Rights and responsibilities in Dutch land-use planning aimed at flood protection and prevention of waterlogging

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Summary

1. Governments have a responsibility to prevent flooding and waterlogging (water nuisances). One of the instruments to achieve this, is using a legally binding planning instrument: the land-use plan. A first question that arises is:

To what extent can water-related conditions of climate adaptive planning be laid down in land-use plans?

This paper demonstrates that only 'spatially relevant' aspects of climate adaptive planning can be laid down in land-use plans. Recent case-law (notably *Westergouwe*) shows that it is legally allowed to build in a low laying area under certain conditions, notwithstanding some expected water risks related to possible waterlogging and flooding. One of the conditions is that there will be no unacceptable risk on flooding and waterlogging. Other conditions were that the floor level of the houses has to be minimal equal to the simulated flooding level, and the condition that enough water storage capacity has to be realised to prevent water problems in adjacent areas.

2. Flood protection is mostly regarded as the responsibility of the government. In the Netherlands *private* actors (civilians, businesses) also have a responsibility to prevent some waterlogging (e.g.: storm water on private grounds). The second question for this paper is:

How is the division of responsibilities and liabilities between public and private actors regarding (the prevention of) flooding and waterlogging?

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Examples from Dutch (case) law concerning responsibilities and liabilities show that under certain conditions governments are *not* liable for damages to private actors stemming from flooding and waterlogging.

1. Introduction and research questions

Climate adaptive planning through land-use plans

All people are equal, but some people live in areas where there is a greater risk of flooding or waterlogging (water nuisances). Geographical and water safety differences between 'high' grounds and 'low' grounds seem to be a fact of life. However, in government policy and in spatial planning law there is a tendency to neglect such differences. Virtually every municipality wants to realise building projects, in spite of the fact that some of these areas are located well below sea level. However, building in low places without taking into account the water storage capacity will cause waterlogging.[2] Furthermore, it will aggravate the impact of flooding.

In general, it is necessary to take the water system into account when planning new urban developments. One of the instruments by which it can be realised that the water system is being taken into account when planning new urban areas is: the law. In this paper, we will limit ourselves to the most important legal plan to influence that new urban areas are planned taking into account the water system: the land-use plan (Dutch: bestemmingsplan). Indeed, according to Dutch law, the land-use plan is the legally binding plan against which all future building plans have to be tested in order to be granted a permit to build.[3] That is why our first research question reads:

To what extent can water-related conditions of climate adaptive planning be laid down in land-use plans?

We will answer this question through analysis of the Spatial Planning Act and analysis of case law. We will refer to recent directional case law, since there is not much legislation that specifically answers the question.

Division of responsibilities and liabilities

The municipal land-use plan, of course, is a *governmental* plan. However, we must realise that *private* actors like civilians and companies have their own responsibilities to prevent waterlogging. The consequence may be that under certain circumstances damages that may occur from flooding and water nuisance are left at private actors' expense. This raises the second question of this paper:

How is the division of responsibilities and liabilities between public and private actors regarding (the prevention of) flooding and waterloggings?

This question will also be answered primarily using recent case-law.

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[2] Chris Zevenbergen, professor of Water Engineering, quoted in 'Wateroverlast teistert ook Nederland' *(Water nuisances also strike the Netherlands)*, Delft Highlights, no. 6, December 2011.

[3] Article 2.10, paragraph 1, of the Environmental Licensing (General Provisions) Act (Dutch: Wet algemene bepalingen omgevingsrecht).

Taking note of the Dutch case law regarding *rights, responsibilities and equity* in land-use planning aimed at flood protection and prevention of waterlogging may be relevant to international readers, considering the traditional long-standing experiences of the Dutch in water-related urban planning.

2. Dutch spatial planning and flood risks in general

In the research for this paper we found an interesting brochure of the Environment Agency (UK 2007): "Living on the edge. A guide to the rights and responsibilities of riverside occupation". This brochure explains the rights and responsibilities of the owner of land or property alongside a river or other water course. As far as we know, we do not have such a brochure in the Netherlands. Probably this has to do with the fact that governments, individuals and companies in general seem to expect that a 'higher' government will take care of flood risks. For sure this also has to do with past experiences of the Dutch people with taking technical measures in coping with flood risks. With pumps and dikes people tend to feel safe; such technical measures don't stimulate people to think about their own responsibility. Anyhow, whether this general expectation is justified, is doubtful from a legal point of view.

