that trust in him is very important aspect within the voluntary re-allotment. If owners do not trust him, he might achieve one small exchange and after that it ends. Therefore, it is important to be clear and honest. He makes clear to land owners what they can expect from him, when and how. The steward states that it is never possible to meet the wishes of

everybody for 100 percent. It is possible to make clear why something is possible or not. The steward does tell to others with whom he is doing business with, but he does not tell about substantive information: prices, wishes, future plans etc. of other land owners. Every participant can benefit from the process, though the degree of benefit differs. Some can benefit more than others. Besides this, the steward makes always clear that he is not in favor or against someone. He functions as an intermediary person.

Some land owners have doubts about whether to participate or not. The stewards states that those kinds of persons should be approached with care, if they are pushed too much; they might not want to participate anymore. However, it is also not desirable to let them think about the proposed ideas endlessly, the project should also continue and the steward also needs clearness. The clearness is necessary to continue with the project and communicate to other land owners what they can expect.

The proposed exchanges of the steward should be approved by Stichting ARK. This approval can be done very quickly since the steward had good contact with the project leader of ARK. The project has a lot of responsibility and power. He can approve the proposed exchange (more or less) immediately. In other words, he does not have to ask permission to another supervisor whether there is budget. That saves time and that is appreciated by the land owners, they know in a short period of time what to expect. However, it is for the process in general also important to keep track on the changes and risks.

The stewards states that the more participants in a deed, the cheaper the process will be, however there is also a maximum regarding the number of participants. For him, a deed with more than 100 ha and more than 30 parties is too complex. It contains too many risks and does not compensate the costs that can be saved with involving more parties. If one crucial land owner decides suddenly not to participate, it could be possible that the whole exchange collapses.

In the third exchange, there were many parties that only sold a parcel to ARK. These parcels are included in the exchange because that lowers the costs of the notary and Kadaster. In other words, if for each purchase of each parcel one deed should be established, it would be more expensive than as it is done now. The risk related to the participation of those kind of parties is not high. If one party that only sells land, suddenly not participates, the other exchanges can still continue.

Next to the costs, the time and effort to spend to arrange parcels for the exchanges differs a lot per situation. Sometimes the purchase of parcel of 0,5 ha is done in six meetings with a land owner. In another situation a parcel of five ha can be part of the exchanges after two meetings. It is unpredictable how the process will evolve.

The steward thinks that the voluntary re-allotment is successful. The number of exchanged hectares is in line with the goals that are set that should be achieved in 2016. The project is also successful in another way. The acceptance of the process in the area increased in the past 2 years. When the steward started to contact land owners, especially farmers were suspicious towards the process. This decreased in the past 2 years. The process does not only facilitate the development of nature, it also facilitates the improvement of the agricultural structure in the area.

Farmers

In the past two years, 92 hectares of land is exchanged for the improvement of the agricultural structure.

Farmers want to participate if they can improve their company with the voluntary re-allotment. Most farmers do not want to sell their land for money, they do want to sell land if they can receive another parcel that also improves the situation of their company. It means that they should be able to manage their farm more effectively with an improved allotment, like enlargement of the home plot or land closer by the home plot. Especially dairy farms benefit a lot from land closer near home. It differs per farmer how much they can benefit from the voluntary re-allotment. It depends on aspects related to other participants, what land is available, for what price, etc.

The willingness of participation also depends on the personal situation of the farmer and the situation of his agricultural company. Does he want to quit within a few years? Or does he have plans to expand and invest in his farm? Does he have a business successor? Etc. Some farmers recognize immediately the economic benefit and are interesting in participating. Others hesitate more or state that there is no added value in it for them.

The participation of other land owners is perceived as a big uncertainty. The steward that arranges the exchanges plays a big role related to that. He is the person that consults all owners, makes plans for exchange and he is the only one that knows about the whole process and the participants. He acts as an intermediary person and that is perceived as positive. It is important to have an intermediary person within process, personal aspects play then a less big role. One farmer argued that without the steward as process manager, the exchanges would not have been succeeded. The steward keeps track on the whole process and discusses with the farmer only what is relevant for him. Negotiating is hardly done about prices of land or buildings; there are possibilities for negotiating about other aspects. Negotiating can be about the moment when the use of land goes to the new owner or about the conditions of the land that will be exchanged.

The duration of the process is acceptable according to the farmers, it doesn't take too long and it is also not too fast. An advantage of doing business with the steward and ARK is that they can decide fast. Only the steward has to ask permission to the project leader of ARK and they have a lot of contact with each other.

At the other hand, the interviewed farmers state that through the actions of ARK, the price of land increases. The demand for land increases since ARK is one more party with demand for land and the supply of land cannot increase. Thus the prices of parcels go up.

At the beginning of the process of the voluntary re-allotment a lot of farmers were suspicious towards it. They expected that only the interests of nature would be incorporated in the process, since ARK is a foundation for nature. Within the past two years, farmers became more positive about the process and its outcomes because also the agricultural sector can benefit from the exchanges. Although the attitude of the farmers became more positive in the two past years, there is still a

divided attitude among them. Some are very positive about the process and others are more negative about it.

Although there is a contraction between the development of nature and agriculture, this process shows that it is also possible to combine those two contradictory interests. The development of nature is accepted if a farmer can benefit from the process.

4.4.5. Conclusions

Since 2010 in the area of Kempen-Broek, ARK Natuurontwikkeling, Rentmeesterskantoor van Soest and Habitura are cooperating together in a consortium to achieve several goals that are set by the province of Limburg. The main focus of this process is on the development of nature. Also other goals are incorporated like the development of the agricultural structure. In 2016, 25- ha new nature should be developed and 150 ha should be exchanged to improve the agricultural structure. In the past two years 200ha is exchanged for the development of the EHS and 92 ha is exchanged for the development of nature.

The steward of Rentmeesterskantoor van Soest arranges the exchanges in the field. He contacts land owner and makes the plans for exchange. The proposed exchanges of the steward should be approved by Stichting ARK, they manage the finances. The Province of Limburg pays per developed hectare of new nature to ARK.

At the beginning of the processes, especially farmers were suspicious towards the process. They expected that only the interests of nature would be incorporated in the process. After two years, this attitude became more positive, the process takes into account the interests of nature as well as agriculture. However, some farmers argue that through the actions of ARK and the steward, the price of land increases in the area. ARK states that they do not have the intention to act in a way the prices of land increase.

