

Creating a Safer Place to Live Through Land Consolidation

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Key words: Water retention, Land consolidation, Voluntary Reallotment, Spatial Planning

SUMMARY

The Netherlands is mainly shaped as it is nowadays because of disastrous floods. Many actions have been executed to adapt to the situation in which the majority of land is situated below sea level and so creating a safer place to live. However, there are side effects of successfully implementing solutions to adapt to this situation. On one hand, natural floodplains are nowadays being used intensively for functions like housing and agriculture. On the other hand people are not fully aware of the flood risks, nowadays mainly due to river flooding, that are still here and are increasing due to climate change. At present time the Netherlands is still the most vulnerable country in Europe to a natural disaster (United Nations University, Bündnis Entwicklung Hilft Alliance Development Works, 2014). The last decade the national government started awareness campaigns and programs. On a more executing level she started developing new retention areas.

In the Netherlands every parcel has an owner and a designated function. In case of realization of water retention area's there is no or very little flexibility in choosing designated locations. So, to achieve water retention area's it's evident that ownership has to be re-divided and land use reassigned. The Netherlands' Cadastre, Land Registry and Mapping Agency, in short Kadaster, participates, facilitates and advises in many multi-purpose projects to create or improve conditions for sustainable rural development. Instruments as land consolidation and voluntary reallotment are effective instruments for creating farm enlargement, increasing natural values of areas, but also to help achieve realization of retention areas. The complex playing field however makes it very important to use the right instrument at the right place at the right time. "Land consolidation Peize" is an illustrative example of the use of both instruments in different phases of a dynamic project resulting in the successful realization of a water retention area keeping the city of Groningen dry and safe.

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1. INTRODUCTION

The Netherlands is mainly shaped as it is nowadays because of floods. During many centuries large parts of the surface flooded, islands (“de Waddeneilanden”) were created and the “Zuiderzee” increased in acreage. It is not difficult to understand why this happened. More than a quarter (26%) of the surface of the Netherlands is situated below sea level (Planbureau voor de Leefomgeving, 2009). Until higher dikes and other technical solutions, like the impressive “Deltawerken” were built, the danger of flooding was mostly due to storms thrusting water towards the main land. The “Narrow of Calais” causes the water to propel and rise.

Past floods have not only resulted in inventing technical solutions to regulate water and prevent flooding, but have also resulted in better knowledge about designing the landscape in such ways that it can cope with increasing volumes of water. Side effects of successful implementing solutions however is that nowadays people are not fully aware of the flood risks that are increasing due to climate change. Natural floodplains are being used intensively for functions like housing and agriculture.

These days flooding because of storms are not the main threat and concern to The Netherlands and its inhabitants. The Minister for Infrastructure and the Environment states “Climate change is having considerable consequences in this vulnerable delta: higher storm surges at sea, an increased volume of water passing through rivers, more frequent downpours, heat and drought. We need stronger dykes and wider rivers, and more options for retaining rainwater in those places where it falls. This will cost a great deal of money and require plenty of space” (Ministry of Infrastructure and the Environment, 2015).