Preventing flooding and waterlogging require a joint approach of several governments. In the context of the national Delta Program - just like in the project Room for the Rivers – is chosen for a joint approach while maintaining everyone's responsibilities. These responsibilities are roughly as follows.[4]

> "The national government is responsible for issues of national importance, such as flood protection and the main water system. The provinces are (regional) area directors and establish frameworks for regional water systems. The water boards manage the regional and most of the primary water flood defense structures and provide for water of sufficient quality in the regional water systems. The municipalities manage the public area and have a responsibility for dealing with waterlogging pursuant to some duties of care regulated in the Water Act."

Because of this joint responsibility of several governments, in specific cases it will not be easy for citizens and businesses to address the right, responsible government. Firstly, it depends on the specific cause(s) of the flooding (main water or regional water; primary flood defense structure or a regional dike; local flooding on municipal street; flooding by sewage water, etc.). Secondly, the question is which public responsibility is at stake and how that responsibility legally is regulated. Most public responsibilities are formulated as an 'obligation of intent''; government have in general a lot of policy freedom to make their own cost-benefit analyses and to choose specific measures etc. Thirdly, it is possible that multiple administrations are responsible in a particular case and it is difficult for an individual to know which government is responsible for which part. Fourthly, it depends if the private party (citizen or business) has concrete damage and can prove that the damage is caused by the act or omission of the relevant public authority. In general it will be extremely difficult to demonstrate a causal link between the decision to establish a spatial plan and water damage in a specific case.

[4] Dutch House of Representatives (Senate) 2011-2012, 32 304, No C, pp. 2.

Less complicated than claims after the flooding incident, is to give input in the preparation phase of spatial decisions (spatial plans) about the possible negative consequences of those decisions. For example: pursuant to the General Administrative Act (Dutch: Algemene wet Bestuursrecht) the administration is obliged to weigh all the involved interests and possible effects of a decision. When the administration doesn't pay enough attention to possible negative effects of the spatial decision – in relation to possible occurring flooding or water nuisance –the decision can be annulled by the administrative judge.

In this paper we especially focus on the municipal responsibilities regarding land-use planning and flood risks, also because municipal land-use plans are the legally binding plans. In principle, every building plan is tested to see if it is in agreement with the municipal land-use plan. Spatial plans from national or provincial level are just indicative and not binding. However, when national or provincial government want binding rules with effect on municipal building practice, they can formulate general rules.

3. Responsibilities regarding the prevention of flooding and waterlogging

The responsibilities regarding the prevention of flooding and waterlogging are divided between (a) central government, (b) Water Boards, (c) municipalities and (d) civilians and other private property owners.

(a) Central government

The central government manages the so-called 'main water systems' (the big rivers, the IJsselmeer, the Amsterdam-Rijnkanaal, the Noordzeekanaal, the Wadden Sea, the Eems-Dollard estuary, the Delta waters and the territorial part of the North Sea).

(b) Water Boards

All other waters than the national waters are in principle managed by the Water Boards (pursuant to Section 3.2 of the Water Act). Therefore, the management of water in the bodies of water that are of *regional* and *local* interest is the responsibility of the regional water authorities (Water Boards).

Water Boards can be regarded as a Dutch peculiarity with a long history.[5] In the Netherlands, municipalities possess the most important spatial planning powers. However, as far as water is concerned, municipalities cannot be regarded as the most important player. Water Boards are public bodies just like municipalities, provinces and the state.[6]The division of water tasks between Water Boards and municipalities can roughly be characterised as follows: Water Boards are managers of surface water and groundwater. Municipalities manage their sewer system (Section 10.33 Environmental Management Act), urban groundwater (Section 3.6 Water Act) and rainwater run-off (Section 3.5 Water Act).

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[5] See: Association of Regional Water Authorities, "Water Governance. The Dutch regional water authority model", The Hague, 2011.

[6] Pieter Jong, The Water System and Water Chain in Dutch Water and Environmental Legislation, *Law, Environment and Development Journal*, 2007, Volume 3/2, p. 204. www.lead-journal.org.