The project leader of ARK is positive about the achieved results until now (December 2012). Although there are some great risks taken (the purchase of two complete farms) The project is on scheme, the project leader expects that in the end of 2016 there will be much more achieved than the goals set beforehand since they have achieved until now more results as expected.

Also the steward thinks that the voluntary re-allotment is successful. The number of exchanged hectares is in line with the goals that are set. The project is also successful in another way. The acceptance of the process in the area increased in the past 2 years. When the steward started to contact land owners, especially farmers were suspicious towards the process. This decreased in the past 2 years. The process does not only facilitate the development of nature, it also facilitates the improvement of the agricultural structure in the area.

Although there is a contraction between the development of nature and agriculture, this process shows that it is also possible to combine those two contradictory interests. The development of nature is accepted if a farmer can also benefit from the process. The attitude of the farmers became more positive in the past two years.

5. Analysis

The Previous chapter presented three cases in voluntary re-allotment; in Heusden, Epe-Vaassen and Kempen-Broek. First, this chapter elaborates on the similarities and differences between these three cases (section 5.1). Thereafter, this chapter provides explanations by referring to existing literature. The chapter elaborates on uncertainties and interdependence (section 5.2), institutions and trust (section 5.3) and aspects of the transaction costs theory (section 5.4).

5.1. Comparing the three cases

First, this section elaborates on the results of each case. Secondly, this section elaborates on differences in organization as well as the reasons to start the process the cases. After that the process costs are discussed. This section ends with information about differences in the perceptions of actors on uncertainties, their expectations and differences in interests.

Results

In Heusden and Epe-Vaassen voluntary re-allotment lasted for a much longer time (respectively 12 and 10 years) compared to Kempen-Broek, which lasts for 2 years now. In these two years 529 ha was exchanged, which resulted in an average of 265 ha per year, which is the highest of the three cases (see also table 5.1). However, it is important to bear in mind that many of these exchanges are done to gain land for future exchanges (237 ha), thus these exchanges do not (yet) contribute to a goal. Table 5.1 contains key figures and results of each case.

In Heusden and Epe-Vaassen, most exchanged hectares were accomplished for the improvement of the agricultural structure, whereas in Kempen-Broek the most exchanged hectares were for the development of the EHS.

The results of exchanged hectares can also be compared with the related goals that were set beforehand or other related (policy) goals. This puts the numbers of exchanged hectares in another perspective. In Heusden, the number of exchanged hectares is much higher than the goals set by the commissioner. In Kempen-Broek goals are formulated in a number of hectares to exchange for the improvement of agricultural structure (150 ha should be exchanged in 2016) as well as for the development of nature, which is formulated slightly different. In 2016, 250 ha of new nature should be purchased, developed and managed as new nature. This is slightly different because the management of the new purchased parcels is incorporated in the process. This research does not focus on that. In Epe-Vaassen there were no goals set beforehand in terms of a number of hectares to exchange. The objective was formulated in a way like contribute to improvement of the rural area.

In addition, goals of participants differ in extent to which they are bound to a location and that has consequences for the process. Especially line-shaped elements like stripes of land for the development of a cycle path or EVZ's are bound to one location. In some cases, nature organizations argue that it is only lucrative to develop nature if they own a whole unit of parcels.

The three cases do not differ significantly in scale of allotment; all three are relatively small scaled. However, Epe-Vaassen is the area with the smallest scale of the three cases. To achieve the same amount of exchanged hectares in this smaller scaled area, more plots and probably also more participants are required. The coordinator of Epe-Vaassen believes that satisfied participants matter more than the number of exchanged hectares.

Table 5.1 Results of each case and key figures in the end of 2012. (Based on: Rienks et al., 2009, Optifield and ZLTO, 2012, Brummelaar, 2012 and ARK Natuurontwikkeling, 2011)

	Heusden	Epe-Vaassen	Kempen-Broek
Duration	1999 - 2012	2002 - now	2010 - 2016
Size of the area	About 8.500 ha	About 10.000 ha	About 8.000 ha
Average size of agricultural parcels	2,5 ha	< 2,5 ha	< 2,5 and 2,5 - 5 ha
Average size of plots (in 2009)	3 - 5 ha	0 - 3 ha	0 - 3 ha
Number average plots per owner (in 2009)	7 - 9 plots	9 - 35 plots	9 - 35 plots
Results			
Exchanged land in ha	1943 ha	1130 ha	529 ha
Average exchanged ha per year	162 ha	113 ha	265 ha
Related to what purpose	- 1646 ha (agriculture) - 268 ha (nature, EHS) - 30 ha (nature, EVZ)	- 1020 ha (agriculture) - 110 ha (water, nature, infrastructure)	- 92 ha (agriculture) - 200 ha (nature) - 237 ha (for future exchanges)
Percentage exchanged land in the area	24 %	11 %	6,5 %
Total number of participants	215 participants	429 participants	49 participants
Signed deeds	15	50	3
Average number of exchanged ha per deed	130 ha	23 ha	147 ha
Average number of participants per deed	25 participants	9 participants	16 participants
Lowest and highest number of participants in a deed	Min: 3 max: 66	Min: 3 Max 30	Min: 9 Max: 31

Table 5.1 also presents the average, the minimum and maximum of participants involved in one deed. In general can be stated that, the more participants involved, the more complex a process of voluntary re-allotment becomes. However, it does also depend on how the links within the network of exchanging parties are and that is not presented in the table. For example in Kempen-Broek, there were relatively many parties that only sold land to ARK. Their participation is not of crucial importance for other parties, only the party that buys the land could be affected and that was in this case the implementer of the process itself. If a participant is more in the 'middle' of exchanges, his participation can be of crucial importance since his choice affects many more parties. Therewith, actors decide on their own whether to participate or not. That choice is based on, and influenced by, many different (personal) aspects. The process managers illustrate this complexity of a voluntary re-

allotment with metaphors like: *'it's like a wheelbarrow full of frogs, if you put one frog in it, the other might jump out'* and *'it's like a plate full of spaghetti, if you pull one string of spaghetti at one side of the board, the spaghetti moves at the other side of the plate'*.

There is a limit? to the number of participants involved in one deed, the process managers of Kempen-Broek and Heusden argue respectively that 30 and 50 participants is the maximum. That amount of participants does not compensate the advantages of more participants to risks on events that can let the voluntary re-allotment collapse. To some extent GIS provides insight in the exchanges, this is used by the process managers in Heusden as well as in Kempen-Broek. But the use of GIS cannot get a grip on the behavior of all participants, neither a process manager can.

