

# Innovations in adaptive water governance: the importance of time

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## **Abstract**

*Time is often taken as the independent background against which governance processes evolve. Time is then the x-axis against which the phenomena of interest – for example innovations in governance processes - are plotted. Instead of taking time merely as a background to other phenomena, this paper analyzes time as a factor that influences the development of innovation processes in water governance. We analyze how different perceptions of time influence attempts to innovate water governance and make it more adaptive to climate change. The paper also analyses the implications for management. We explore how time can be perceived as cyclical, linear or erratic, and how time-horizons can differ. The paper theorizes the use of time as a resource in networks of actors, analyses how time is used strategically, and how time management can be used to manage interaction processes.*

*We compare two Dutch cases of attempts to innovate water governance and make it more adaptive to climate change in the region Haaglanden. In those cases public and private actors try to combine water retention and spatial development. In both cases the private actors' time-frames are driven by market impulses. This interferes with timeframes of governmental organizations. But also between and within public organizations time frames differ. Project managers try to steer the governance of adaptation by managing time, trying to fix deadlines, synchronizing different timelines or imposing their time horizon on the process.*

*The paper argues that the analysis of time helps to explain the dynamics of governance of adaptation. The paper shows that the alignment of timeframes is a crucial activity in the governance of adaptation.*

## **1. Introduction**

In the past decades water management in the Netherlands has faced a number of major changes. In the nineties there was a growing awareness that it was no longer feasible to keep water at a distance all the time. Instead of fighting the water, the Netherlands had to learn 'living with water'. This paradigm shift was endorsed in the National Water Covenant. In parallel, the importance of combining investments in water management with other spatial features was emphasized. Multifunctional land was thereby promoted to meet spatial pressure and competing land claims.

The last ten years, the debate about climate change has given Dutch water management a new impulse. More and more it was realized that traditional security approaches based on maintaining fixed norms and standards at all costs, must give way to a more adaptive, impact-oriented approach. This change in thinking is reflected in pleas for a more risk-focused approach, in which new concepts such as multi-layer safety play an important role.

This new way to approach water issues is implemented in many projects where spatial investments are combined with measures to enlarge the climate robustness of the water system. This is often accompanied with designing and developing innovative concepts: technical, policy and legal and organizational. Many adaptation strategies, therefore, are characterized by the fact that they imply renewal of the conventional water management.

The development and application of innovations in water management is anything but simple. In this article we will dwell on a specific aspect that plays an important role in innovation processes in general and innovation processes in water management in particular: the factor of time.

Time is a crucial factor in realizing innovations in water governance, if only because the deadlines that must be met in the innovation process and the limited amount of time available at all participating parties have a major influence on the process and outcome of the innovation trajectory. Scarce time is an important pressure for actors to realize an agreement or be more willing to compromise around an innovation. In addition, actors who collaborate on innovations in water governance have to deal with different deadlines. Their perceptions of the availability of time can vary widely.

Especially in innovation processes the time factor appears to be an important variable. Sometimes the possibilities for innovations to be applied depend upon a 'window of opportunity' which is closed when actors do not act promptly (e.g. Sartorius and Zundel 2005). Different perceptions of time also play a role in innovation, for example because actors looking to innovate in a competitive landscape often experience more time pressure compared to actors who strive for risk minimization and legal guarantees.

However, the issue of time is often neglected both in practice and in theory. Time is often implicitly considered as the background against which the really important things take place. Time is normally depicted as the x-axis, while the really important phenomenon is disposed along the y-axis. As Pollitt (2008:7) says, time then is "no more than the difference between  $t_1$  and  $t_2$ ". Time is normally not treated as a factor that directly affects the process and outcome, but rather as something that simply expires while working on issues such as water quality or water retention. As far as time management is actively practiced, it is often "budgeted": it is aimed at creating a period during which certain actions must be implemented. In this way, innovation processes are often of limited duration and decisions should be taken within a given span of time so that they fit into certain procedural timelines for policy implementation. This form of time management fits into a project-oriented orientation. There is usually little attention to different perceptions of time and multiple and unpredictable developments of claims and time periods. And it is especially this multiplicity which influences innovation processes significantly.