The Netherlands has 26 Water Boards, all of which are regional authorities that exclusively perform tasks related to water management. The key tasks of the Water Boards are maintaining flood defences, water quality, water quantity and care of groundwater.

(c) Municipalities

Municipalities have three specific duties of care concerning water. One 'old' existing municipal duty of care concerns the collection and transport of wastewater. Since January 2008 municipalities also have two new duties of care concerning storm water run-off and groundwater.

Rainwater run-off (storm water)

Section 3.5 of the Water Act regulates the municipal duty to care for the efficient collection and processing of rainwater run-off. Section 3.5 reads:

> 1. The municipal council and the municipal executive shall ensure the efficient collection of rainwater run-off to the extent that the person who disposes of it, intends to dispose of it or must dispose of it, cannot reasonably be expected to let such water run-off flow on or into the ground or into the surface water.
> 2. The municipal council and the municipal executive shall also ensure the efficient processing of the rainwater collected. Processing of rainwater shall include at least the following measures: storage, transport, effective use or discharge, whether or not after treatment, on or into the ground or into the surface water of collected rainwater as well as its transportation to a treatment plant.

In the Netherlands interesting case law exists that shows that the municipality, also in its role as manager of the municipal roads, can be held accountable for dealing with (a lot of) water on municipal roads (streets etc.). Case Wemeldinge is a clear example.[7]

Case Wemeldinge: rainwater run-off on a municipal road

In the Summer of 2008 a heavy 'tropical' rain shower caused a local flooding on a private property in the village of Wemeldinge (Province of Seeland). A lot of run-off rainwater flowed along a municipal road in the direction of this specific property situated on the lowest spot of this road. The owner went to court (Court Middelburg) and claimed that the municipality had not acted in accordance with her duty of care concerning the efficient collection and transportation of run-off rainwater (pursuant to Section 3.5 of the Water Act). The Court ruled that the capacity of the municipal sewage system was insufficient in case of heavy rainfall; moreover, because of the profile of this specific street, the street almost didn't have any water storage capacity. The combination of an insufficient sewage system with a lack of water storage capacity on/nearby the street caused the damage of the claimant, whose house was situated on the lowest spot of the street. According to the judge there was sufficient evidence that the municipality had not acted in accordance with her legal duty of care related to rainwater run-off. The municipality was indeed obliged to collect rainwater run-off in a sufficient way. The court ruled that the municipality had to take such measures that a flooding of the garden and the house of claimant would be prevented, by temporarily water storage on the street.

[7] Voorzieningenrechter (*District Court*) Middelburg, 10 juni 2009, KG ZA 09-77, LJN BI7438.

Ground water

With high levels of groundwater, flooding and waterlogging can occur more often. It is therefore of high importance that the 'right' level of groundwater is being maintained, as much as possible.

Section 3.6 of the Water Act regulates the municipal duty to care for groundwater. This section reads:

> 1. The municipal council and the municipal executive shall ensure that measures are taken in the public municipal area to preclude or limit, as far as possible, a structurally adverse influence by the groundwater level on the purpose allocated to that area to the extent that taking of such measures is effective and is not the responsibility of the Water Board or the Province.
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> 2. The measures referred to in subsection 1 shall also include the processing of collected groundwater, and also storage, transport, effective use or discharge, whether or not after treatment, on or into the ground or into the surface water and its transportation to a treatment plant.

The words in subsection 1 – "a structurally adverse influence by the groundwater level on the purpose allocated to that area" – refer to the land-use objective(s) laid down in the land-use plan. With 'the purpose allocated to that area' is therefore meant: the spatial purpose(s).

(d) Civilians and other private property owners

Under (c) it was explained that the municipality has a duty of care regarding rainwater runoff. However, the relevant articles stipulate that this duty on the part of the municipality only exists "to the extent that the person who disposes of it (…) cannot reasonably be expected to let such water run-off flow on or into the ground or into the surface water." This criterion of 'reasonability' can lead in practice to different outcomes, for example:

- A private owner of a 'big' property (including a garden) in a rural area can be obliged by Municipal Ordinance to decouple (Dutch: afkoppelen) his rainwater outlets/pipes from the municipal sewage systems. In this way he is obliged to collect it on the soil/surface of his own property.
- For a private owner in an urban area (without a garden) it is not reasonable to oblige him to collect the rainwater on his own property. In that situation the municipality has the duty to collect the rainwater run-off.

