

Water in Urban Areas and Planning Law: the Netherlands

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Part I: Links between Municipal Urban Planning and Water

0. Introduction to Part I

In French language the Netherlands is called: ‘Les Pays Bas’, that is: the Low Lands. A substantial part of Holland – the Western part – lays below sea level. The biggest part of the National Income is produced in that low part of Holland. For most people in Holland it is quite normal to live and work below sea level. This geographical factor can be explained by a long history of the Dutch reclaiming land (making polders, building dikes etc.). Besides this geographical factor, two very important administrative-organisational factors must be taken into account. One factor is the existence of Water Boards. Another factor is the fact that municipalities possess the most important spatial planning powers. This implies that water policy and spatial planning related to water in urban areas can only be successful when Water Boards and municipalities cooperate.

Before answering the questions of the ‘Copenhagen Case’ it is necessary to elaborate on some general aspects of Dutch spatial planning law, water law and environmental Law.

Spatial planning law, water law and environmental law in the Netherlands each have their own history. There are various linkages, but also various differences. Because of limited space in this paper we will especially focus on the linkages related to urban water.

1. A first link between municipal urban planning and water: the compulsory land-use plan

The Spatial Planning Act (SPA) contains important rules about the compulsory land-use plan. The SPA offers a legal framework for spatial planning and leaves a lot of policy freedom to spatial planning governments (national, provincial, local).

A land-use plan (Dutch: *bestemmingsplan*) points out *what* can be built *where*, how the land may be *used* and which *regulations* apply. A land-use plan *map* shows the land-use objectives (Dutch: *bestemmingen*). The land-use objectives indicate the allowed land-use. Examples of land-use objectives are: residential area, industrial area or agricultural use.

Furthermore, land-use plan will hold different types of *instructions*. The instructions relate to:

- (a) rules for which purposes the land may be *used*, such as a prohibition to harden/pave a certain surface;²
- (b) rules for *buildings* on the land, such as maximum surface area to be covered by the building(s) on the plot. The rules may, by example, also prohibit to build spaces below ground level;³
- (c) rules for *activities or works* in the ground, such as a prohibition to fill in a ditch.

The given examples show that the instructions that form part of a land-use plan may very well serve water interests.

Criterion of Proper Spatial Planning

The Spatial Planning Act contains an important criterion about the content of spatial plans, namely: the provisions in a spatial plan must be in the interests of proper spatial planning. 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.

Order in council General Rules Spatial Planning

Pursuant to the Spatial Planning Act, binding general provisions are formulated in a recent order in council concerning land-use plans.⁴ In the context of this paper the provisions

² This example from case law is given by C.W.M. van Alphen, *Het aanlegvergunningstelsel in het bestemmingsplan Buitengebied, Agrarisch recht*, 2005, p. 126.

³ The prohibition to build space below ground level contributes to a greater water safety in the sense that the harmful effects of flooding can be limited. Cf V. van Toledo, *Aanpak water in Rijswijk-zuid: synchronisatie water- en ro-procedures*, 2011.

regarding primary flood defence structures and riverbeds in the great rivers are especially relevant.

Section 2.3.3 regulates the obligatory inclusion of flood defence structures in land-use plans; this section reads:

1. A land-use plan should designate the land-use objective ‘flood defence structure’ to lands where a primary flood defence structure is or which have the function of primary defence structure.
2. A land-use plan concerning lands which are part of a protection zone should indicate these lands with the area indication “protection zone – dune” if the primary flood defence structure is a dune, the area indication “protection zone – dike” if the primary flood defence structure is a dike, and in other cases with the area indication “protection zone – water management structure”.

Section 2.3.4 provides more clarity about the specific spatial implications of the obligatory inclusion of flood defence structures in land-use plans. Section 2.3.4 contains general rules concerning lands of primary flood defence structures. Subsection 1 of this Section 2.3.4 reads:

As regards lands where a primary flood defence structure is or which have the function of primary flood defence structure or protection zones, a land-use plan can be adopted that contains a change compared with a previous land-use plan in as far as the realisation will not hinder:

- a. the maintenance or strengthening of the sandy part of the coast foundation, or
- b. the maintenance, the safety or the possibilities to strengthen the primary flood defence structure.

The explanatory note explains that Section 2.3.4 refers to the protection zone of the flood defence structure that has been laid down by the Water Board in the Ledger of Flood Defences (Dutch: legger), on the principle of the space needed for adjustment of the flood defence structure to two hundred years of sea level rise.⁵

The order in council General Rules Spatial Planning also contains provisions related to the great rivers. Section 2.4.3, subsection 1 reads:

Compared to the previous land-use plan, a land-use plan only designates new land-use objectives in a riverbed in case there is:

- a. such a location of the land-use objective that a safe and efficient use of the surface water body can be ensured;
- b. no actual hindrance to the enlargement of the discharge capacity of the river;
- c. such a location of the land-use objective that the rise of the water level or the reduction of the water storage capacity is as small as possible;
- d. such a location of the land-use objective that the ecological quality of the surface water body will not deteriorate.