In this article we approach time differently. Firstly, we analyze time as a crucial factor affecting innovation and collaboration in water governance. It is not the background against which other things are developing, but it is a factor in the innovation process, in which it plays a meaningful role. Second, we recognize the existence of different, often conflicting, perceptions of time. As we will see in one of the cases, parties use different time horizons, and this causes tensions and struggles. Different perceptions of time affect relationships between actors. At the same time, time pressures can contribute to the capacity to act and the acceptance of certain compromises. Smart use of time can be a factor that positively influences the process and the substantive outcome of the project.

Starting point of this article is that actors have different perceptions of time. This affects their thinking and their actions, and thus influence innovation processes in water governance. This article leaves the idea of time as clock time or mechanical time which is equal for everyone (cf. Nowotny, 1992, Pollitt 2008). Building on the notion of perceived time, we discuss the management of time in processes of innovation in water governance. We make a theoretical analysis and combine this analysis with an empirical analysis of two pilot projects in the Knowledge Program "Water Framework Haaglanden". This article has two goals: (1) analyzing the effect of time as a factor in realizing innovation in water governance, (2) derive insights into what we will call time-sensitive water governance related to the realization of innovations.

We have translated these goals into the following research questions:

- How do actors perceive the issue of time in innovation processes in water governance?
- How does the factor of time play a role in innovation processes in water governance?
- How can time be managed in innovation processes in water governance?

This article is organized as follows. In the second section we elaborate theoretically on the concept of time. We distinguish among different orderings of time and we delve into the literature on the effect of time in governance processes. In addition, we theoretically analyze issues regarding the management of time. The third section presents the empirical analysis of two pilot projects in the Water Framework Haaglanden. Here we analyze how the theoretical mechanisms identified in practice act. In the first pilot project revolves around the development of a floating residential area in a polder will be put under water. In the second pilot project is a water storage cellar beneath a greenhouse realized. The article will result in a number of findings relating to the time factor in innovation processes. It gives concrete suggestions about how to deal with this crucial factor for innovation processes may be more likely to have success.

## **2. Time theoretically considered**

In Western societies the assumption that "the time" regularly, systematically and inevitably progresses is often taken for granted. The phrase that you cannot turn back the clock reflects this idea. Time is seen as something limited and scarce. Time is scarce, and therefore the notion of "time is money" is widespread. In this section we address the

question which ideas are behind these and other notions of time. We distinguish two approaches to time: time as clock time and time and perceived time.

### *Time as clock time*

In governance processes in the Western world the objective concept of time prevail (cf. Bleudorn and Denhardt 1995). This means that time is unambiguous (there is only one way to interpret time), linear (it is steadily and regularly arising from past to present and future) and mechanical (consisting of distinct, discrete moments which can be exactly measured) (Bleudorn and Denhardt, 1995). Time is not only linear but also highly structured (Burrell 1992). In this article we summarize this approach to time under the heading of 'clock time' (cf. Pollitt 2008). The emergence of this view of time is linked to the industrialization and development of modern capitalism, in which work was organized according to tight schedules and no longer, as in the pre-industrial agriculture, was dominated by external events and variable trends in the seasons (see Bleudorn and Denhardt 1995).

### *Time as perceived time*

In addition to clock time, however, there are also other notions of time. In particular, when governance processes are dominated by unexpected events and non-linear developments (see for example Teisman et al 2009), this can affect the notion of time. This notion can become more fickle and time can be experienced in several ways. For example, actors can feel that time flies or crawls. That depends partly on how much 'haste' they have and what deadlines they use. The perception of time highly differs from the clock time. Nowotny (1992) speaks in this context of 'social time'. Perceived time may vary in at least five ways (cf. Bleudorn and Denhardt 1995; Pollitt 2008):