By municipal ordinance pursuant to Section 10.32a of the Environmental Management Act specific rules can be imposed on the discharge of rainwater run-off or groundwater on or into the soil or in a structure for the collection and transport of wastewater. When it is reasonable that the owner of the parcel – where the rainwater run-off or groundwater emerges – takes care of the drainage himself (on his own ground), then the municipality has the possibility to enforce decoupling of the sewage system, within a period specified in this municipal ordinance (subsection 2 of Section 10.32a EMA).

4. Municipal land use planning and flood risks

Section 3.1 Spatial Planning Act reads:

> The Municipal Council shall adopt one or more local land use plans for the entire territory of the municipality, in which, in the *interests of proper spatial planning*, the use of the land included in the plan shall be designated and rules laid down with a view to such use.

This is interpreted in such a way that only rules that can be deemed to be *spatially* relevant, can be included in a land-use plan. 'Proper spatial planning' also means that serious water problems have to be dealt with in the land-use plan of that specific area where that problems are expected. The following tables show what is considered to be 'spatially relevant' and what is 'not spatially relevant' (and thus cannot be regulated in a land-use plan).

Examples of spatial and non-spatial aspects

Spatial relevant	**Not spatial relevant**
Water storage areas (in parks etc.)	The way urban water is collected and transported
Forms of roofs, density of buildings in the area (more room for green and water functions)	Green roof (as such)
A multifunctional 'rain water storage square' (in use for pedestrians, bikers etc.)	The manner and timing that the square is intended to be used as 'rain water storage'

Examples of what can and what cannot be regulated in land-use plans

What can be regulated in land-use plans	**Matters of realisation that cannot be regulated in land-use plans**
Double land-use objective, for example: "Agricultural Use & Water Storage" or "Nature & Water Storage" (intended inundation area) (See: Administrative Court[8], 31-08-2011, Water Storage Ham-Havelt)	The actual order of inundation (which part of the intended inundation area is actually filled with water?) The Water Board takes the ultimate decision which area will first be inundated. (See: Administrative Court, 31-08-2011, Water Storage Ham-Havelt)
Quantitative criteria: minimal percentages of surface water in specified areas of the land-use plan. For example: in living environment 'X' at least 50% water surface of the total area surface; in living environment 'Rural living', including the green-blue zone, at least 10% water surface of the total area (See: Administrative Court, 29-06-2011, Westergouwe)	The method of collecting and transporting urban water and the use of sand to make the ground/soil higher are seen as such 'realisation measures' that cannot be regulated in the land-use plan. (See: Administrative Court, 29-06-2011, Westergouwe)

[8] Administrative Court in this table stands for the Administrative Court of the Council of State (in Duch: Afdeling Bestuursrechtspraak van de Raad van State).

Spatial aspects of flood protection

The traditional way of flood protection is to build and maintain dikes (flood defense structures). Besides the classic dam (dike) there are more innovative ways of dealing with potential flooding. Without being exhaustive, the following measures can be mentioned:

- Delta dikes: dikes that are so broad that they cannot be 'broken' by storm waves.
- Building on higher levels: besides the measure of putting some meters of sand on 'low grounds', it is possible to prescribe in the land-use plan that living is not allowed on the ground floor. The ground floor can be equipped in such a way, that water can flow below the occupied part of the building. Multifunctional dikes: dikes that function as flood defense structure, in combination with other spatial functions.
- Using street profiles: although the *realisation* of a street profile is not regulated in a land-use plan, a street profile can be qualified as of spatial relevance. The profile of a street (levels of pavement, main street, etc.) has consequences for the water storage capacity of that street. When on certain roads (streets etc.) water problems can be expected (lessons learned from the past), specific measures can be taken. For example: temporarily water storage, rain water squares (city of Rotterdam), gutters or a sensible construction of speed bumps. A speed bump (Dutch: verkeersdrempel) helps to reduce speed of car traffic and at the same time can help to structure the flow of rainwater run-off.
- Building levels: an interesting way of dealing with possible water problems in the context of spatial planning is the use of building levels that can be laid down in the land-use plan. Depending on the specific spatial and hydrological circumstances a sensible building and living level can be prescribed. The land-use plan cannot refer to a specific water level (as legal requirement) because it is not the municipality but the Water Board who determines the water level. However, it is possible that in the regulations of the land-use plan a specific building of street level is required, related to an objective and clear criterion (for example: at least x metres above or under the so called N.A.P., that is: the Normal Amsterdam Level).