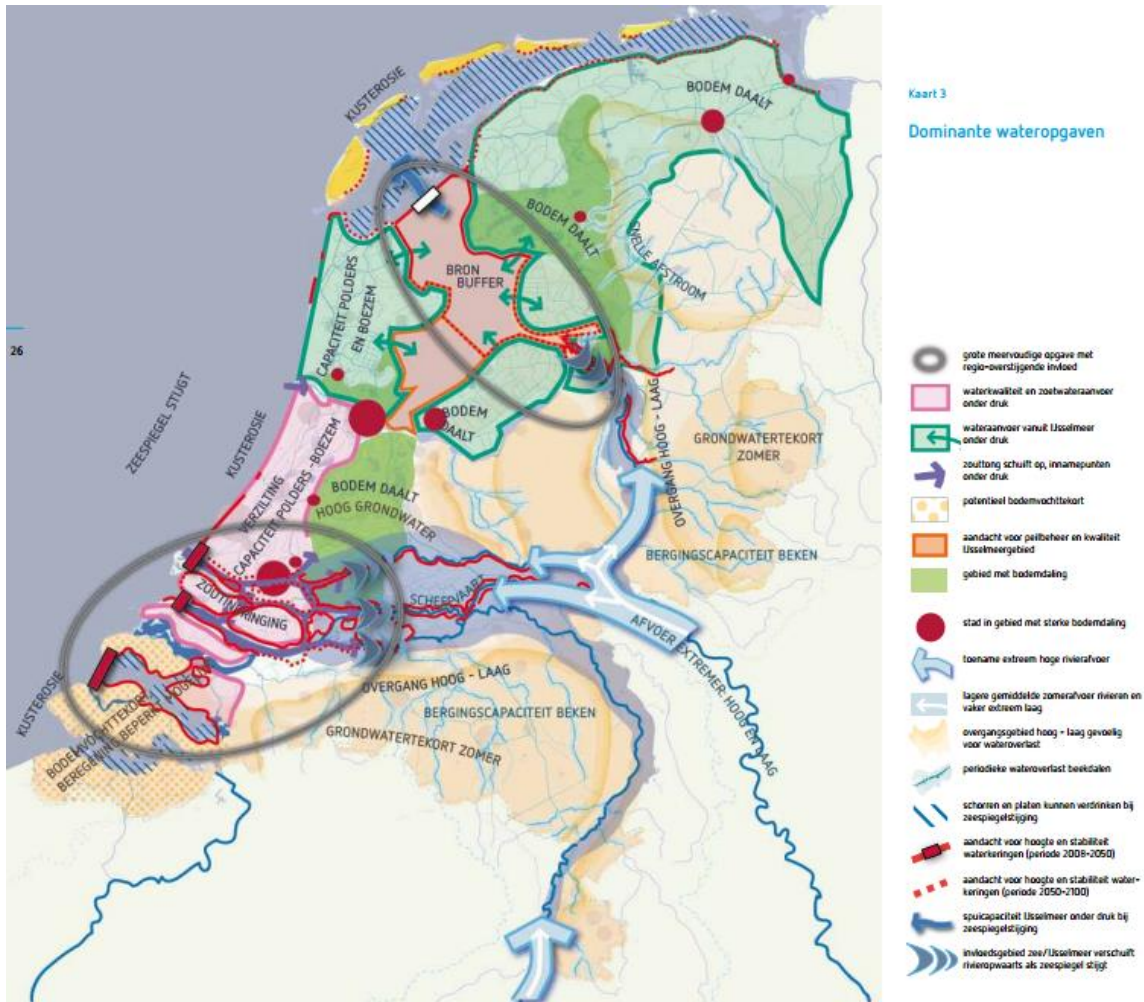


Figure 1: Dominant Water problems (Ministerie van infrastructuur en milieu, 2009)

In the past years many projects were initiated with the aim to gain space for water retention areas. Kadaster participates, facilitates and advices in many of these plans and projects. From the perspective of ownership we help to plan, create and execute. Project Peize is an illustrative example of how different approaches on land consolidation can help to create a safer place to live.

2. RISK OF FLOODING IN THE NETHERLANDS

As stated in the introduction, more than a quarter of the country is below sea level. For these area's its evident that, without protection, these area's and its inhabitants are at risk. The illustration below visualizes this.