Organization of the process

The motivation for voluntary re-allotment as well as the structure of the organization differs per case. In Heusden, the initiative came from a local department of the ZLTO. The implementation of the initiative is done by Optifield, a company that manages voluntary re-allotment processes. The main focus of the project was on the improvement of the agricultural structure, but also other goals were incorporated in the land exchanges, which results in more possibilities for exchange. These aspects are also applicable in Epe-Vaassen. Though, the process in Epe-Vaassen differs from Heusden in the following aspects. The implementation of the exchanges is done by a private person. This case has, compared to Heusden a less commercial and project-based or systematic character. The process manager operates based on requests of various parties. Besides this, the commission of Epe-Vaassen that keeps track on the exchanges exists out of persons with a background in agriculture as well as water and nature whereas in Heusden the commission exists only out of persons with an agricultural background. Besides this, in Epe-Vaassen the funding is arranged by an external party and in Heusden this is done by the commission.

Kempen-Broek differs from the other two cases. In this case the main focus is on the development of (new) nature combined with the improvement of the agricultural structure. The implementation of the exchanges is done by the steward of Rentmeesterskantoor van Soest. He cooperates with two other parties; Habitura and ARK. ARK buys the land in the exchanges for the development of (new) nature and as a mean for future exchanges. The parties in Epe-Vaassen as well as Heusden that arrange the exchanges do not buy the land themselves, their interests differ with the arranging party in Kempen-Broek. Since ARK buys the land for itself, they only have to consult and negotiate with the selling party. This might lower the process costs. However, some farmers stated that the price of land increases through the actions of ARK. When ARK buys land in the area, the demand for land increases and therewith the price. Though, ARK does not have the intention to act in a way that the prices of land go up.

In each case the boundaries of the project area are not strict. If there is a possibility for exchange that is located outside the boundaries of the 'original' project area, this will be incorporated in the process. This generates more possibilities for exchange.

Another similarity is that in all cases, the exchanges are arranged by one process manager. He is the central person within the process of the voluntary re-allotment. He functions as an intermediary person. Therefore personal aspects (if applicable) between land owners that exchange

land (i.e. buyers and sellers) play a smaller role. Besides this, the steps that the process managers take to arrange exchanges, are in each case the same and can be divided in: inventory, create proposal for exchange, property valuation, mediation and sign draft purchase contract (Epe-Vaassen and Kempen-Broek) or sign letter of intent (Heusden). After that, all draft contracts or letters of intent are combined in one official deed that is established by a notary.

In Heusden and Kempen-Broek, the process managers (project leader and steward) use GIS extensively to make the plans for exchange. The average number of involved parties and hectares in one deed are higher compared to Epe-Vaassen. In all cases, valuation of the real estate is done by an external party, to guarantee the objectivity. Draft purchase agreements and letters of intent are set up and signed when there is a high certainty about the participation of a party.

The process manager

In Epe-Vaassen the process manager (parcel exchange coordinator) has lived his entire life in the area and through his former profession he knows a lot of land owners. In Heusden a confidential person cooperated with the process manager (project leader). The confidential person knew the area well and he was well-known by the land owners in the area. The project leader got to know the area and the inhabitants got to know him during the past 12 years of the project. In Kempen-Broek the process manager (steward) knows the area and its owners via his profession in the past 10 years and he gained experience with voluntary-re-allotment in other areas.

Next to this, the process managers in Epe-Vaassen and Heusden had a background related to agriculture whereas in Kempen-Broek the process manager cooperated with the nature organization ARK. Compared to Kempen-Broek there was less resistance from the farmers in Epe-Vaassen and Heusden. This could be caused by the nature oriented background of ARK or that some participants think that there are conflicting interests, since ARK buys land itself.

Another aspect related to the actions of the parcel exchange coordinator are the personal skills in arranging these kind of processes and knowledge of human nature. Several interviewed participants in the three investigated cases argue that a motivated and dedicated process manager that is able to inspire land owners to participate, achieves more exchanges. Inspiring and motivating land owners is an important skill of a process manager, it keeps progress in the process. Although it is likely that it leads to more exchanges, some participants also need some time to think about the purposed exchanges. It requires flexibility of the process manager to anticipate on each individual situation of each land owner. Take into account their personal wishes. A process manager should be able to speak the language of individual farmers as well as the language of the representatives of governmental- or nature organizations. In other words, a process manager with knowledge of human nature can arrange the process in a good way. In the end, the way towards the results (process) as well as the results should be perceived as good by the participants. The voluntary character of the processes contributes to that.

Costs

In all cases the participants had a positive opinion about the costs for the processes. Most costs for voluntary re-allotment are for activities that are related to the work of the process managers regarding the participation of land owners. The process managers need to take a lot of effort and

time (and therewith money) to consult and negotiate with the land owners. When more parties participate, more possibilities are created through the exchange of their resources and the process costs are also shared among the participants. Transaction costs to arrange a voluntary re-allotment are also perceived as high. Process managers as well as land owners assume that if participants had to pay all costs (in money) themselves, that it would be too expensive. The provinces funded the projects and that lowers the costs per participant.

In Heusden, the participants paid a certain amount of money that is in line with their benefits. In Epe-Vaassen, the participants do not pay anything for the process. The interviewees argue that it is acceptable if a little amount of money is paid that is in line with the benefits someone gets out of it. However, if there was no funding provided from the province in Epe-Vaassen and Heusden, the process would probably be too expensive.

Related to that, an interesting aspect of voluntary re-allotment is the duration of the process. The cases show that a process towards exchanges should not take too long, for example more than three years. But the duration of the process should also not be too short. If a process takes too long, then it is possible that the personal situation of a participant changes. Therewith, other participants that have signed a draft purchase agreement (or letter of intent) have to wait on the participation of other land owners to make the exchanges match together and combine them in one deed. A process should not be too short because participants should get some time to decide whether they participate or not. If an actor has to decide too fast, it can result in regret or in a less constructive attitude and it is possible that an actor will not participate (again).

To some extent the duration of a process is also related to the provision of funding by the provinces. In Kempen-Broek, the term to work on the goals set by the province is directly linked to the duration of the process of voluntary re-allotment, which is a period of six years. In Heusden, the finances were related to funding that had a relation with the development of the EHS.

Most land owners think that the process manager reduces the personal time land owners have to put in to arrange their goals. Without the voluntary re-allotment, there wouldn't be such an interconnected process of exchanges. Although some nature and governmental organizations argue that they had to put a lot of time and effort in the process, it was still perceived as acceptable because the processes led to better results compared to another situation wherein they would have to arrange a process to achieve their goals themselves or arrange a process of voluntary re-allotment themselves.