⁴ The Order in Council General Spatial Planning Rules is published in: Bulletin of Acts and Decrees 2011, 391 (August 22, 2011). This order in council is expected to come into force in October 2011.

⁵ Explanatory note on the Order in Council General Spatial Planning Rules, Bulletin of Acts and Decrees 2011, 391, p. 41-42.

According subsection 2 of Section 2.4.3, in the application of subsection 1 the residual water level effects or reduction of water storage capacity have to be compensated. The explanatory note states that this compensation also means that the funding and timely implementation of these measures should be ensured; otherwise the land-use plan would not be feasible. In this context is emphasised that coordination between the river (water system) manager and the municipality is desired. As regards the issuing of water permits, specific works or activities are assessed, whereas a land-use plan contains general rules for certain types of activity. Therefore, it will always be essential that the competent authorities are mutually involved in this decision making process.⁶

Pursuant to Section 3.2, on request of the Municipal Executive or Provincial Executive, the Minister may issue an exemption from the provisions of Chapter 2 (including the provisions about flood defence structures and the riverbeds in the great rivers), if the implementation of a part of the municipal or provincial spatial planning policy will be disproportionately impeded in relation to the national interests which are served by those provisions (subsection 1). According subsection 2, stipulations may be attached to this exemption if this is necessary in view of the involved national spatial planning interests.

2. A second link between municipal urban planning and water: the compulsory water test

From a legal view, the relationship between water management and spatial planning is expressed with particular clarity in the ‘water test’ (Dutch: watertoets), which is regulated by the Spatial Planning Decree. Firstly, section 3.1.1 of the Decree specifies that municipalities must consult with Water Boards what the preparation of land-use plans is concerned. Secondly, section 3.1.6, paragraph 1, under b, specifies that the explanatory notes of the land-use plan must provide a description of how the plan takes into account the consequences for the water regime. The purpose of these provisions is to guarantee that water interests are taken into account at the preparation of land-use plans.

The water test comprises an analysis of the risks and costs of drought or flooding. Furthermore, a water test analyses the effect of the proposed urban plan on the water balance, that is, both on the level and quality of groundwater. The municipality is obliged to carry it out before choosing the location of, or changing the land use in, a given urban area.⁷ Thus, a water test is of upmost importance when drafting the municipality’s land-use plan.

The municipality is – strictly speaking – not obligated to conform to the advice of the Water Board. But, in the context of the general legal obligation to motivate and carefully explain government decisions and the obligation to strive for ‘proper spatial planning’ it’s quite clear that a municipality cannot easily disregard the advice of the Water Board. In other words: the water test is intended to be an interactive *process* between municipalities and Water Boards and doesn’t prescribe a particular *outcome*. However, we know from case law that when a spatial planner follows the advice of the Water Board the decision about the spatial plan at hand will appear to be more judge-proof than otherwise.

⁶ Explanatory note on the Order in Council General Spatial Planning Rules, Bulletin of Acts and Decrees 2011, 391, p. 43-44.

⁷ Pieter Jong, The Water System and Water Chain in Dutch Water and Environmental Legislation, *Law, Environment and Development Journal*, 2007, Volume 3/2, p. 210. www.lead-journal.org.

There is a mechanism to advance that a municipality takes its consultation with the Water Board (in the preparation of a land-use plan) seriously. Should the Water Board be discontent with the way in which the municipality deals with its advice, the Water Board can lodge appeal with the Council of State against the municipality's decision to adopt the land-use plan.

Example Rijswijk-South: link between of urban development and water interests

The recent residential project *Rijswijk-South* serves as an example of close co-operation between municipality and Water Board in the preparation of urban development. Rijswijk-South is a major residential development: 4000 houses and an industrial area. The municipality (Rijswijk) and the Water Board (Delfland) decided to cooperate intensively. This implied, among other things, involvement of the Water Board in the preparation of the municipal Masterplan and the land-use plan. One of the elements of co-operation relates to the synchronisation of spatial planning procedures and water procedures that need to be followed for this urban development project. The water test is one of the legal procedures. See V. van Toledo, *Aanpak water in Rijswijk-zuid: synchronisatie water- en ro-procedures*, 2011.

The water test applies to land-use plans for new urban areas *and* land-use plans for the redevelopment of existing urban areas. This is of importance, because existing urban areas should also be prepared for the water consequences of climate change. Urban redevelopment can be seen as a window of opportunities for *adaptive water management*. As Satijn and Ten Brinke put it: "When (...) urban areas are restructured, this is the right time to design extra space for water storage, given the limited options and high costs of later modification".⁸

3. A third link between municipal urban planning and water: three municipal duties of care for water

On December 22, 2009, the Dutch Water Act came into force. In the context of the topic of this paper, the municipal legal 'duties of care' for three types of water are very relevant. Another important point is that municipalities are obliged to cooperate with Water Boards.

According the Dutch Water Act municipalities are not considered to be water system managers. But municipalities do 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 groundwater and storm water run-off. These three duties of care were part of the Municipal Water Tasks Act (2008) and are now an integral part of the Water Act that came into force in December 2009.