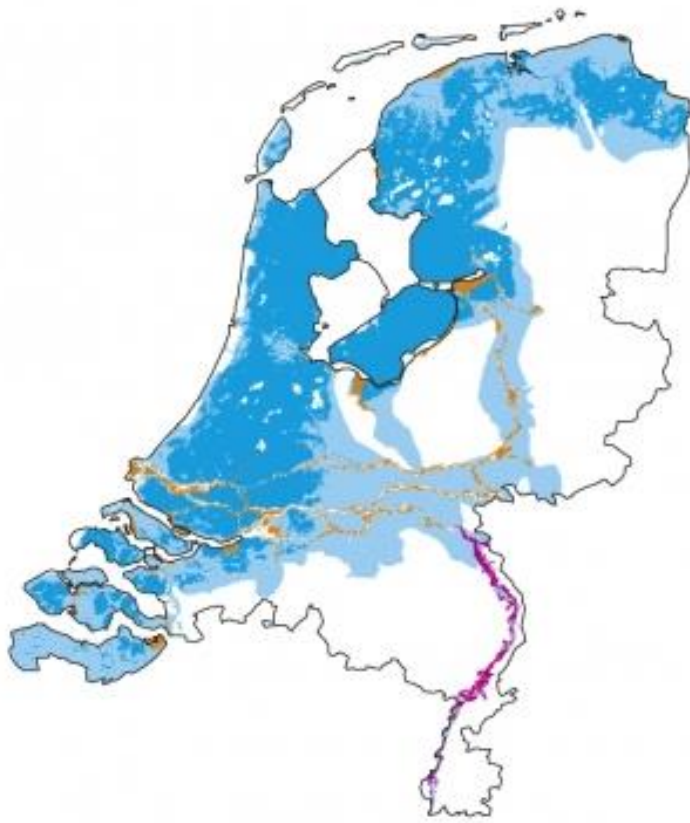


Figure 2: Flood sensitive area's (Planbureau voor de leefomgeving, 2009)

Next to 26 % of surface being below sea level (dark blue), 29% of the acreage is vulnerable of river flooding (light blue) and 4% is situated without protection of dikes (orange and purple). In total, 59% of The Netherlands is flood sensitive (Planbureau voor de leefomgeving, 2009). In the future the risk of flooding will increase when sea level rises, subsidence increases and the discharge capacity of rivers is not adjusted. Next to a bigger percentage of the land being at risk also more people (social damage) will be effected when flooding occurs. The population density in the Netherlands is second highest in Europe and the population is still increasing. Next to social damage also the economic damage (value of properties etc.) will increase. So, adapting to the new situation is vital. The consequences of flooding are increasing. Due to the potential and growing risks of flooding, water management and -policy is a governmental task (safety).

3. WATER RISK MANAGEMENT, THROUGH POLICY AND PLANS

As stated in chapter 2 The Netherlands has a high population density which results in a need for many functions (housing, infrastructure, nature conservation, water management) all competing for locations, whilst at the same time conserving the quality of the environment and livability. In this paper the focus will be on water management through the development of (new) water retention areas because the task is considerable. In the year 2005 the task was set on 35.000 ha retention area. In 2007 only 3% was accounted for (CBS, PBL, Wageningen UR, 2009).

The realization of water retention area's have a major impact on the existing use of space and are often combined with functions as agriculture and nature conservation. Regional and local government bodies play an important role in the task to execute spatial policy programs in a coherent way. Provinces are responsible for the coordination of regional spatial plans. To ensure that the strategic policy, as stated in the National Waterplan (Ministerie van infrastructuur en milieu, 2009), on the national problem of risk of flooding is incorporated in regional and local plans there is a National Agreement Water (Ministerie van infrastructuur en milieu, Interprovinciaal Overleg, de Vereniging Nederlandse gemeenten, de Unie van Waterschappen en de Vereniging van waterbedrijven, 2011). In this agreement, the national government, provinces, waterboards and municipalities agree on their strategy to develop water retention areas and a strategy to take other measures. The agreement has to be integrated in regional waterplans. Reservation of space for developing retention areas is done through these waterplans and other regional spatial plans.

4. A COMPLEX PLAYING FIELD

Next to the constant battle of functions competing for space (how to fit it all in?) it is difficult to actually take actions exactly there where it's needed. The last evaluation of the National Agreement Water shows that land acquisition is problematic and is delaying execution of plans (Werkgroep Evaluatie BAW, 2014). Not only is it problematic because of the fact that every parcel has an owner and function but also because the owners do not always recognize the importance of taking measures against flooding. Even though more than half of the Dutch population live in areas with risk of flooding, there is little awareness of this risk. So why should they cooperate? We have been so successful in coping with water that we take our safety for granted. Recently the government started awareness campaigns and programs, for example campaign "The Netherlands lives with water" and more recently "Do I flood?", to raise water awareness among the Dutch.