- The nature of the evolution of time. This can be sequential, cyclic, or capricious. Political bodies and policy organizations often use a cyclical and sequential logic where time activities follow one another and periodically come back (see eg Goetz and Meyer-Sahling 2009), while private parties respond to dynamic developments in supply and demand;
- The rhythm. Time can be conducted in short cycles, or in long cycles. Political and administrative cycles are sometimes only four years, while management cycles of flood defenses are normally fifty years or even longer;
- The pace. Time can pass very quickly or very slowly. The perception of the pace of time is often related to the speed at which events succeed. Tempo is a relational concept: it shows how much time a certain event takes, or how many events are taking place within a certain timeframe. The measurement of tempo is based upon the relationship between time and event (Schedler and Santiso 1998). Private parties perceive governmental action often as slow and see

bureaucrats as people who do not have incentives to speed up. Officials may deem taking more time necessary precisely because of the required scrutiny;

- The quantity. Time can be scarce or plentiful. A fundamental characteristic of a democracy is that elected officials do only have time until the next election round. They thus have a limited time budget (Linz, 1998). Depending on the resources available and the deadlines of actors they have a tight or wide time budget and they have more or less haste;
- The time horizon can vary from long-term to short-term depending on the wishes and agendas of parties, they shall use in order to get there more or less on which to build. This also differs from the way they operate and the tradeoffs they make.

Different actors have different perceptions, but also divergent interests with respect to time. Time is thus an object of struggle, and it can be deliberately used to influence the positions and interests.

### *Time and influence*

Time is an instrument of power. The one who manages the time in a process has power (Goetz and Meyer-Sahling 2009). This becomes evident when we consider that it gives power when an actor can define the time available for other actors, or when he can give himself more time to act in order to make a difference in a governance process. An actor can also exercise power by formulating deadlines or determine the time budget for the various process phases. Stakeholders with the power to obstruct implementation do have the power to let others wait. "Differences in the availability or exploitability of time tend to benefit one side over another" (Schmitter and Santiso, 1998: 73). As Nowotny (1994) says people can act strategically in time and through time (Nowotny, 1994). They can accelerate or slow down processes, and can take an advance on the future, they can let others wait or a cleverly chosen moment in action. The strategic component is too serious to allow for taking time as a strictly neutral or objective data in governance analysis. Time is both a resource and has to be taken seriously in order to understand how governance processes evolve.

### *Management of time*

Given the different perceptions and interests with regard to the factor of time it is important to pay attention to time synchronization and management aspects such as rhythm, tempo and time horizons when collaborative processes have to be organized. Managing time can more or less spontaneously through "entrainment" but time can also be explicitly managed. Actors can use time to manipulate and manage; they can change it "from an inexorably limited, linear and perishable constraint into something that could be scheduled, anticipated, delayed, accelerated, deadlined, circumvented, prolonged, deferred, compressed, parcelled out, standardized, diversified, staged, staggered, and just wasted - but never ignored (Schmitter and Santiso: 1998: 71).

The concept of entrainment (McGrath and Kelly, 1986) refers to the phenomenon in which the rhythm of one process is embedded in the rhythm of the other. In addition to this, these processes become rhythmically oscillating. For example, workers adapt their living and sleeping rhythm to the rhythm of the organization where they work, as in the case of an oil refinery with irregular services or a public organization where employees must be present on Monday to Friday from 8.30 to 17 hours. Entrainment is therefore about the synchronization of processes and activities that temporal differ. In governance processes entrainment can be seen when actors try to finalize specific activities before a certain date (such as a period to submit a proposal or to use a permit) to connect to the administrative logic of their organization.

The management of time can build on different aspects. Firstly, processes can be monochrome or synchronous organized. Monochronic processes take place sequentially, in polychronic processes there run different sub-processes simultaneously. In policy processes scientific research is usually conducted before a consultation round with stakeholders is organized, but it can also be organized simultaneously.

In addition, time management impacts upon the five aspects of time that we mentioned earlier: the nature of the timing, rhythm, tempo, quantity and time horizon. The first to the nature of the evolution of time. When time is considered to be sequential in nature, organizing strategies are aimed at phasing and organizing activities in subsequent periods. If time is approached as cyclical in nature, it means that activities are recurring, in cycles of policy preparation, execution, evaluation and adjustment, or in cycles of investment, maintenance and replacement. Another option is to leave room for whimsicality, and more deliberately adapt to the tempo and rhythm of the environment. This is a more adaptive form of time management in which flexibility and seizing opportunities are paramount.