Actors

In all cases the most important perceived uncertainties by the process manager as well as the participants are about whether other parties will participate and what their intentions are. Most of the interviewees in each case stated that achieving an exchange strongly depends on the extent whether another land owner wants to participate. It is the owner which is directly linked to the purchase or sale of a parcel within the exchanges. An interesting difference between the farmers and some nature and governmental organizations in Heusden and Epe-Vaassen is that nature and governmental organizations also perceive the actions of the process manager as an uncertainty, farmers do not mention that. Governmental and nature organizations perceive the actions of the process manager as uncertain since only the process manager knows about the situation of the

participants and the possibilities for exchanges. Those organizations focus more on the improvement of an area as a whole whereas farmers focus more on the management of their company.

In general it can be stated that actors participate if they can benefit from the voluntary re-allotment. Though the actual benefits differ per land owner, some benefit more than others. In Epe-Vaassen there were actors that did not benefit from the process, but did participate. Those were mainly private land owners that sold a small stripe of land and received some amount of money in return.

Besides this, some nature and governmental organizations did participate in exchanges in which they did not benefit directly; the exchange did not contribute directly to a (policy) goal of the organization. Those organizations did participate in order to show that they are not 'that inflexible government'. Their participation should contribute to their image and gain support in the area.

Another aspect that plays a role in arranging exchanges is the availability of land, which is also related to the attitude of a participant. In Heusden, the municipality of Heusden contributed to the availability of land because they owned a lot of land in leasehold which could be used in the exchanges. In Kempen-Broek ARK buys also land for possible exchanges in the future. In Epe-Vaassen there was no actor that owned a lot of land that could be used in many exchanges. A few interviewees did argue that a land bank could be useful for future exchanges.

Expectations about the process and its results differ per land owner. These expectations are related to the perception towards the skills of the process manager and the image of the organization the process manager is related to. Expectations towards the process are also related to the expectations towards the willingness of participation of other land owners.

The Heusden case showed that after a few successful exchanges land owners became more positive towards the voluntary re-allotment process. Achieving positive results for the participants created more trust in the process. Land owners benefit from the process and know what to expect from the process managers. A deed signed in the past with satisfied participants will increase the chance that someone participates again. This does depend on the personal situation of the land owner as well as the developments in the area. If there are (new) opportunities for exchange and a land owner participates again, the consulting and negotiations will go more easier since the participant knows what to expect from the process as well as the process manager and the process manager also knows what to expect from that participant. The way toward the results is important. For example, the process manager of Kempen-Broek argued that negotiations should be clear and honest: do what you say, say what you do. This is applicable for the one that arranges the process as well as the participants. If a land owner does not trust the process manager, there might be one exchange, but later on he will not participate anymore.

5.2. Uncertainties and interdependence

In every spatial planning issue, uncertainties are inevitable due to the complexity of processes (Domingo, 2009), especially uncertainty about the intentions and behavior of others are relevant within voluntary re-allotment. The cases show that the more actors depend on each other, uncertainties about the intentions of other land owners become more relevant. Thus, the most important perceived uncertainties are about the participation of other land owners. Due to the many linked transactions of property rights (exchanges), there are a lot of interdependencies among the participants. Therefore, the participation of one certain party may be crucial to link exchanges together. Other perceived uncertainties were related to the actions of the process manager and the availability of funding of the government. These uncertainties are less relevant because they are not seen as a prior condition for the exchange of property rights, there again, the participation of others is.

Some nature and governmental organizations perceive also the actions of the process manager as uncertain, farmers do not mention that. This could mean that farmers have more trust in the process manager compared to the governmental organizations or it could mean that those governmental organizations prefer to have certainty about the process and its results.

Within the investigated cases, uncertainty about others is recognized and more or less accepted, especially at the beginning of the processes. The voluntary character is more important than focusing on certainty about the participation of land owners. If a land owner does not want to participate, it is mostly accepted and the process manager will search for other options. Uncertainty is dealt with trust and informal rules. However, in some literature is argued that uncertainty about the intentions of others can be decreased by more coordination (Abbott, 2005), providing rules on how to behave. The research shows that at the end of a process of voluntary re-allotment, formal rules become more important. Section 5.3, institutions and trust, elaborates on this.

The cases show that private goals of land owners, cannot be achieved without the participation of others. Thus, personal goals of each land owner are also to some extent common goals. Most of the participants recognize that they need others to achieve their own goals. However, the cases show also that participants also act in a strategic way, because they want to achieve their personal goals in the first place.

Farmers participate in order to improve their allotment and manage their farm more effectively. A water board, municipality or nature origination participates to achieve their policy goals related to the improvement of nature, infrastructure, recreation or other functions. For those interests and goals, actors need to buy (or use) land from others. Mostly, the other does not want to have money but also prefers to own (or use) land for its own interests or objectives. The cases show that also the process manager depends on the participants. For example, in Kempen-Broek, the steward that arranges the exchanges acts on behalf of Stichting ARK. To develop nature, Stichting ARK 'needs' the participation of farmers in order to purchase land. Personal goals can become mutual goals since the different actors need each other.

There are some exemptions on participating for achieving personal goals. In Epe-Vaassen private persons did participate though they did not have a great interest in the voluntary re-allotment. Next to this, in some cases, governmental and nature organizations participated in exchanges in which they did not benefit from directly. It should contribute to their image and contribute to mutual or common goals. Though, indirectly and for the longer term, it should also contribute to their personal goals.

Actions to achieve common goals as well as actions to achieve personal goals of actors are relevant in the processes of voluntary re-allotment. The process manager as an intermediary person plays an important role related to the behavior of land owners, since there is mostly no direct contact between land owners regarding the exchanges. Besides this, if farmers express their wishes to the process manager, they do not want that the other party knows about their wishes or future plans. Proposals for exchange are discussed with each land owner individually and the proposal only shows the new situation of the concerning land owner. A voluntary re-allotment with a link to the improvement of agriculture as well as nature, results in more strategic behavior of the participants, especially from the farmers. Also among farmers, the character of the actions is sometimes related to personal aspects. The process manager acts as an intermediary person, he deals with the various wishes and objectives of the land owners and puts attention towards the fact that the different land owners need each other to achieve goals. The specific combination of actions aimed on achieving only personal goals (strategic actions) and actions aimed on achieving mutual or common goals (communicative actions) depends on the contextual characteristics (Alexander, 2001).