The spatial aspects of all these kinds of flood defense measures can be regulated and protected in land-use plans.

5. Cases about public responsibilities for flood protection, in relation to spatial planning

In this section we will discuss some examples from practice, showing how in various cases is dealt with flood risks in urban planning. The variation in spatial planning practice can generally be explained by the fact that this planning is often 'tailor work'. Depending on the specific socio-geographical characteristics of the area and the spatial needs of the present public and private actors in that area, the City Council (following a political-administrative weighing of interests etc.) chooses certain land-use purposes and (user) requirements in a land-use plan.

Article 3.1 subsection 1 of the Spatial Planning Act stipulates that the municipal council establishes land-use plans for the entire territory of the municipality. 'Entire territory' means that every square meter of the municipal area has to be 'covered' by (a part of) a land-use plan. So, also areas which are less favorable to be build must be regulated in land-use plans.

These less favorable areas are a challenge for the municipal planner: how to regulate these areas in such a way that there is clarity about public and private responsibilities and rights? We have selected two cases of seemingly less favourable areas. It appears that areas which seem to be less favourable from a flooding perspective, nevertheless can be spatially attractive from another perspective (the attractive power of water, market, politics etc.).

- Case Westergouwe, regarding spatial planning of a new housing project in a low laying area
- Cases within the province Province South-Holland, regarding spatial planning to develop the area outside the dikes (not protected by dikes).

Case Westergouwe: spatial planning of a new housing project in a low laying area

For many years there has been public debate about the desirability to build in the low-lying polder 'Westergouwe' in Gouda. After years of discussion and after intervention by the former Minister of Spatial Planning and Environment finally it was decided to build on this location.

What is legally necessary to build in a low area, notwithstanding some expected water risk related to possible water nuisance (swamping) and flooding? The recent ruling in the case Westergouwe of the highest administrative court in the Netherlands shows the following five relevant preconditions for building in 'areas with relatively high water risks'.[9]

1. **Research:** in the preparation of the land use plan profound research has to be done concerning the possible effects of the land-use plan on the water system. This profound research fits with the so called 'water test' (see section I.2).
2. **Soil:** all reasonable and necessary measures to the soil have to be taken to prevent future flooding and waterlogging. In the case of Westergouwe the following measures were taken: raising the ground level by sand suppletion, strengthening the soil; and: the floor level had to be minimal equal to the simulated flooding level.
3. **Good neighbour-principle**: don't pass water problems to adjacent areas. Building in a 'water sensitive area' may not cause nor enlarge any kind of water problems in surrounding areas. When the projected buildings of the spatial plan cause reduction of water storage capacity, this reduction has to be compensated with new water storage measures. In the case Westergouwe compensation of water storage capacity was prescribed in the land-use plan. Also, a minimum percentage of water surface was prescribed.
4. **No unacceptable risk** of flooding and waterlogging. According to the administrative judge there is no reason for judging that the competent authority didn't have reason to find that the plan didn't bring forth unacceptable risks on flooding and swamping. The judge took the following elements into account.
    a. The possible rise of the water level caused by dike breaches is half as high as expected by the 'appellant' (10 to 20 centimetre instead of the expected 40 centimetre); in the present situation in case of a dike breach there would also be a considerable water nuisance, with a water level about 1m19cm above ground level.
    b. The 'dike ring' surrounding Westergouwe has a theoretical chance of dike breach of 1:10.000 year. This is the highest security level in the Netherlands.
    c. The design of the buildings in one specific area anticipates on the possible speeds of water streams in case of flooding caused by a breach of dike(s).
5. **A proper water system:** by taking various measures a proper water system (which complies with all regular preconditions) must be established. These measures are taken in de phase of realisation of the land-use plan, but will not be laid down in the land-use plan itself.

[9] Administrative Court of the Council of State, 29 juni 2011, LJN BQ663.