When activities do have different rhythms, it is important to consider whether it is necessary to equate these rhythms or to organize crucial moments on which different cycles coincide. For this it is a first requirement to *know* the various relevant cycles and to find out the relevant 'break points' which can be used to organize joint decision-making.

Process managers can play with time. They can put pressure on a process, but they can also organize timeouts. Stakeholders can do the same. The management of tempo has everything to do with organizing time for activities or just formulating deadlines. Tempo can be strategically increased (for example to confront opponents with a *fait accompli*) or delayed (for example, to be able to generate more support) (Schedler and Santiso, 1998). By steering on the tempo of decision-making actors can get the opportunity to synchronize the (interorganizational) governance procedure to relevant processes within their own organization (Schedler and Santiso, 1998).

Regarding the management of horizons, process managers can focus on urgent issues on the short term, but they can also set priority on long-term ambitions. Climate

adaptation is typically a long term assignment while private investment is urgent on the short term. Managing interaction processes also implies influencing the time horizons actors hold, and trying to realize a commonly shared time horizon as a basis to come to consensus about joint action.

A final aspect of time management has to do with timing, with choosing the right moment. In governance processes it is highly relevant to strike while the iron is hot. Thus it can be the case that an elected politician wants to book a quick win in front of the elections or that the political climate is favorable for certain measures, like drastic measures after an (almost-) flooded. Timing is important because *when* something happens determines *how* it happens (Pierson 2004). Some even argue that it can be more important when something happens instead of what happens (Schmitter and Santiso 1998).

In the second part of this article we will discuss the role of time and management time in the pilot The New Water and Waalblok. We are particularly interested in how different perceptions of time and the management of time affect the realization of successful innovation in these experiments.

### **3. Methodology**

For this research two case studies are analyzed. The case studies are performed in the context of an evaluation study in Haaglanden (commissioned by the Water Framework program office Haaglanden). We have chosen for case studies because this a suitable method to analyze the perceptions of actors in detail and to take the complexity of the context into account (see eg Yin 1984). Within the broad evaluation we applied 'strategic sampling' (Flyvbjerg 2006): we deliberately chose for two cases in which we could learn as much as possible about perceptions of time and management time.

Data collection was mainly based upon semi-structured interviews. For both cases we have spoken the main representatives of the main parties. In Waalblok 10 people were interviewed, in The New Water 5. An important reason for conducting more interviews in Waalblok was that a rather large population of horticulturalists played an important role in this case. This population cannot be seen as one actor, therefore multiple interviews were needed sufficient information about their perceptions.

The interviews were supplemented by document analysis (secondary materials including websites, policy documents, and reports of meetings). To check the validity of our case analysis, we have to increase our basic description of the case submitted to a central actor in the case. In other words, we conducted a member check (see eg Berg 2007).

#### *Analytical framework*

In the empirical description, we look at two aspects: the differing perceptions of time, dealing with aspects such as nature, rhythm, pace and quantity of time, and the management of time what are conscious strategies to influence these aspects in order to influence the process results.

<b>Perceptions of time</b>	<b>Categories</b>
Character of time	Sequential or cyclical Erratic or steady
Time rhythm	Short cycli, long cycli
Tempo	Fast, slow
Time budget	Much, little
Time horizon	Short, middle, long term
<b>Management of time</b>	
Character of time	Organizing activities monochrome or synchronic Organizing processes in phases or cycles, or leaving room for the erratic and flexible evolution of processes
Rhythm of time	Enlarging or decreasing length of cycles
Tempo	Accelerating, postponing Synchronizing tempo with tempo of other processes
Time budget	Allocating time (allocating or withdrawing time) Formulating deadlines (postpone or forwarding)
Time horizon	Planning activities on the short, middle or long term
Timing	Adjust moments of acting on developments in the surrounding of the project