5.3. Institutions and trust

Two concepts that address the way actors can deal with uncertainties about the behavior of other actors are institutions and trust. Trust in persons is necessary to arrange transactions that contain risks or uncertainties. To some extent these actions are guided by institutions (Ark, 2005, Eshuis, 2006). Therewith, trust in institutions is also relevant for these institutions (rules) to function properly (North, 2005).

The processes towards exchange of parcels, including the behavior of actors are guided and influenced by various institutions. For example, the WILG prescribes which conditions are required to characterize transactions of property rights as voluntary re-allotment. There are several benefits when transactions are defined as voluntary re-allotment, like the exemption from transfer tax. Though this is hardly mentioned and does not play a big role in the (daily) activities and interactions of the participants. In Heusden en Epe-Vaassen the provinces provide funding to voluntary re-allotment projects that meet the requirements of the WILG. The concerning provinces formulated additional conditions to receive funding. In brief, the processes or projects should contribute to improvement of rural areas. The implementers of the process in Kempen-Broek also received funding, but that is based on other aspects. The funding is provided per developed hectare of new nature. In Heusden and Epe-Vaassen a workgroup keeps track on the progress of the exchanges, although they do not have any legal powers, they can influence the processes. In Kempen-Broek there isn't a workgroup to keep track on the exchanges but there is a consortium between three

organizations that are together responsible for the process. In Kempen-Broek and Heusden, project plans were used and contained agreements about the duration and goals to achieve in numbers of hectares to exchange. In each case the price of land and buildings is valued by external appraisers. Negotiating about the valued prices is done to some extent, but the main norm is that the participants should pay the appraised value of the real estate, neither much more, nor much less. Though, in the core of the activities to arrange exchanges, trust is important and the (formal) intuitions (to guide behavior) are more on the background.

Also in the literature is elaborated on the relation between trust and institutions. Eshuis (2006) writes that trust as well as control is important in policy processes. These are two important ways to coordinate participation. Moreover, these two aspects cannot function properly without the other one. Next to that, Van Assche et al. (2012) write about the dialects between formal and informal institutions, these two cannot function in planning practices without each other. There is always a combination between these two. *In other words, purely formal planning does not exist, whereas purely informal planning will always remain vulnerable (Van Assche et al., 2012. p.4).*

The processes of voluntary re-allotment are on a voluntary basis, trust and informal rules are relevant. It are, for example, rules about how different parties have contact with each other, it are unwritten (and unspoken) rules that are taken for granted. There are no legal possibilities to enforce actors to comply with those kinds of rules. Though, from a social perspective, if one actor does not comply with those rules, trust in that actor might decrease. In other words, trust in actors plays a big role regarding informal rules. An example of an informal rule: With respect to content, the process manager does not tell to other land owners what he discussed with a certain land owner.

Later on in the processes, letters of intent or draft purchase agreements are signed by participants to show their willingness in participation, this contains obligations to the process. Although, these agreements do not contain very strong legal commitments, participants as well as process managers attach high value to it. The documents are only established and signed when there is a high certainty about the participation of actors. Therewith, a signed document provides again more certainty about the participation of an actor. At the end of the processes, formal rules are important to make the exchanges official. Deeds are established by a notary and signed by the land owners. The transfer of property rights is set in the registers of the Kadaster, which is also obligated by law. In other words, the three cases show also that the processes start with an informal character, this gradually changes towards actions with more a more formal character.

Klein et al. (2011) argue that relations based on trust are important in policy networks because it reduces uncertainties about strategic actions of the different actors in a network. Actors take each other's interest into account and that leads to more predictable actions of actors. The investigated cases show that the process manager plays an important role regarding this, since he functions as an intermediary person between the land owners. Though trust among the different land owners is also important.

In a situation with trust, actors are more willing to provide their resources like knowledge, finances or land and that can contribute to a good outcome of a process (Klein et al., 2011). In the voluntary re-allotment processes the availability of land and thus the participation of land owners is

one of the important aspects within the processes to arrange exchanges. If the participants have trust in the processes, in other words, they expect that the process will result in interesting results for them; they will provide parts of their property to exchange for other parcels of land.

The three investigated cases show that participants should have trust in the involved persons, organizations and institutions that influence a (policy) process. The cases show that trust in the process manager and trust in other participants plays an important role in the voluntary re-allotment processes. The process manager is a central person in the process towards exchanges; he arranges the exchanges, makes the plans and has individual conversations with land owners. Since he is a central figure within the process and is somehow acts as a representative among the land owners, trust in this person is important. Therewith, trust in land owners that might participate is also important.

The more trust participants have in the process manager as well as the other land owners, the chance rises that they will cooperate and negotiations will go more smoothly. However, this research cannot conclude that this also reduces transaction costs. Some authors argue that the presence of trust among actors can decrease transaction costs. The processes become less uncertain and that could lower transaction costs (Edelenbos and Klein, 2007). However, they also argued that to create trust among actors, effort should be put in the process and therewith transaction costs are can become higher (Eshuis, 2006). Most effort, time (and thus also money) is necessary regarding the participation of land owners. A lot of interviewees argued that the process towards exchanges is relatively expensive. It takes a lot of effort and time, especially from the process manager to arrange the exchanges. The process manager has individual conversations with land owners, searches for information, combines ideas and wishes together in proposals for exchange and discusses these proposals with each land owner individually. These individual conversations take a lot of time. This research cannot conclude that trust lowers transaction costs, since the process manager has to put a lot of effort in arranging the exchanges, and gain trust from the land owners. Also the research of Meijer (2009) about the influence of social structures in supply networks, could not confirm that a high degree of trust leads to a decrease of transaction costs. Though, the investigated cases show that through the time, arranging exchanges with the same process manager in the same area goes easier. A process manager and a land owner that know each other already via earlier exchanges, know already what to expect from each other and that makes arranging an exchange more easier. It means that time and investments are necessary in order to gain trust from land owners in an area.

Trust in individuals takes time to establish. A shared positive history of interactions contributes to trust in persons (Vries, 2008, Eshuis, 2006, Ark, 2005). That can also be linked to trust in a process in a more general way, since trust in individuals is part of trust in processes. If trust in the process manager as well as other land owners increases, trust in the process towards interesting exchanges also increases. Land owners know what to expect from the process. Through positive experiences of the land owners in the processes of voluntary re-allotment, their expectations became more positive and therewith trust in the process increased. The cases add to this that the duration is also associated to the development of trust. Sometimes time is necessary to give participants the possibility to let them think about the proposed situation. This is in line with the

frequency aspect from the perspective of the transaction cost theory. It assumes that when transactions take place more frequently, it will lower the transaction costs since actors can build on long term relationships and therewith trust (Groenewegen, et al., 2010, Eshuis, 2006).