In relation to the central topic of this paper (Water in Urban Areas and Planning Law) the groundwater and storm water (rainwater on the streets etc.) are the most relevant, although a lack of capacity to transport waste water through a sewage system can also lead to some local water nuisances.

⁸ Bert Satijn and Wilfried ten Brinke, Governance Capacities for Adaptive Water Management, *Water Governance*, 2011, 01/2011, p. 14.

Rainwater run-off (storm water)

The municipal duty of care for rainwater runoff (storm water) is derived from the rainwater policy about which the Secretary of State for the Environment informed Parliament on 21 June 2004.⁹ The rainwater policy has four main pillars: (1) attacking the problem at the source by preventing the pollution of rainwater; (2) the collection and storage of rainwater; (3) keeping the stormwater drains separate from those for wastewater ('decoupling' the two flows); and (4) balancing all considerations in this field at a local level.¹⁰

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.

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).

Ground water

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

⁹ Dutch House of Representatives 2003-2004, 28 966, No. 2. See also P. de Putter and J. Robbe, "Alle regen komt van boven, maar wat kan de gemeente ermee?" (All rain comes from above, but what can the municipality do about it? In Dutch), in: TO June 2005, No. 2, p. 45-53.

¹⁰ Dutch House of Representatives 2003-2004, 28 966, No. 2, p. 3.

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.
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). The provisions of subsection 1 appear to represent an inverse form of the ‘water test’ discussed above. The ‘water test’ is used when drafting the municipality’s land-use plan, to take account of the effect of the plan on the water balance, that is, both on the level and quality of groundwater.¹¹ The municipality’s duty of care with respect to groundwater works just in reverse: the objective here is to prevent, or at least to limit, adverse effects of the groundwater level on the land-use objective(s).

Obligated cooperation between municipalities and Water Boards

Pursuant to Section 3.8 of the Water Act, municipalities and Water Boards are obliged to cooperate with each other to ensure a coordinated and efficient water management. Section 3.8 of the Water Act reads:

Water boards and municipalities shall ensure the required coordination of tasks and competences with a view to a coordinated and efficient water management, including the independent intake, collection and treatment of waste water.

4. A fourth link between municipal urban planning and water: the compulsory municipal water plan

A specific relation between urban planning and water can be found in the compulsory municipal sewage water plan. Section 4.22 of the Environmental Management Act (Dutch: Wet Milieubeheer) stipulates that the municipal council shall periodically draw up a municipal sewage plan (Dutch: gemeentelijk rioleringsplan). The scope of this plan, however, goes beyond sewage. It therefore deserves the name of ‘municipal water plan’.¹² The municipal water plan relates to:

- facilities for the collection and transport of wastewater present in the municipality;

¹¹ Order dated 3 July 2003, Bulletin of Acts and Decrees 2003, 294. *See* in particular the explanatory note.

¹² Jong (2007), 213.

- the collection and further processing of stormwater runoff. It is interesting to note that forthcoming legislation does *not* require a sewage system for the runoff of rain and stormwater. The new legislation (Building Decree 2012) allows alternative solutions to a sewer. These alternative solutions must be of equal value to a sewage system;¹³
- limitation of a structurally adverse influence of 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.

This last point specifically addresses the relation between water and land-use. Where the *water test* takes the land-use plan as a point of departure, the *municipal water plan* takes the groundwater as a point of departure. Both approaches are meant to interrelate and co-ordinate land-use planning and water planning.

The Municipal Sewage Plan is drawn up by the municipal executive. The municipality has a duty to consult at least the provincial administration, the managers of the treatment plant to which the collected wastewater is transported and the managers of the surface waters in which the collected wastewater is discharged.¹⁴ The provincial administration may give the municipal council instructions concerning the content of the Municipal Sewage Plan, bearing in mind the provisions of the currently valid provincial environmental policy and water management plans.¹⁵

The Municipal Water Tasks Act (2008) allows the municipality up to 5 years to adjust the municipal (waste) water plan to the new duties of care. This long transitional period can be explained by the fact that adjustments to the municipal sewage system take a lot of time and finances.

Part II: Answers to the case questions

0. Introduction to part II

In the Case to be discussed in this paper for the international conference the following two questions have to be answered:

Question 1: What are the main legal mechanisms for regulating the physical state of surface water bodies (e.g. lakes, rivers and watercourses)

Question 2: What are the main legal mechanisms for flood prevention due to heavy rainfalls?

The first question focuses on surface water, the second question focuses on flood prevention due to 'heavy rainfall'. Both questions ask for the linkages to planning law. Because of limited space in this paper and the content of the Case of this Conference we interpret the first question also in the context of (prevention of) flooding.

¹³ Dutch House of Representatives 2010–2011, 32757, No. 4.

¹⁴ EMA, Section 4.23 subsection 1.

¹⁵ EMA, Section 4.24.