#### **4. Time Management in the case of The New Water**

##### *Introduction*

The New Water, formerly the Poelpolder is between Naaldwijk and 's-Gravenzande in the municipality of Westland. For a long time the primary function of the area was horticulture, but public and private actors are now working to transform the area into a floating houses district. Under the name 'New Water' a project is started that must



provide in an area of 80 hectares where floating homes and water are central. In addition the ecological and recreational functions play an important role. The housing is realized in a polder which will be depoldered for the water storage task of the Delfland Water Board. The project is designed to be able to combine various land claims, the area development (and thus a contribution to the local economy and service level) and a contribution to a more climate-proof region. It is planned to build 1200 dwellings and a minimum of 75,000 m<sup>3</sup> water storage to achieve. The project is innovative: in the Netherlands never on this scale polders are 'given back to the water' for building (floating) homes. The plan to boost the area had to be completed in 2018, but because of the economic crisis and the deteriorating housing market, the construction of houses is phased and spread over a longer period. The revised schedule for the project is now aimed at 2020 to complete the project, but it is questionable whether this will become a reality because the development of the area has shown highly sensitive for macro-economic developments.

The New Water is regarded as a pilot project for the Program Waterframework Haaglanden in 2005. There is a major innovation challenge and the involved actors expect that the status as a pilot project can be helpful to develop the necessary innovations. An important motive for the private project developer to opt for the status as a pilot project has to do with the expectation that this may yield additional support in the form of grants for research. Some time the parties try to formulate their research questions, and after quite a long process of consultation a research agenda is drafted, but ultimately the different research questions are not addressed. The pilot project is cancelled in 2010 because the parties are not sufficient satisfied with the added value of the pilot project status. The program team of Haaglanden is disappointed that the pilot partners did not make use of their offer to assist with formulating suitable research question. They observe a lack of interest for knowledge development and a strong focus on the agenda to develop the project. But the developing party is disappointed because the pilot ultimately did not contribute to the realization of the New Water project. However, even without experimental status the area development continues.

#### *Actors and their perceptions of time*

Various public and private parties are involved in the project. The central party is the developer- organization 'The New Westland' (THW). This is a public-private partnership in which the public parties (the municipality, waterboard and province) own 50%, whereas the private party (BNG Area development) owns the other 50%.

Between 2005 and 2008 the THW hastened the pace of the preparations in the area development, because they had an interest in a quick realization of the project. The THW had already bought land, and it was paying rent every day over the rather large sum of money it had borrowed to acquire the land. The earlier the profitable parts of the project could be realized, the better it would be financially. However since the deterioration of the housing market in the Netherlands the THW feels less haste in the project. The THW has phased the developments and now focuses on 2 subprojects. In

that way the THW wants to quickly develop a small number of residencies in order to show that developments are going on, without building so many houses that the supply exceeds the demand and prices would possibly fall.

The time factor also plays a role because the THW has asked the Bank of Dutch Municipalities for a loan to finance the developments. There are arrangements as to when exactly the money has to be repaid. These are important moments in the process, mainly because these are moments when new loans have to be acquired which means that those are important moments to show progress and be credible.

The municipality seems in no hurry in the project. They are mainly interested in the integral development of the area in the medium term. At the same time, the municipality does have an interest in speeding the pace of the developments. The municipality has undertaken financial risks in the PPP, and therefore her perception of time is partly formed by financial-economic interests. If the project evolves too slowly, it will take long before the municipality earns money with her investments in the PPP. If the area is developed too fast, there is a risk of oversupply of residencies in the municipality. That is harmful for the project and for the housing market in the municipality as a whole. Because the partnership has been written down in formal agreements on the medium term, the project largely escapes the political logic of terms of 4 years, and alderman who may want to score within their 4 years term.

The waterboard Delfland has an interest in the project because of water-storage. The project contributes to their so called ABC-program with which they want to improve waterdrainage and waterstorage capacity in the area. Delfland wants to finish its ABC program in 2015, so their time horizon is on the medium term. The waterboard does not put pressure on the project, and they did not fix hard deadlines. This is also partly because their priorities for improving waterdrainage and waterstorage on the short term are elsewhere in the region.