Next to trust in individuals, trust in organizations is also relevant in voluntary re-allotment. First, this is related to the organization that the process manager represent or is associated with. In Heusden the process manager (project leader) is the managerial director of the company Optifield with a lot of experience with other voluntary re-allotments and it has a link with the agricultural sector. It is likely that this contributes to trust from the participants (especially farmers) in the process. In Kempen-Broek, the exchanges are arranged by a steward that acts on behalf of ARK, which is an organization that is strongly related to the development of nature. Because of that, some farmers have less positive expectations towards the process compared to the other two cases (Heusden and Epe-Vaassen). For example, a farmer argued that ARK only wants farmers to participate in order to achieve their own goals, which is the development of nature. This statement should be taken with care, since ARK buys land for itself in the voluntary re-allotment, and that could also be the cause of more 'resistance'. Nevertheless, ARK and the steward showed that they are able to combine nature as well as agricultural goals and that increases trust in the organization and therewith trust in the process as a whole.

Also trust in other organizations that participated in voluntary re-allotment was relevant in the processes. Governmental and nature originations are sometimes watched with more suspicion by farmers. This lack of trust can be explained by the interests that are in conflict with those of farmers. For example, the development of new nature can be in conflict with interests of farmers. The development of new nature requires agricultural land and that means less land for agricultural use. When those interests are supported by rules and regulations that focus a lot on control, regulation and achieving goals the lack of trust can increase even more. Land owners could feel forced to participate and they could perceive that their own interests are not incorporated in a way as they would prefer.

Some interviewees compared voluntary re-allotment to legal land consolidation. Compared to legal land consolidation projects, the voluntary re-allotment is more flexible and it takes less time. Also the character of control is less present in voluntary re-allotment, which is perceived as positive by (most of) the actors. To succeed processes that contain relations of trust, formal institutions should influence the behavior of actors in a minor way. Land owners make their choice about participating themselves. That is perceived as the strength of the processes, land owners participated when they want to themselves. In other words, when control and regulation becomes too present, trust in the process decreases (Eshuis, 2006).

5.4. Transaction costs

Most transaction costs for voluntary re-allotment are made for activities that are related to the process towards the participation of actors, like negotiating and consulting. Although the costs for arranging a voluntary re-allotment process are perceived as high, it was also perceived as acceptable

by the actors because via these processes more real estate can be exchanged and that contributes more to goals and interests of various actors.

The duration of a process is also part of the transaction costs. A process of voluntary re-allotment should not take too short, participants need time to think about their participation and how to negotiate or find some information. In other words, time is needed for negotiation and search- and information costs (Meijer, 2009). However, a process should also not take too long, situations change and other involved parties have to wait. Moreover, as Meijer (2009) writes, time pressure makes negotiations go more fluently. Since the processes depend to some extent on funding of the provinces, the duration of a process is also related to the terms of the provision of funding of the provinces. Next to this, the provision of funding by the provinces lowers the process costs for private participants, like farmers. The funding provided by the provinces does not directly affect a private participant and therefore the process costs are perceived as lower. However, the cases showed also that participants are willing to pay a certain amount of money for the process. Important to mention is that this should be in line with their benefits.

The relatively high transaction costs are mostly related to the process to arrange exchanges. The participation of land owners is uncertain, especially at the beginning of a process. Therefore, a process manager needs a lot of time and effort to arrange the process. Uncertainties about behavior of actors are (partly) related to opportunistic behavior. A process manager arranges that actors participate, deals with strategic behavior and matches the exchanges together. These activities generate process costs.

Therewith, some actors also perceive the actions of the process manager as such as uncertain, since he is the only one that knows about the whole process. Furthermore, there will always be uncertainties, not only about participation of others but also uncertainties about funding, the environment, economic developments, political decisions, etc. that might influence a process of voluntary re-allotment. The process manager cannot deal with all those aspects. Therefore, one could argue that one coordinator cannot gain insight possibilities, problems and issues in an area due to his bounded rationality. The question that arises that is then: If more persons arrange the exchanges or the land owners themselves, can they take into account more possibilities for exchanges? In order to get an overview of all possibilities for exchange, the persons that make a plan, have to exchange their information to the others and that takes time, effort. Besides, it could be unintentional changed since information should be transferred from actor to actor. Information can be re-interpreted differently, re-formulated or forgotten.

The height of transaction costs does also depend on asset specificity, which has also a strong relationship with interdependence and power. Although land is economically a resource with specific characteristics, the causes of transaction costs in voluntary re-allotment can also be explained by (inter)dependence and power. Asset specificity is related to (inter)dependence among actors and the division of (inter)dependency is related to power relations (Eshuis, 2006). The relatively high costs for negotiating in voluntary re-allotment can be explained by fact that power is divided among land owners (more or less) equally. After all, land owners have (more or less) the same rights and no actor in the voluntary re-allotment processes forces land owners to participate. Thus, power is divided among land owners equally. The process manager should therefore invest a lot time and effort in

consulting and negotiating with the land owners in order to combine all interests, wishes and demands of them.

This aspect can also be discussed from another point of view. In the Kempen-Broek case, ARK is quite independent. The organization buys land for itself within the process and the project leader of ARK has a lot of responsibilities and power, the organization does not have to communicate with others about whether they are allowed or able to arrange an exchange or purchase land. It is likely that the transaction costs will be lower because they are less dependent on others.

5.5. Resume

This research shows that uncertainties about others become more relevant when land owners depend on each other to achieve their goals. The voluntary character of the process is important and therefore trust and informal rules play a big role to deal with the uncertainties about the participation of others. Next to trust and informal rules, formal rules also influence the behavior of actors in the processes, though in a minor way. In the end of a process formal rules play a more dominant role.

In all 3 cases one process manager arranges exchanges and therefore trust in this person is important, he is the central person in the process. Though, trust in other land owners is remains relevant. The choices of individual land owners are made by the land owner himself and these choices are influenced by trust as well as institutions. Moreover, the strength of the investigated processes of voluntary re-allotment is the individual and voluntary character and the big role of trust.

The individual approach is appreciated by land owners because of the personal attention. It also decreases the complexity of interlinked exchanges for each individual land owner; only what is relevant for him within the process is discussed. There again, the process manager gains insight in all individual wishes and ideas of a land owner.