Interestingly enough, in Holland the distinction between ‘surface water management’ and ‘how to deal with heavy rainfall?’ corresponds with distinct responsibilities. Surface water is clearly part of public responsibilities of governments (national, regional, local). In case of heavy rainfall it depends on where the rainwater falls. Rain water that falls on private grounds becomes – by ‘logic of nature’ – first part of the responsibilities of the owners (private owners like civilians and companies, and public owners like municipalities).

Both questions (flooding and heavy rainfall) relate to quantitative aspects of water. In The Netherlands often a distinction is made between ‘floods’ and ‘water nuisance’. With ‘floods’ people mean real floods, in the sense of serious situations where large quantities of water cover the land. With ‘water nuisances’ people mean in general all kinds of relatively small(er) local water floods, for example in case of heavy rainfall which causes 10 centimetres of water on the streets during a few hours.

1. What are the main legal mechanisms for regulating the physical state of surface water bodies (e.g. lakes, rivers and watercourses)?

1.1 Does any physical alteration of surface water bodies need a permit and if so who is the relevant authority?

Answer 1.1

It’s easy to describe the water authorities in the Netherlands, especially the water system managers. It is a bit more complex to describe the system of permits and other legal mechanisms. In this section we answer question 1.1 by dealing first with the following (sub)topics: water authorities, Water Boards, water ordinances, urban water, physical state of surface water bodies. After having discussed these topics, it is possible to describe the system of regulation (permits and other legal mechanisms).

Water authorities

Surface water is part of the water system. The Dutch Water Act distinguishes two water system managers on two different scales.

National waters (Rijkswaterstaat)

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).

Regional waters (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

Water Boards can be regarded as a Dutch peculiarity with a long history.¹⁶ 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. Certainly, municipalities do have the task to manage the sewage system. Most important tasks, however, are given to Water Boards. Water Boards are public bodies just like municipalities, provinces and the state.¹⁷ 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).

The Netherlands has 26 Water Boards, all of which are regional authorities that exclusively perform tasks related to water management. Water Boards are justified by the geographic and hydraulic characteristics of the Netherlands. The Netherlands is situated in a delta shaped by rivers like the Rhine, the Meuse and the Scheldt. Much of the country is reclaimed from the sea. Approximately one third of the country is below sea level. Half of the country needs to be protected against floods from the sea or the rivers.

The key tasks of the Water Boards are maintaining flood defences, water quality, water quantity and care of groundwater. A close connection exists between water management and spatial planning. Water management and land-use objectives are associated. A sufficient amount of good quality and quantity of water is required to service agricultural areas, natural environments, residential areas and industrial estates. Regarding urban areas, Water Boards and municipalities will have to work closely together (Section 3.8 Water Act).

Water Boards have the power to specify general ordinances (Dutch: keuren), on the basis of which precepts and prohibitions are applied to certain activities and interventions concerning surface waters or flood defences.

Water ordinances

A water ordinance (Dutch: Keur) contains obligations and prohibitions that the Water Board finds necessary for the implementation of his tasks (that is especially: care for the water system in a certain area). The regulations of the water ordinance should not conflict with regulations from 'higher' governments (State, Provinces). If a rule in a water ordinance prohibits the same activity with the same intention as is regulated in a regulation of a higher government, the specific rule in the water ordinance is legally not binding. However, a judge will not rule quickly that a regulation of one government has exactly the same subject and motive as the regulation of another government.¹⁸

¹⁶ See: Association of Regional Water Authorities, "Water Governance. The Dutch regional water authority model", The Hague, 2011.

¹⁷ 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.

¹⁸ See: Union of Water Boards, "Water Interests in Spatial Planning", Leiden, September 2008 (in Dutch), especially page 31-32.

Example: regulation of ‘protection zones of flood defense structures’ in Water Ordinances

The Court of Middelburg ruled on January 28, 2008, that a Water Board has competence to lay down ‘protection zones’ on or nearby flood defence structures. These ‘protection zones’ are intended to prevent developments that can hinder future improvement or enlargement of the flood defence structure. A legal requirement in this context is that the location and borders (the contours) of these protection zones are established beforehand in a spatial plan of Province or Central Government. The spatial contours determined by Province or central government are also laid down in the Water Ordinance of the Water Board. The motives of the spatial planning government and of the Water Board to regulate these contours are different: good spatial planning (motive general democracy); and the protection and future improvement of the flood defence structure (motive Water Board).

Urban water

We already have pointed to the fact that the management of the water in the bodies of water that are of regional and local interest is the responsibility of the regional water authorities. In other words: it is a misunderstanding to think that waters in municipalities are being regarded as municipal waters. Also local waters fall under the responsibility of Water Boards.

How to define ‘urban water’ according to the Dutch legal system? With ‘urban water’ we mean at least:

- urban groundwater;
- rainwater run-off (stormwater);
- waste water in the municipal sewage system;
- urban surface water (except the surface waters which are the responsibility of the water system manager).

Physical state of surface water bodies

The first question speaks about the ‘physical state of surface water bodies’. Three aspects of the ‘physical state of surface water bodies’ are protected by the Water Act: quantity, quality and ‘societal functions’ of water (Section 2.1 Water Act, see Appendix I). Quantity refers to situations of flooding, different kinds of water nuisances and water shortage. Quality refers to the chemical and ecological status of water systems. Societal functions of water refer for example to transport functions, drinking water supply functions and recreational functions of water.