Another recent development is that politicians invoke citizens to take responsibility for their own environment and neighborhood. Instead of expecting the government to take care, participation, co-creation and bottom-up initiatives are being stimulated (Louwsma, M., Beek, M. van, Hoeve, B., 2014). This changing role of the government is also seen in the field of water management.

So on one hand, citizens are not fully aware of the risks but do demand dry feet. On the other hand the government has to realize safety but also wants to invoke citizens to take responsibility. It creates a difficult playing field to actually take measures to design the landscape in a way that it can cope with water and at the same time keeping citizens involved in planning their own environment.

5. NEED FOR LAND ACREAGE

What all plans for all the different functions have in common, is the fact that there is a need for land (for housing, for infrastructure, for nature, for water). In case of realization of water retention area's there is no or very little flexibility in choosing designated locations. So, to achieve water retention area's it's evident that ownership has to be re-divided and land use reassigned.

5.1 Four Strategies

Governments can follow several land policy strategies to realize location-bound aims as described in spatial policy. Expropriation, land consolidation and land purchase can be very effective instruments to help achieve realization of retention areas and other measures. The complexity of the playing field however does make it very important to use the right instrument at the right place at the right time.

Expropriation means that land is obligatory sold to the government and it is an instrument for gaining ownership that, mainly because of its obligatory character, government bodies only use as a last resort. Land purchase is based on a voluntary agreement between two parties on the sale of land. Land consolidation is based on the exchange of land rights among land owners. In the Netherlands there are two forms as described in the Rural Areas Development Act (2007). The two forms are mandatory land consolidation and voluntary reallocation. In a voluntary reallocation landowners are invited to discuss the new allocation together. This method is gaining popularity because of its voluntary and therefore bottom-up approach. Mandatory land consolidation guarantees that every owner is involved because its mandatory character. Although participatory elements are built in, its formal character can be perceived as undesired top-down decision-making. For an extensive outlay on these strategies see “Land policy strategies - different approaches examined” (Louwsma and Holtslag-Broekhof, 2016).

Kadaster has been involved in land consolidation since the first land consolidation was executed in 1916. The small-scale re-allocation of agricultural land holdings of earlier times developed into multifunctional land consolidation programs. Currently over a million hectares is or was involved in land consolidation projects.

To be successful in the execution and realization of (policy)plans it's essential to choose the right instrument at the right time. This paper will focus on the case of Peize as an example where over time different strategies were followed to reach changing goals.

6. LANDPOLICY STRATEGIES TO ACHIEVE LAND USE SUITABLE FOR ITS FUNCTION AND WITH RESPECT TO THE INTEREST OF CITIZENS

How do you execute necessary actions together with its inhabitants and with respect to their interest. What is the right instrument at the right place at the right time? As demonstrated in the chapter above there are roughly four land policy strategies to realize location-bound aims. Every strategy has pro's and cons depending on the goals, the participants, and its timeframe. Land consolidation Peize is a project in the north of the Netherlands where all strategies, except expropriation, have been deployed.

6.1 Case Peize

Project Peize started as a voluntary land consolidation project in the year 2000 (Provincie Drenthe, 2000).

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Initiative: LTO (Dutch Federation of Agriculture and Horticulture) and Natuurmonumenten (nature conservation organization).

Goals: improving conditions for agriculture in combination with preserving and realization of new nature conservation area.

Approach: Allocation research by Kadaster showed that voluntary land consolidation in combination with strategic purchases would contribute to realization of these goals. The best (optimal) result would be realization through mandatory land consolidation. The goal was set at improving conditions, not 100% realization. The province chose for voluntary land consolidation so that the execution could start immediate (little administration) and had the support of agrarians. After 1 1/2 year evaluation would take place to see if the chosen approach was sufficient enough.