Since many land owners should be linked together, it takes a lot of time, effort and money to arrange the process towards exchanges. Although this is perceived as high costs by the actors, the high costs are also accepted because of the way the process is arranged; participation on a voluntary basis and an individual approach. In addition to this, the results are also perceived as positive; every participant benefits from the process and therefore the high transaction costs are also accepted.

6 ■ Discussion and conclusions

The objective of this research was to gain insight in the processes of voluntary re-allotment, the organization, the behavior of actors, the outcomes and the relation between these aspects. The main research question of this research was formulated as: *How are processes of voluntary re-allotment organized and how does the approach relate to the development of these processes, the behavior of actors and the outcomes?* Based on the theoretical framework, the main research question was divided into 6 sub-research questions to gain insight in (1) the organization, (2) uncertainties, (3) institutions, (4) trust, (5) transaction costs and (6) results of the processes.

The research investigated three cases of voluntary re-allotment: Heusden, Epe-Vaassen and Kempen-Broek. Several similarities and differences between the cases were addressed. The theoretical framework provided insight in the processes of voluntary re-allotment.

Within voluntary re-allotment, land owners exchange property rights of parcels (and buildings). In the investigated cases, one process manager arranges the participation of land owners in order to link many transactions of property rights together in one deed. Voluntary re-allotment is applied in rural areas to improve the agricultural structure, to develop nature or work on other policy goals related to the development infrastructure, recreation or water. Different types of land owners participate on a voluntary basis in the processes. The voluntary and individual approach is appreciated by land owners. Uncertainties about participation of land owners and therewith achieving goals are also present.

The most relevant uncertainties perceived by the involved actors are about the participation of others. Next to this, the actions of the process manager are also perceived as uncertain by some governmental and nature organizations. The participation of others is relevant since actors depend on others to achieve their goals. There is one process manager that arranges the activities to reach exchanges; he is the only person that has a complete overview in the process, the participants and their personal situations, relevant spatial policies and other projects in the area.

Trust as well as institutions are relevant in the processes of voluntary re-allotment to guide behavior of actors and to deal with uncertainties. The processes towards the exchange of parcels, including the behavior of actors are guided and influenced by institutions (organization of the process, roles of actors, law, workgroups, etc.). Though, in the core of the activities to arrange exchanges, trust is important and the (formal) institutions (to guide behavior) are more on the background. Important to mention is that, at the beginning of the processes informal rules and trust play an important role and at the end of the processes also formal institutions play a big role.

Trust in other land owners as well as trust in the process manager plays an important role within the voluntary re-allotment processes. Within the investigated cases, one process manager as central person arranges the exchanges. The relevance of personal aspects between land owners on the process becomes smaller since the process manager functions as an intermediary person between the land owners. Trust in land owners that might participate is also important. Although the

process manager arranges the exchanges, a decision about participation is always made by the other land owner himself and influenced by trust as well as institutions. Trust in persons takes time to establish. to illustrate; positive experiences in the past with the process manager or other land owners increases trust. Next to trust in persons, trust in organizations is also relevant in voluntary re-allotment. This is shown by which organization the process manager represent and by the expectations of other organizations that participate in a voluntary re-allotment.

Most costs for a voluntary re-allotment are costs for the process towards exchanges, like consulting and negotiating. Overall, the participants are satisfied with the costs to arrange voluntary re-allotment. Though, the costs are also perceived as high. These high costs are accepted because through processes of voluntary re-allotment, more resources become available and more goals of actors can be achieved. The combination of resources of different actors leads to results where a lot of various parties benefit from. Besides that, high costs are also accepted because of the way the process is organized; the individual approach and participation on a voluntary basis. The voluntariness and individually is more important than certainty on achieving certain goals.

The question that rises than is: what are 'good' results? This differs per perspective of each actor. Results of voluntary re-allotment are presented by a number of exchanged hectares, a number of involved participants or as a percentage of exchanged land. Also attention is paid to the goals the exchanged hectares contribute to. That is more relevant since voluntary re-allotment is a mean to improve rural areas. Mostly, it contributes to the improvement of agricultural structure, to the improvement of nature and voluntary re-allotment can also contribute to other goals like improvement of infrastructure, recreation, water, etc. Every participants benefit from a voluntary re-allotment, though the degree of benefit differs per participant.

This research cannot conclude that via an individual approach, results in a number of exchanged hectares per year increases. The research does point out that the individual approach contributes to support of land owners and trust in the process. Therewith, through the time, as a process manager becomes more familiar with the area and the land owners with him, trust in him increases and that can contribute to the processes. To illustrate, in a situation with trust, land owners are willing to participate and provide their resources, thus parcels for exchange. The more resources are available, the more possibilities arise for exchanges.

For planning

For spatial planning processes in a more general way, this research shows that approaching actors individually is a good way to arrange a process in planning. Local knowledge can enrich (local) plans for an area (Van Assche, 2007). If a process manager consults actors individually, he gains insight in their personal wishes, goals, ideas, future plans. The process manager gets to know what is going on in an area on a local level, from an individual point of view and that can be incorporated in the plans, which can improve the plans and results more support for the plans.

Besides this, if actors are consulted individually, the complexity of a planning process is reduced for them. In other words, only what is relevant for the concerning actor is discussed. To explain, Van Assche (2007) writes:

The actors that are involved in shaping spatial organization are marked by their own discourses, their own rationalities, their own framing of the landscape (Innes and Booher, 1999; Huxly and Yftachel, 2000). Every actor is steeped in several social systems.

(Van Assche, 2007, p. 111)

For example, a farmer involved in voluntary re-allotment perceived the process differently as an involved municipality. A municipality is more oriented on an area as a whole, whereas farmers are more oriented towards their own company and its direct (spatial) environment. Thus, the reduction of the complexity of a planning process by consulting land owners in an individual way, is especially relevant for landowners that have a focus on their own location and that are most of the participants in voluntary re-allotment. The management of a company is already complex in itself.

Therewith, actors appreciate it if they are consulted individually; a process manager (or planner) invests time (and money) in their personal situation. If then, in the view of that actor, the interests of him are incorporated in the plans, it can then again also contribute to the development of trust, which contributes to the quality of processes. Important to mention is that the above mentioned aspects are relevant in planning processes on a local level.