Cases within the province South-Holland: spatial planning to develop the area outside the dikes

National Water Plan about areas outside the dikes

Land that is not protected by a primary flood defense structure is referred to as area 'outside the dikes'. This areas makes up 2.2% of the Netherlands' total surface area. In the Dutch National Water Plan 2009-2015 we find interesting passages about the areas outside the dykes: [10]

> "Areas outside the dykes that are part of the national spatial structure are not subject to statutory standards for protection from water. These areas are primarily intended for water drainage and storage. For such areas near coasts and rivers, the central government has drawn up policies that municipal councils and provinces must take into consideration when allowing or disallowing spatial developments and in the design of protective or additional measures that limit the potential consequences." (NWP, p. 42)
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> Flooding of the areas outside the dykes is a natural phenomenon. However, the risk of casualties is minimal and most incidents can be classified as waterlogging instead of flooding, because the built-up areas do not lie at such low levels as the polders. Users of areas outside the dykes are responsible for taking measures to limit effects and water damage is at their own risk. Regional authorities have asked the government to provide more clarity about the division of responsibilities for safety in areas outside the dykes. If these areas are to be used safely, it is important that inhabitants and other users are sufficiently aware of the risks and are able to anticipate and react adequately." (NWP, p. 68)

Province Zuid-Holland: policy for spatial development of areas outside the dikes

On February 16, 2011, representatives of (among others) the Provincial Executive, the City of Rotterdam, the City of Dordrecht and four Water Boards in the province of South Holland have signed a 'framework of agreements' (in short: agreement) to allow certain spatial developments in the areas outside the dikes. In the explanation to this agreement is noted that the national legislation currently sets no standards for the protection of these areas from flooding. Also is stated that central government policy does allow spatial development in these areas. Municipalities in the province South-Holland want to allow spatial developments in the area outside the dikes as much as possible. The province and the municipalities involved want to facilitate spatial developments outside the dike in a responsible manner, and also that the risk of casualties and social disruption will be reduced to an acceptable level.

In addition, the agreement explicitly states that this agreement is complementary to existing regulations and does not alter statutory duties and obligations of the parties involved. In this context, the province of South Holland has developed a risk methodology that municipalities can use to determine the risk of casualties and social disruption caused by flooding. This methodology can also help to choose the right risk measures.

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[10] National Water Plan, p. 68. See: http://english.verkeerenwaterstaat.nl/english/topics/water/water_and_the_future/national_water_plan/

The province of South-Holland wants to develop the methodology further, "so that the methodology in legal terms can be considered as the best available method". The province hopes also to provide input for possible reassessment of the central government's position in the National Water Plan (NWP). According to the NWP the regional and local authorities have the responsibility to determine and judge the actual security situation in floodplains, and to communicate about this and to consider the usefulness and necessity of any additional protective measures.[11]

This new policy of the province South-Holland is disputed by a national Water Advisory Group. In Fall 2011 this Water Advisory Group recommended that building should be prohibited in areas outside the dikes, except in very special cases and after the water manager is heard about it.[12]

Case Dordrecht (building outside the dikes in Stadswerven)

Apart from this new policy of the province South-Holland, the municipality of Dordrecht has a long experience with living and building (partly) outside the dikes. In the neighborhood of 'Stadswerven' in Dordrecht a new housing project is being developed outside the dikes. Dordrecht uses new technologies, such as urban flood management. This means that there are some floating houses; but it also implies that in spatial planning is taken into account that certain parts of the public space (the quays, etc.) will be flooded sometimes. In a video on the internet an urban planner of the municipality of Dordrecht says that certain parts of the public space will be made 'daily submersible', so that the inhabitants of the area can have a 'maximal experience' of the tidal river (Meuse). The houses will get an elevated entrance (instead of sand suppletion to raise the ground level). The ground floor will not be used as living room floor, but for example as a garage. Information is given to the users (residents, businesses) in the area outside the dikes, for example about housing insurance and evacuation. Once a year there is a flood exercise in a shopping street that is situated on a flood defense structure. By retailers and the water board so called 'flood bulkheads' will be installed in this street.[13]

6. Liability of government for damages from dike burst: the Wilnis case

Sections 4 and 5 of this paper concentrated on *prevention* of damage from flooding. But what if, unfortunately, a flooding *does* occur? Who is liable for the damage? The Wilnis case sheds light on this matter.