Result: In 2003 the evaluation showed good results but not sufficient. Because of the strategic purchase of farm holdings, exchange of land by reallocation was made possible. But mostly amongst a group of cooperating farmers. The evaluation also showed that a more planned method would realize goals, including the conservation area, faster and better. With consent of the initiators the Province was advised to change strategy from voluntary land consolidation to a mandatory administrative land consolidation (Landinrichtingscommissie Peize, 2006). Administrative land consolidation does not exist anymore but can be explained as “land consolidation light”. “Light” because it included only reallocation, and did not contain landscaping.

Simultaneous with the execution and re-designing this project, a major incident in this region took place. In 1998 heavy rainfall caused flooding in the northern provinces Drenthe and Groningen because the discharge capacity of rivers and canals was not sufficient.



Figure 3: Flooding 1998 (Meijer, G., Stel J.L., 2015)

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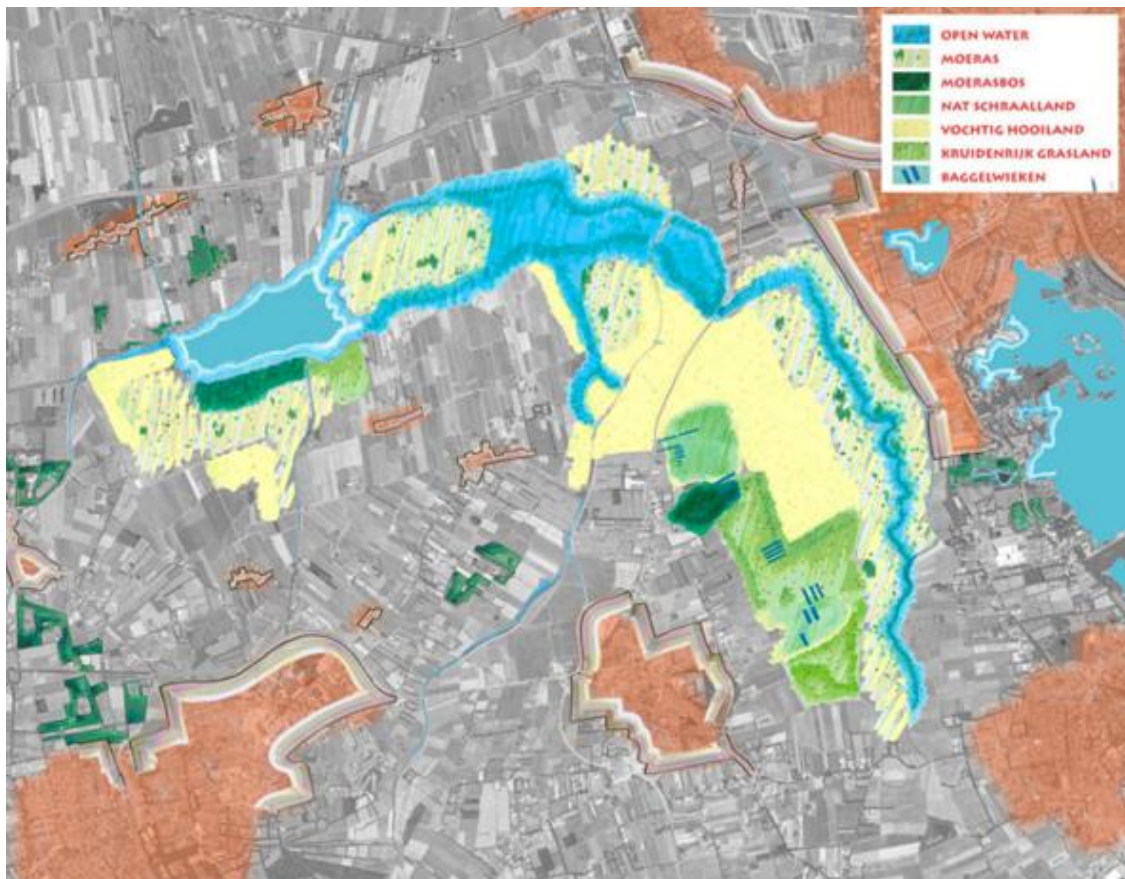
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Research done by the waterboards concluded that the best solution to this problem in this region was to create water retention areas which would intentionally and temporarily flood, when normal discharge methods were insufficient. The water retention area would also be a nature conservation area.