The ‘physical state’ of the surface water in a low laying country is for an important part determined by the existence of dikes and other flood defence structures. Without dikes, dunes and other flood defence structures a big part of Holland would be flooded.

Flood protection basically consists of the protection of the land from flooding by flood defences. Both the central government and Water Boards are responsible for flood protection. Central government is responsible for the care of the Dutch coast (maintenance of the coastline) and the management of the dams that close off the big arms of the sea in the west of the country. The other infrastructural works (dikes, dunes and storage basin embankments) are managed by the Water Boards.¹⁹

¹⁹ See: Water Governance (2011), p. 23.

The legal linkage between surface waters and flood defence structures becomes also clear when we look at the definitions of ‘water systems’, ‘primary flood defence structures’ and ‘water management structures’ in Section 1.1 of the Water Act:

water system: distinct volume of water consisting of one or more bodies of surface water and groundwater as well as storage areas, flood defence structures and ancillary structures;

primary flood defence structure: flood defence structure that offers protection against flooding by virtue of the fact that it forms part of a dike ring or is situated in front of a dike ring;

water management structure: body of surface water, storage area, flood defence structure or ancillary structure.

General rules and permits on a national level

Question 1 refers to permits and other legal mechanisms for regulating the physical state of surface water bodies (e.g. lakes, rivers and watercourses). Question 1.1 focuses on permits, whereas in modern Dutch law a permit is quite an exception. Since the eighties of the last century successive Dutch cabinets have put much effort to reduce so called administrative burdens. One way to do that is to reduce permit-obligations and to make a shift to more general rules.²⁰

The power to set general rules concerning various acts in the water system, is laid down in Section 6.6 of the Water Act. By order in council (Dutch: *algemene maatregel van bestuur*) general rules can be formulated concerning activities specified in Section 6.2 to 6.5 of the Water Act.

Section 6.5 Water Act

The following activities may be prohibited by or pursuant to orders in council for national waters and, in the case of international obligations or supra-regional interests, for regional waters in the absence of a permit by Our Minister or the management of the water board:

- a. discharge of water into or extraction from a body of surface water;
- b. extraction of groundwater or discharge of water in other cases than those referred to in section 6.4;
- c. making use of a water management structure or an associated protection zone by carrying out activities, erecting or maintaining structures or dumping, placing, laying or leaving solid substances or objects in, on, above, over or under it, unless such use is consistent with its function.

In the Water Decree (Dutch: *Waterbesluit*) and the Water Regulation (Dutch: *Waterregeling*) these provisions of the Water Act have been elaborated. For example: it is prohibited without a permit by Our Minister (as referred to in Section 6.5 Water Act) to make use of a surface water body by erecting or maintaining structures (Dutch: ‘werken’) or dumping, placing, laying or leaving solid substances or objects in, on, above, over or under it, unless such use is

²⁰ See also: R. Uylenburg, M. van Rijswijk, T. Duijkersloot, T. de Gier, F. Groothuijse, “Algemeen geregeld is goed geregeld? Een onderzoek naar de effecten van algemene regels ten opzicht van een vergunningstelsel in de watersector”, Centrum voor Milieurecht (UvA) & Universiteit Utrecht, December 2010.

consistent with its function (see Section 6.12 Water Decree). Subsection 2 of Section 6.12 of the Water Decree stipulates various circumstances in which the forenamed ‘prohibition without a permit’ not applies. For example: no permit is needed for “activities of minor importance for the safe and efficient functioning of the surface water body” (see subsection 2, ad (f)).

The Water Decree also contains stipulations to protect flood defences. Pursuant to Section 6.14 of the Water Decree it is prohibited without a permit by Our Minister (as referred to in Section 6.5 Water Act) to make use of a flood defence managed by the State or an associated protection zone by erecting or maintaining structures or dumping, placing, laying or leaving solid substances or objects in, on, above, over or under it, unless such use is consistent with the function of the flood defence structure.

The surface waters and flood defence structures of which the Water Board is responsible, can be protected by similar provisions in a water ordinance.

1.2 To what extent may the physical alteration of surface water bodies be regulated in a land-use plan?

Answer 1.2

This question can be answered briefly: in as far as the ‘physical alternation’ of surface water is spatially relevant, it is indeed possible to regulate spatial aspects of that ‘physical alternation’ in the land-use plan. Every change of the length, width, height and depth of the surface water is basically also spatially relevant and can possibly be regulated in the land-use plan.

In practice there is a big difference between ‘may’ be regulated and ‘will’ be regulated. It depends on the spatial vision and policy of the municipality which spatial aspects are regarded as relevant enough to set specific rules in the land-use plan.

Spatial plans on a national and provincial level are mostly quite general formulated. A more general formulated spatial plan gives more freedom of policy and flexibility in the implementation of that plan. The exact location and the assignment of specific spatial functions is often chosen on a later moment, by another (lower) government etc. In case law we also see that so called ‘realisation measures’ are not regulated in land-use plans (see further: the answer on question 2.1).