In the night of 25-26 August 2003, a dike in the village of Wilnis burst. It was shifted over a length of 60 meter. The dike moved towards a residential area for about 5,5 to 7,5 meters. 230.000 m³ of water flew into the polder and – thus – into the residential area. Over 1500 inhabitants were evacuated. The management of this dike was the responsibility of the *Water Board*.

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[11] See: "Framework of agreements in response to the emerging provincial policy regarding spatial developments outside the dikes in the lower river area etc." (February 2011). In Dutch: "Afsprakenkader naar aanleiding van het in ontwikkeling zijnde provinciale beleid waterveiligheid in buitendijkse ontwikkelingen in het benedenrivierengebied en de proefperiode die daarvoor gehouden wordt."

[12] See: p. 24 and 25 of the advice of the Water Advisory Group: "De kracht van water. Naar één ge(s)laagde Omgevingswet".

[13] See: www.deltamagazine.nhl/dordrecht-voorbeeld-buitendijks-bouwen.

The *municipality* spent millions of euro's in the aftermath of the dike burst. Furthermore, civilians and companies suffered damages, mounting up to millions of euros, as well. The Water Board however, denied liability for the damages. Soon two lawsuits started: (1) the municipality versus the Water Board relating to the compensation for municipal damages. (2) civilians versus the Water Board relating to the compensation for damages to private goods, like houses. The municipality and the civilians held the Water Board liable for their damage, since the Water Board is owner and manager of the dike. In their view, the dike did not meet the requirements it should have, given the circumstances.

Municipality vs. Water Board

The first lawsuit - municipality vs. Water Board – eventually resulted in a ruling by the Supreme Court.[14] The court ruled as follows.

> *The mere fact of a dike burst in general is enough to assume that the dike did not meet the requirements for the given circumstances, except for evidence to the contrary, to be delivered by the owner.*

Some of the elements of 'evidence to the contrary', according the Supreme Court, are:
- the recognisability of the defect by objective standards;
- the Water board's freedom of policy and financial means to act;
- the then state of the art of scientific and technical knowledge;
- the actual technical possibilities to take sufficient safety measures.

The (lower) court of appeal – in its earlier ruling – had not taken this into account. Hence, the Supreme Court nullified the ruling of the court of appeal. Another court of appeal now has to assess whether the Water Board delivers the evidence to the contrary. The Water Board itself always has pointed out that indeed the defect was not recognisable by objective standards. Furthermore it has always pointed out that extreme draught – that led to the dike burst – until 2003 was never seen as a potential cause for burst. So, the state of the art of scientific and technical knowledge – at that time – did not see draught as a risk. Therefore, in its view, the Water Board cannot be held liable for the damage.

The Supreme Court has referred the case to an court of appeal and thus did not come to a 'final' ruling regarding the liability of government for damage as a result of dike burst. Nevertheless, this ruling limits the liability of Water Boards: there is not an unlimited risk liability of Water Boards. 'Evidence to the contrary' may well take away the Water Board's liability.

[14] Hoge Raad (*Supreme Court*), 17 december 2011, 09/03735, LJN BN6263. Jurisprudentie Milieurecht 2011/37, with annotation by Jong and Bos.

Dike burst Wilnis

Civilians vs. Water Board

The second law suit – civilians vs. Water Board – resulted in a ruling by the district court.[15] The inhabitants claimed that the dike was in a bad condition and did not offer the safety that one is entitled to expect. The court rules that the Water Board does not have an 'obligation of result'.

> *The fact that the dike has burst does not automatically lead to the conclusion that the dike did not meet the requirements for the given circumstances. It has to be examined what were the requirements the dike had to meet on 26 August 2003. Relevant is the state of the art of scientific and technical knowledge at that moment in time.*

[15] Rechtbank (*District Court*) Amsterdam, 29 november 2006, 311800, LJN AZ3399.

In that regard the court rules that extreme draught – the cause of the dike burst – was, prior to 26 August 2003, not known as a danger to dikes. Hence, the court denies liability of the Water Board; it does not need to compensate the civilians and companies.

Is damage from dike burst uninsurable?