New goals and a different approach in strategy and organization: The Province decided in 2004 to incorporate the realization of the water retention area (including landscaping) in the existing mandatory land consolidation project. The land consolidation was reformed from an administrative land consolidation into a more intensive formal mandatory land consolidation called “herinrichting”. A herinrichting is best translated as redesigning. Main advantage for incorporation in existing project; starting the works.

Because of the formal roles in executing spatial policy, as explained in chapter 3, the Province of Drenthe and the Waterboard Noorderzijlvest got a more prominent role in the execution. The Dutch Federation of Agriculture and Horticulture got a advising role in the committee. In a sub-committee farmers participated and were in charge of the allocation plan.

Result: In 2008 the design and the realization plan for the area was definitive.



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Figure 4: Sketch of the design including “Peize” (Dienst landelijk gebied, 2008)

Only 4 years later, through strategic purchase and reallocating ownership, the parcels needed for water retention “Peizermade” were obtained and technical works were ready and given in temporarily use in January 2012. Not a month too late, because that same month the need for this water retention area was evident. The same weather situation as in ‘98 occurred. Only this time the water was led towards the water retention areas, including “Peizermade”, preventing damages elsewhere. The parcels were formally transferred in 2013.

7. CONCLUSIONS AND DISCUSSION

It is evident that the realization of water retention areas is of great importance to keep The Netherlands dry and safe. The case of Peize illustrates the possibilities of different approaches towards the strategy of planning and execution. In different phases of this project there were different interest and goals to be considered which called for flexibility in approach.

Voluntary land consolidation was mainly beneficial for the individuals who initiated the project. The realization of the nature conservation area got behind schedule. When the realization of a water retention was added to the goals, local government intervened and chose a different, more formal approach. The goal to be successful in realization of the retention area outweighed the goals of the initial initiators.

How does this case study relate to the recent development of governments active stimulation of participation, co-creation and bottom-up initiatives as mentioned earlier? This changing role of the government is also seen in the field of water management. How does the government guarantee dry feet when a voluntary approach may not be sufficient as individuals do not feel responsible for the common cause?

As Kadaster we learned in different (comparable) cases that it is very well possible to incorporate elements of participation and co-creation, especially regarding the reallocation plan, into formal land consolidation. Voluntary land consolidation benefits when it is well planned and executed in a small timeframe. Overall it can be concluded that good research and advice ex ante about situational aspects helps public bodies to plan and decide on a good strategy.

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BIOGRAPHICAL NOTES

Nyncke Emmens is senior advisor in the department of spatial planning at the Netherlands’ Cadastre, Land Registry and Mapping Agency. After graduating her bachelor in public administration and law she assisted committees in formal land consolidation procedures. In 2011 she successfully graduated from the university of Groningen and holds a Master in public administration and law. Currently, she works on product and process innovations in the domain of land management and spatial planning and has also the role of advisor about participatory land consolidation for the northern provinces in the Netherlands.

Bert Hoeve is director in de the department of spatial planning at the Netherlands’ Cadastre, Land Registry and Mapping Agency. He has a Masters degree in Business Management; TSM Business School TU Twente. Cadastre processes information about property rights and topography in the Netherlands and maintains this information in public registers, the cadastral register and topographical maps. Cadastre Spatial planning and consulting helps to establish legal certainty and offers information, analyses and advice on spatial planning issues. We are an indispensable partner in all kinds of initiatives concerned with the (re)development of the Netherlands.

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