Delfland has stressed that building floating houses on this large scale demands various adaptations in the rules and regulations of Delfland, as well as their policies. The waterboard has been emphasizing that THW has to plan things well in cooperation with Delfland, because the adaptation of rules and regulations needs significant time and for the waterboard it is very hard to compress or reduce the time needed for these adaptations.

The rhythm and the tempo of the internal procedures influence the water board's perception of time. The perception of time in turn influences how Delfland acts in the PPP.

Waterkader Haaglanden argues that the pilot project (which can also be seen as a field laboratories in the sense that there is room to do research and experiment) needs to take time to address a number of more fundamental research questions. They see the New Water as an important and unique experiment, and the region should be learning

from this as much as possible. By conducting some in-depth researches the parties can experiment and learn optimally.

### *Management of time*

This case shows a number of elements related to how actors consciously deal with aspects of time. The tempo of the project was adapted to the economic and financial crisis, especially regarding the market demand for houses. The tempo of the project is thus adjusted to the economic conjuncture, which is a form of entrainment and synchronization.

The project managers of TWH phased the plan in time by making the developments in the subareas more sequential and less synchronic. At the same time they did choose to build a limited number of houses as soon as possible. They focus on the short term, and on what needs to be done in the direct future to develop those residencies. The actors choose to speed up (increase the tempo) in a particular sub-area, instead of integrally developing the area which could come at the cost of the tempo on the short term.

The phenomenon of the interest-ticker (actors have to pay interest on loans for buying land) directly couples time to money, thus turning time into something not to be wasted, and urging actors to speed up the development of houses.

Another thing to be observed is the call, especially from the Waterboard, to take into account the medium and long term. They bring forward that this is elementary if one wants to collaborate efficiently and effectively with public parties on such a scale. The innovation of a large-scale 'ontpoldering' and floating houses implies that the waterboard has to adjust policies, rules and regulations, and that takes a lot of time. This time can hardly be compressed. Thus actors try actively to enlarge the time-horizon and adjust it to the rhythm and processes of procedures in public organizations.

Finally there are also 'target dates' that follow from various policy programs wherein the New Water is embedded. These dates end-date at which the ABC program is planned to be realized.

We deduct four elements regarding the management of time in innovation processes:

- The tasks for water storage have a wider time-horizon than the tasks for development of houses. This means that the Waterboard has more time than the developer. The time horizons have not been synchronized actively;
- The speed of the developments has been determined primarily by the developments in the (housing) market. The collaboration process between public and private parties has been the developments in the market;

- The development of knowledge which is necessary for particular innovations costs too much time according to some parties, and this is seen as a risk to the project. Also there that research will lead to 'unwanted answers', which will imply complications and a slow down in the process. The perceived need to maintain a high tempo of developments was an important reason to terminate the collaboration between THW and the Waterkader Haaglanden.
- The ability to realize innovation is closely related to the willingness of public parties to adjust to the agenda of the private parties, and vice versa. If private parties decide to delay the process and awaiten the developments in the market for the market, the public parties need to answer the question if they want to wait with realizing their own targets in the area such as water storage. If public parties determine their tempo and rhythm by internal procedures and policy terms, this can cause private parties to drop out, with all the consequences for the innovation.

#### **4. Time management in the Waalblok case**

##### *Introduction*

Waalblok is a so called 'polder' in a Dutch municipality called Westland. The area of 55 acres, existing mostly of glass houses (horticulture). A large majority among the horticulturalists wants to restructure the glass house area. That is, they want a large scale renewal through demolition and rebuilding of glass houses, mainly to modernize and remain competitive on the global market. Also the municipality is in favour of restructuring the area.