1.3 How is the maintenance of rivers etc. regulated and what is the relevant level of authority?

Answer 1.3

In this context (Water in Urban Areas and Planning Law) we focus on the management of the water quantity.

The duty of care for the management of the quantity of surface water is a task of Rijkswaterstaat and the Water Boards (see Section 3.1 en 3.2 of the Water Act). Water quantity management also includes the obligation to reach and to maintain certain water levels as much as possible. Rijkswaterstaat manages the main water system (the IJsselmeer, the Waddenzee, the Delta Waters, the great rivers and some big canals). The Water Boards manage the regional waters and have in total more than 55.000 kilometre of water courses. By using pumps (Dutch: ‘gemalen’) and the regular maintenance (Dutch: ‘beheer en onderhoud’) of the water system (including dikes) they keep (as much as possible) the water level on the right level. The precise borders of the main water system and the regional water systems are laid down in maps (appendices of the Water Regulation).²¹

According to case law the maintaining of water levels of surface water is legally regarded as an ‘obligation of effort’ (Dutch: ‘inspanningsverplichting’) and not as an ‘obligation of result’ (Dutch: ‘resultaatsverplichting’).

1.4 Are there any mechanisms to ensure co-ordination between upstream and downstream authorities?

Answer 1.4

There are no specific Dutch legal mechanisms to ensure co-ordination between upstream and downstream authorities. Implicitly we do know a principle of ‘good neighbour-ship’.

The European Water Framework Directive chooses to organise and realise the goals of water management in river basins.²² The essence of water management on the basis of river basins is that water related problems are not passed to other areas. It’s also a manner of ‘good neighbour-ship’ to solve possible water problems as much as possible in the area where they are caused.²³

Good neighbour-ship implies cooperation and consultation between water managers and public actors (government) of adjacent areas. As regards urban water, municipalities and Water Boards are obliged to cooperate with each other to ensure a coordinated and efficient water management (Section 3.8 of the Water Act, see I.2).

In principle and in theory interests of other users of water should be taken into account when a decision is made concerning a water license for a water user. However, in practice questions

²¹ H.J.M. Havekes, H.F.M.W. van Rijswijk, *Waterrecht in Nederland*, Kluwer, Deventer, 2010, p. 82.

²² Havekes & Van Rijswijk (2010), m.n. hoofdstuk 6 (“Objecten van beheer: stroomgebieden, de zee, afvalwater en drinkwater”), p. 57-63.

²³ Havekes & Van Rijswijk (2010), p. 58.

about fair distribution of water (problems) play hardly a role in (preparation of) decisions about water licenses. Granting of permits is based on the submitted request for a permit. This request is tested on the grounds of: will the water norms be met and does the permit fit in the policy of the water authority? ²⁴

When a downstream actor is of the opinion that his interests are negatively influenced by a licensed activity of another actor, the downstream actor does have legal possibilities to defend his position (making complaints, lodging appeal or using civil law, etc.).

²⁴ See: Havekes & Van Rijswijk 2010, p. 61.

Case Westergouwe: don't pass possible water problems to adjacent areas

Example Westergouwe: building below sea level in the Western part of Holland

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 (June 29, 2011) shows the following five relevant preconditions for building in 'areas with relatively high water risks':

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 1.2).
2. **Soil:** all reasonable and necessary measures to the soil have to be taken to prevent future water nuisances. In the case of Westergouwe the following measures were taken: making the soil level higher by sand suppletion, strengthening the soil; and: the floor level had to be minimal equated 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 water nuisances (swamping). 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 the phase of realisation of the land-use plan, but will not be laid down in the land-use plan itself.

2. What are the main legal mechanisms for flood prevention due to heavy rainfalls?

Introduction

Heavy rainfalls can possibly lead to flooding, but not necessarily. With all kinds of practical and technical measures flooding due to heavy rainfalls can be prevented, for example:

- enough water storage capacity in the rivers, canals, ponds etc. (water system);
- extra water storage capacity in public area (roads, parks, parking places etc.), for example: in the city of Rotterdam a 'rain water square' is being developed;
- extra capacity in the municipal sewage system (water chain).

When rainwater reaches the water system or the water chain (sewage system) it's legally clear who is the responsible authority (respectively: the water system manager or the municipal sewage manager). But when the rainwater falls on area outside the water system and water chain, it seems to be legally less clear. Besides water in the sewage system (water chain) and water in the surface waters (water system) there can (incidentally) be water in the public area. Intensive rainfall can lead to flash floods and temporarily water on the streets etc. Who is responsible when there is a surplus of water in the public area caused by heavy rainfall? It depends where the raindrops fall and where the water(s) flow. On private parcels civilians and companies in principle have their own responsibility. From Section 3.5 of the Water Act (subsection 1, see Appendix) we can deduct that the municipality is only obliged to collect run-off rainwater from private parcels, if and only if it is not reasonably that the private actor himself lets the rainwater flow on or into his ground or in surface water. On parcels and roads (etc.) that are owned by public actors as municipalities, also public actors have in principle their own responsibility.