Does this ruling imply that all of the damage was left to the inhabitants of the residential area? How about the insurance? Unfortunately, insurance companies consider damage as a result of dike burst as uninsurable. Damage from dike burst is excluded from home insurances. The reason is that no insurance company is able to bear the risks of damage as a result of dike burst.[16] In the past home insurances *did* insure the damage from flooding. However, after the major flooding disaster in 1953, the insurance companies withdrew the coverage against flooding. Lately, there have been consultations between the government and insurance companies to come to a kind of public private partnership insurance against the damage from flooding. However, the negotiations failed. Some other countries (France, UK, USA), however, do have a form of insurance against the risk of flooding.[17] The situation at this moment in the Netherlands is that damage from flooding is comparable to damage from earthquakes, volcano's, nuclear explosions, riots and war. All of them are uninsurable.

National solidarity fund for disasters

The civilians *did* receive a compensation from 'the national solidarity fund for disasters'. This fund is established by a special law: the Act compensation of damages from disasters and severe accidents' (Dutch: Wet tegemoetkoming schade bij rampen en zware ongevallen). It is a governmental fund. The act deals with damages that cannot be recouped, that reasonably are uninsurable, that are unavoidable and that cannot be blamed to the persons involved. That said, the compensation is not a full compensation, but partial. The national government decided that the act was applicable to the damage from the Wilnis dike burst.[18]

The civilians' and companies' damage mounted up to 2 million euros. Less than 1 million was compensated on the basis of the national solidarity fund.[19]

Private fund for disaster Wilnis

Apart from compensation of damage from the governmental solidarity fund, compensation was given by a private fund. The 'Disaster fund dike burst Wilnis' (Dutch: stichting Rampenfonds Dijkdoorbraak Wilnis) collected through actions by (sporting) clubs, shops, companies, performances etcetera around half a million euros. However, this was not enough to cover all of the damage that was left after the payments by the governmental solidarity fund.

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[16] In general, the main line is that damage will not be compensated. However, in some occasions some insurance companies have compensated their clients. See M. Kok, Een waterverzekering in Nederland: mogelijk en wenselijk? HKV, oktober 2005, p. 2. Research commissioned by the Adviescommissie Water (Advisory Committee Water).

[17] Kok 2005, p. 17.

[18] Besluit van 18 september 2003, houdende de van toepassingverklaring van de Wet tegemoetkoming schade bij rampen en ongevallen op de schade en kosten tengevolge van de dijkdoorbraak op 26 augustus 2003 in Wilnis, Staatsblad 2003, 369.

[19] Kok 2005, p. 10.

7. Conclusions

Our search for rights and responsibilities in Dutch land-use planning relating to flood protection and prevention of waterlogging, results in the following ten conclusions.

1. The responsibilities regarding the prevention of flooding and waterlogging are divided between central government, provinces, Water Boards and municipalities. However, also civilians and other private property owners have a responsibility regarding rainwater run-off.
2. Water Boards do not have an 'obligation of result'. That is, it cannot be expected from them to prevent flooding and waterlogging under any circumstance.
3. There is not an unlimited risk liability of Water Boards. 'Evidence to the contrary' – see the Wilnis case – may take away the Water Board's liability.
4. Municipalities have specific responsibilities regarding rainwater run-off (storm water) and urban ground water. Case law shows that a municipality in its role as manager of the municipal roads, can be held accountable for damage caused by an abundance of storm water on these roads.
5. Only 'spatially relevant' aspects of climate adaptive planning can be laid down in land-use plans. For example are possible: double land-use objectives, rain water squares and a specific building or street level.
6. Recent case-law shows that it is legally allowed to build in a low laying area under certain conditions, notwithstanding some expected water risks. One of the conditions is that there will be no unacceptable risk on flooding and waterlogging. Another condition is that it is not allowed to pass water problems to adjacent areas.
7. Areas outside the dikes that are part of the national spatial structure are not subject to statutory standards for protection from water. According to state policy, users of areas outside the dikes are responsible for taking measures to limit effects and water damage is at their own risk. Considering the new policy of the province South-Holland regarding spatial planning in areas outside the dikes, it seems not quite clear for all involved users and governments what their precise responsibilities and rights are.
8. Dutch insurance companies consider damage as a result of dike burst as uninsurable. Hence, damage from dike burst is excluded from home insurances.
9. In case of disasters, the national governmental solidarity fund may compensate part of the damage to civilians and companies.
10. Private funds (resulting from private initiative) may compensate part of the damage to civilians and companies resulting from flooding.