Practical applications

For the process managers, commissioners and land owners the processes of voluntary re-allotment are, especially in the beginning uncertain, uncertain about who will participate and in what way. It is important to accept this uncertainty. Especially in the beginning of the processes the informal and the voluntary character is perceived as the strength of the voluntary re-allotment.

Besides this, flexibility is an important aspect that should be kept in mind when organizing processes of voluntary re-allotment in the future. An aspect that could contribute to the flexibility of a process is the availability of land for exchanges. Without the availability of land the process will not succeed, because nothing can be exchanged. A land bank or register could be interesting to include in the organization. This does not mean that a process manager should buy land for himself, since that can result in conflicting interests. It can be an external party that can own 'remaining' parcels temporally for future exchanges. Next to that, to some extent flexible project boundaries contribute to the availability of land.

Voluntary re-allotment is a dynamic and uncertain process; the characteristics of each participant are different. Approaching each land owner in an individual way is a good way but it also means that the parties that are responsible or related to the organization should also be able to be flexible, adapt to each new situation with a (new) land owner. In general can be stated that the more participants, the more land, the more possibilities for exchange. There is a limitation to this due to the complexity of the processes. To deal with the complexity of all linked exchanges, advanced use of GIS is a good mean to gain insight possibilities for exchange and deal with the exchanges.

Just as in the investigated cases, one process manager should arrange the exchanges in the field. This one person can keep the overview in the whole process and there is one contact person for all land owners. The process manager functions as an intermediary person. He should have knowledge of human nature and skills related to negotiating and consulting land owners. It means also that a process manager can speak the 'languages' of the various involved participants, like

farmers as well as governmental organizations, nature organizations and other parties. Previous experience in voluntary re-allotment is also preferred. Besides this, it is preferable that a process manager is known in a positive way by the land owners in the project area. If this is not the case, the process manager could be supported by another well respected person that has a link with the area and its land owners. Also the interests of the process manager as well as the interests of the organization he represents should not be in conflict the interest of the participating land owners.

Arranging exchanges takes a lot of effort and therefore also money. The combination of resources leads to more possibilities. Every involved land owner can benefit from the voluntary re-allotment. However, there are a lot of differences in the extent to which a land owner benefits from the process. A contribution from the participants for the process costs should therefore be in line with their benefits. It is likely that a contribution in relation to the benefits will also increase support of participants.

Future research

This research focused on three cases of voluntary re-allotment in which one process manager arranges conversations with land owners individually, makes plans for exchange, etc. In other words, one central person arranges the exchanges. Originally this research aimed at comparing different approaches in voluntary re-allotment. Although the approaches in each of the investigated cases differ slightly from each other, the cases have all an approach wherein one process manager arranges the exchanges as a central an intermediary person. Nevertheless, the similarities in, and differences between each case provided useful insights in, and explanations for the processes of voluntary re-allotment.

Further research can be done in cases of voluntary re-allotment that have another approach compared to the investigated cases. This research did not focus on projects of DLG, Kadaster and LTO, wherein land owners make plans for exchange themselves in groups. The process manager has a different role compared to the investigated cases. The process manager is not the central and intermediary person that arranges the exchanges. The process manager facilitates the process and the land owners themselves actively participate together. Land owners are not approached individually. The involved land owners share their wishes regarding the exchanges together in a group of involved land owners. It is likely that this will lead towards other social dynamics compared to the investigated cases in this research. Further research can be done on these kinds of processes with a different approach.

Besides this, this research did not focus on what role local culture or social structures of an area play in the processes of voluntary re-allotment. This means that further research can be done about that. This research paid short attention to the use of GIS, there are clues that this has a important contribution to the processes. The process managers in two out of the three cases use it extensively and they attach high value to it. Further research can also be done about the role of the use of GIS, how that contributes to the processes and how it can be further developed.

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Appendix A. List of persons interviewed

- A representative of the Kadaster
- A representative of DLG
- Three representatives of LTO (from three different departments)
- Managing director of Optifield
- Managing director of Stivas

Heusden

- The project leader of Optifield (process manager)
- A representative of Natuurmonumenten
- A representative of Water Board Aa en Maas
- A representative of the municipality of Heusden
- A farmer (dairy cattle) and member of the platform
- Two farmers (dairy cattle)

Epe-Vaassen

- The parcel exchange coordinator (process manager)
- A representative of Water Board Veluwe
- A representative of Gelders Landschap
- A farmer (dairy cattle)
- A farmer (dairy cattle and pigs) and chairman of the workgroup

Kempen-Broek

- The steward of Rentmeesterskantoor van Soest (process manager)
- The project leader of Stichting ARK
- A farmer (dairy cattle)
- A farmer (mixed; pigs and arable farming)

Appendix B. Utility calculation for agricultural participants (in Dutch)

Note: in Dutch. This is an example of an utility calculation out of the project plan of Heusden 3 (Optifield, 2007)

De betaling door de deelnemers is een gevolg van de vraag: wat zijn voor de mogelijke deelnemers nu de vormen van resultaat?

Agrarisch resultaat komt neer op vier hoofdpunten:

1. Rijafstand naar de kavels (gelet wordt ook op de omvang per veldkavel)
2. Aantal kavels (hoe minder, hoe makkelijker en goedkoper bewerk- en beweidbaar, denk ook aan loonwerkerskosten)
3. Grootte van de huiskavel (hoe hoger het percentage hoe beter, echter boven 60% neemt relatieve belang weer af)
4. Oppervlakte (vergroting is in verband met extensivering altijd welkom)

De omslag wordt als volgt bepaald:

1. € 100,- per kilometer dat elke hectare dichterbij huis komt
2. € 200,- per kavel minder
3. € 80,- per % vergroting van de huiskavel tot 60 %, daarna € 40,- per %
4. Elke hectare vergroting € 250,-

De ervaring met een dergelijke aanpak leert dat deelnemers met beperkte voordelen bedragen betalen van rond € 500,-. Bij de grootste agrarische deelnemer kan de betaling oplopen tot € 5.000,-. Een voorbeeld van een situatie voor en na kavelruil en de daarbij behorende nut-berekening staat hieronder:

Voor:		10 ha huiskavel	5 ha op 2 km	29 ha 4 kavels 33 ha-km (5x2+8x1+6x2,5) 34% huiskavel
Na:		18 ha huiskavel	8 ha op 1 km	6 ha op 2,5 km
			14 ha op 1 km	32 ha +3 = € 750,- 2 kavels -2 = € 400,- 14 ha-km (14x1) -19 = € 1900,- 56% huiskavel +22 = € 1760,- Totaal € 4810,-