In a ruling of the Administrative Court of July 15, 2009, the judge ruled that the quantitative water management of a Water Board is not restricted to water courses (the surface waters), but is related to a certain area. According to Section 1 of the Water Board Law, Water Boards are regarded as public bodies that take care of the water management of a specified area. The judge found that quantitative water management also implied the transport of a surplus of water in the surface waters in the area of the Water Board, to adjacent water storage areas.

When a Water Board is the public body that takes care for the water management in a certain area, and the municipal road managers at the same time manage the rainwater run-off on/from their streets, an 'overlap' is possible between the management of the Water Board and the municipal tasks in this context. This overlap doesn't have to be problematic, provided that in every specific case will be determined which actor can or must do what, to take away the causes of the flooding/water nuisance and to prevent the possible negative effects of it.

So in every specific case research has to be done on the possible causes and effects of the flooding and/or water nuisances. When the specific water problem and its causes and effects have been recognized by both Water Board and Municipality together, pursuant to Section 3.8 of the Water Act they are obliged to cooperate with each other. They can make a joint exploration of the possible causes and effects of the water problem(s) and of the most sufficient measures that have to be taken to prevent such problems. And then, every actor has to take his own responsibility and has to take the most efficient measures. Depending on the outcome of the joint research, the following measures are for example possible:

- As far as water nuisances or local flooding can be prevented by adjusting the street profile or by installing gutters (drainage systems) near the street, the road manager can take such measures.
- As far as water nuisances or local flooding can be prevented by a gutter, so that the rainwater run-off flows to surface water, a joint approach of the surface water manager (most of the times: the Water Board) and the municipality is necessary.
- As far as problems caused by rainwater run-off can be solved by transporting it through the sewage system, the municipality can manage the problem alone because in urban area she manages both the sewage system and the roads. As the Water Board manages the Waste Water Treatment Installations, also in that case a joint action plan is preferred.

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.).

Example Middelburg: 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 town Middelburg (Province of Zeeland). 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.

2 What are the main legal mechanisms for flood prevention due to heavy rainfalls?

2.1 To what extent are the legal mechanisms linked to land use plans, e.g. local development plans?

Answer 2.1

There are various ways to apply the municipal duty of care for rainwater run-off in a land-use plan. One way is to choose for appropriate land-use objectives. Another way is for example to prescribe a specific street profile in the land-use plan. 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.

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).

Spatial relevant aspects of heavy rainfall

Before choosing a way of regulating certain aspects of heavy rainfall in a land use plan, the specific spatial relevant aspects of it have to be determined.

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 ²⁵ , 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)

²⁵ Administrative Court in this table stands for: Afdeling Bestuursrechtspraak van de Raad van State.

2.2. Is it possible to set up requirements for on-site stormwater runoff in local/development plans with binding effect on individual landowners, e.g. planning provisions on “green roofs”, land cover a.o. mechanisms?

Answer 2.2

It is possible to set up requirements for on-site stormwater runoff with a binding effect on landowners in a municipal land-use plan. However, this is only possible if the requirements can be considered to be ‘spatially relevant’. Only requirements deemed to be ‘spatially relevant’ can be included in a land-use plan. Article 3.1 Spatial Planning Act precludes requirements that are not spatially relevant. Article 3.1 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. Rules implying that it is prohibited to harden or pave a (certain percentage of) a certain surface *are* deemed to be spatially relevant. Rules implying that a green roof must be built, *are not* seen as spatially relevant and thus impossible to include in a land-use plan. A green roof is seen as a matter of ‘materialisation’ and land-use plan may not regulate materials.

A standard/norm relating to retention of stormwater by buildings *could* be included in the Dutch Building Decree (Dutch: Bouwbesluit). That would require action by the legislator.²⁶ But even if a standard relating to water retention would be included in the Building Decree, it will not prescribe green roofs. This has to do with the fact that the Building Decree is ‘materials neutral’. That means: materials – such as a green roof – will not be prescribed. If a standard relating to retention of stormwater would be included in the Building Decree, a certain *performance* will be prescribed. For instance: a certain amount of water per x that has to be retained. The designer of the building then has to decide *how* this performance will be achieved. A green roof could then be one of the solutions to achieve the performance.

2.3 To what extent may (sewage) water charges be reduced as a result of on-site stormwater runoff initiatives?

Answer 2.3

This question asks implicitly if stormwater runoff initiatives are ‘rewarded’ with tax reduction. The answer to this question can be brief: no. Dutch rules about local waste water taxes (Dutch: rioolrechten) are related to the actual connections to the sewage system, no matter how much sewage water is discharged.

²⁶ Very recently, a national environmental research institute indeed recommended that the Building Decree would be supplemented with a regulation to stimulate green roofs. Rijksinstituut voor Volksgezondheid en Milieu, *Klimaatverandering in het stedelijk gebied; Groen en waterberging in relatie tot de bodem*. RIVM rapport 607050008/2011, www.rivm.nl.