The waterboard has calculated that the area has a shortage in water storage capacity, amounting to 11.250 m<sup>3</sup>. A large percentage of the surface in the area is covered by glass, which severely limits the space for water drainage and storage. In recent years there have been several incidents of (minor) flooding, which caused nuisance and economic damage. The waterboard has introduced a norm of 325m<sup>3</sup> of water storage per acre, which implies that most horticulturalists need to create extra water storage capacity on their firms. The difficulty for the horticulturalists is that every square meter of surface used for water storage cannot be used for growing crops. Given the high prices of land, this classic form of water retention is costly for the horticulturalists. This makes multifunctional land use which combines water storage and horticulture potentially attractive. In addition, the European Waterframework Directive implies

that agriculturalists need a closed water system by 2027. On the short term they have to comply to more strict Dutch rules restricting the discharge of water

Thus various development come together in the polder. The horticulturalists want to restructure the glass houses to enlarge their firms and modernize. The waterboard wants to increase the water storage capacity in the area. The horticulturalists also seek solutions for the water nuisance in times of heavy rainfall. In addition, the municipality has acquired a large subsidy for an innovative solution to the water problems (especially regarding pouring water or irrigation water). Since 2006 the horticulturalists, waterboard, and municipality have jointly searched how to combine these developments. They started an area-development process to combine three issues: the restructuring of glass houses, the sustainability of the water system in the area especially water storage, and the developments around water for agricultural use via an innovative concept called the 4B-concept. The 4B concepts refers to a closed water system for horticultural firms in which waste water is cleaned so that it can be used as irrigation water again. The concept includes four main water-related processes in horticulture (Buffering, Preparing, Irrigating and Storing water). The concept consists of a waterbasement beneath a glass house, and a plant for preparing irrigation water. This combination enables horticulturalists to purify and store their own residual water, and (temporary) store surplus water. The polder has been designated as a field laboratory within the knowledge program Waterframework Haaglanden. The aim is to search for innovative solutions to the problems that the actors are facing.

In 2007 the actors involved start an extensive exploration of 24 scenarios to deal with the water issues in the polder. This exploration takes a lot of time according to the horticulturalists. Also in 2008 it takes long before decisions are taken, because the water board wants further research into the effectivity of a particular solution (broadening a particular watercourse for outlet water).

During the second half of 2008 the actors engage in a long process of developing an area-contract. There is extensive discussion about the juridical arrangement in which the water board can cooperate with the horticulturalists, and also about the financial rules of the game (see also Van Buuren and Eshuis, 2009; Van Buuren 200x).

Due to the complexity of the trajectory the actors decide to separate the water storage in time from the other parts of the 4B concept (buffering, preparation, irrigation). One of the horticulturalists appears to be willing to develop a waterbasement beneath his glasshouse, if some technical, juridical, and financial uncertainties can be clarified. After this process, which takes to long according to many of the actors involved, the construction of the basement starts in

2010. This is finished in about 3 months. The waterboard allows horticulturalists who participate in the water basement a few more years to comply with the new rules for cleaning waste water. In this way the waterboard facilitates the development of the other parts of the 4B concept.

#### *Actors involved and their perception of time*

Perceptions of time strongly varied within this project. The time perceptions of horticulturalists were greatly influenced by the growth-cycles of their crops, which were in turn influenced by peaks in the demand for flowers, for example around Christmas. In order for the flower-yield to be ready in time, the horticulturalist who was prepared to build a water basement, needed to finish the restructuring of his glass houses in time. Before he could start restructuring his glass house he needed to finish the water basement. This implied a clear sequence of activities, including deadlines for every activity, which in the end was determined by the peak of demand for flowers around Christmas. Thus the horticulturalist had a short-term time horizon with clear deadlines for starting and finishing the construction of the water basement. Exceeding those deadlines would be very costly for him, so time for preparing and developing the decisions about solutions in the area was very scarce and costly as well to this horticulturalist. There was a limited time budget for preparing the water basement. At one point, the horticulturalist set a clear deadline for deciding about the 4B concept, which we will describe further in the section about time management.

All together, the agriculturalists were of the opinion that the exploration took too much time and that the process evolved too slowly. They also brought forward that the discussions and the meetings in itself took too much time. They would rather spend this time working and earning money on their firms. The civil servants involved had a slightly different perception of the time needed for meetings, them being more used to spending times in meetings and also seeing the meetings as an elementary part of their work.