Some municipalities in Holland stimulate ‘disconnecting of sewages’ (Dutch: afkoppelen) with small subsidies. The municipality of Nijmegen for example gives subsidy under certain conditions.²⁷

A subsidy of five Euros is granted per square meter disconnected surface, in case of underground infiltration of rainwater.

A subsidy of 10 Euros is granted per square meter disconnected surface, in case of upper ground infiltration of rainwater.

A distinction is made by the municipality between areas where disconnecting of sewages is prohibited and areas where disconnecting of sewages is allowed. In ground water extraction areas infiltration is not allowed. In areas where ground water levels are too high disconnecting of sewages is also not allowed. In ground water protection areas only upper ground infiltration is allowed.

In case of new building projects, renovation and redevelopment of neighbourhoods the municipality of Nijmegen tries to reduce connections between paved/sealed surface and the sewage system as much as possible. The subsidy system is intended to stimulate disconnecting of the sewage system in other cases. The municipality of Nijmegen also stimulates green roofs in a small part of its area.

Also Water Boards stimulate ‘disconnecting of sewages’ with small subsidies. The Water Board ‘De Stichtse Rijnlanden’ for example grants a subsidy of 3,50 Euros per square meter disconnected surface in specific areas.²⁸ One of the considerations of this Water Board is that there is locally a problem of drought and that it is desirable to supplement the ground water level by infiltration.

Part III: Summary: Criteria for ‘good’ Municipal Urban Planning and Water Policy

In this final part of our paper we enumerate the criteria for ‘good’ municipal spatial planning related to water that we mentioned before in part I en II.

In Part I of this paper we found the following legal links in Dutch law between municipal urban planning and water:

1. the compulsory land-use plan;
2. the compulsory water test;
3. three municipal duties of care for water;
4. the compulsory municipal water plan.

²⁷ See the information of the Water Service Point of the municipality of Nijmegen: www.waterbewust.nl/afkoppelen.html (in Dutch).

²⁸ The “Subsidy Regulation on Disconnecting Sealed Surface, September 2011 – August 2014” of this Water Board is published on their website: www.hdsr.nl (in Dutch).

We also we found the following criteria that are important in this context:

Criteria in the Spatial Planning Act (SPA)

- Proper spatial planning
- Spatial relevance

Criteria in the Water Act:

- Joint responsibility of Water Boards and Municipalities
- Private responsibilities related to rainwater run-off only when it's reasonable

Case Westergouwe (ruling of June 29, 2011) shows the freedom of policy that spatial planners have to realize spatial projects, even in areas with relatively high water risks. The ruling of the judge in the Case Westergouwe shows the following five relevant preconditions for building in 'areas with relatively high water risks':

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.
2. *Soil*: all reasonable and necessary measures to the soil have to be taken to prevent future water nuisances.
3. *Good neighbour-principle*: don't pass water problems to adjacent areas.
4. *No unacceptable risk* on flooding and swamping.
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.

Instead of speaking about 'good' municipal urban planning and water policy, in our opinion it seems better to speak about 'responsible' urban planning etc. With 'responsible' we mean in this context:

- in response to actual water problems and water needs in a specific area; that is: trying to prevent future flooding and water nuisances, by taken the most efficient measures; and at the same time:
- in response to the actual spatial interests (needs, problems, visions etc.); that means also: to make room for water in public areas.

Responsible spatial planning related to water is a challenge for proactive and responsive governments with joint responsibilities. Water Boards and municipalities have to cooperate in dealing with the actual and expected water and spatial needs.

Appendix: a selection of rules concerning water in urban areas (Water Act)

Section 2.1

1. The purpose of this Act shall be to:
 - a. prevent and, where necessary, limit flooding, swamping and water shortage; while simultaneously
 - b. protecting and improving the chemical and ecological status of water systems; and
 - c. allowing water systems to fulfil societal functions.

Section 3.4

1. Urban waste water discharged into a public sewer shall be treated in an establishment destined for this purpose under the responsibility of a water board. Such an establishment may be operated by the water board itself or by a legal entity charged with such treatment by the management of the water board.
2. Without prejudice to subsection 1 the management of the water board concerned and the council of the municipality concerned may decide, at the suggestion of one of the parties involved, that treatment of urban waste water specified in that decision shall, in that municipality, as of a date specified in that decision, be treated in an establishment destined for this purpose under responsibility of that municipality. A decision as referred to in the previous sentence may be taken only on the grounds that this is evidently more efficient for the treatment of urban waste water.
3. The management of the water board and the council of the municipality concerned shall give a ruling on a suggestion as referred to in subsection 2 within one year from the date on which it was received by the council of the municipality concerned or the management of the water board. In the absence of agreement within that period the matter shall be decided by the Provincial Executive, having heard both parties.

Section 3.5

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.

Section 3.6

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 the taking of such measures is effective and is not the responsibility of the Water Board or the Province.
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.

Section 3.8

Water boards and municipalities shall ensure the required coordination of tasks and competences with a view to a coordinated and efficient water management, including the independent intake, collection and treatment of waste water.