The time perception of the water board was dominated by their goal to realize water storage on a medium term. That meant that on the short term there was time enough. Several times the water board emphasized the importance of a careful decision making process that ought to follow a planned time schedule. At the same time the water board did feel the time-pressure exerted by the agriculturalists in the area. Therefore the water board exerted pressure on the knowledge parties (experts) to come up with the research results in time (within the mutually agreed time frame of the research projects).

The municipality mainly aimed to successfully implement their subsidized project to implement the 4B concept, and therefore they took the deadlines that came with the subsidy very seriously.

For the implementation of the 4B project the municipality also strongly depended on the agriculturalists, therefore the time perceptions and deadlines of the farmers were highly relevant to the municipality as well. Besides, the alderman also wanted to make a good impression by realizing the 4B concept within his term, so he therefore regularly pressured the water board to hasten the decision making process.

The knowledge parties aimed to develop knowledge which would also be valuable on the medium and long term. This meant that their time horizon went beyond the term of the pilot project. For them, developing knowledge on the short term was only important in the sense of satisfying their commissioner, the water board, but it was not important in terms of knowledge development.

The varying perceptions of time created several tensions in the relationships between the actors. The water board was put under pressure to hurry up, especially by the horticulturalists, and the water board had to dampen the expectations regarding the speed of the process all the time. As we will see in the section on time management, the horticulturalists at one point the horticulturalists even threatened to end the process if the decision about the 4B concept would not be taken soon.

#### *Management of time*

The most important intervention regarding process management came from the horticulturalist who wanted to build the water cellar. He set a hard deadline: before a specific date he needed to know whether the other parties agreed upon the cellar or not, otherwise he would start to restructure his glass house which would rule out the possibility of the water cellar. In fact, he threatened to terminate the cooperation around the water governance innovation. Crucially, he was able to convince the others that he meant what he said: if the decision about the cellar would not have been taken before moment X, the chance to realize this innovation would be zero and the water storage would be realized through traditional measures (creating more space for water storage in basins or existing watercourses).

Especially for the waterboard this was a stimulus to end the discussions about possible drawbacks of the 4B concept. The political executive of the waterboard even started to play an important role in increasing the tempo of the process when he told his organization to hurry up with drafting the area-agreement. The reason was that he wanted to sign the agreement before his electoral term would be ended, more specifically, before the new political executive would be installed. He succeeded in this.

A second aspect of time management is the specific phasing of the implementation of the 4B's which has had an important influence on the process. The first part of the concept, water storage, was separated from the other three parts. The actors chose not to implement the 4Bs at the same time. The consequence was that the basis for the concept, the water cellar, could be realized relatively quickly. At the same time it implied that the water board realized its own goal, water storage, early in the process and after that they were less eager to realize the other parts. This decreased the tempo of the process. Thus the specific phasing of activities in time had an impact on the process as a whole.

An interrelated form of time management was that the water board allowed agriculturalists who participated in the water cellar and the area agreement a temporary exemption of the obligation regarding discharging waste water to the sewage system. That increased the time budget for realizing the other three aspects of the 4B concept.

In this case we see four relevant aspects of time management in innovation processes.

1. The realization of the innovation required time-pressure
2. Varying perceptions of time created tensions between actors, and it almost led to the termination of the cooperation. Firstly differing time horizons played a role. Secondly the parties involved had different perceptions of the amount of time spent in meetings and discussions. Especially the agriculturalists found that this took too much time, and at a certain moment there was a real risk that they would withdraw from the process. In other words, the non-substantial aspects of the innovation took a disproportionate amount of time according to the agriculturalists, and this enhanced the risk that the private parties would become impatient and quit.
3. the realization of the 4B concept crucially depended upon an adaptive management of time: by dividing the concept in parts, the whole process was sequenced. Thus the realization of the first part could be fastened, while the realization of the remaining parts of the 4B concept was slowed down. Also the horticulturalists were given more time to comply with the rules for discharging waste water.
4. The electoral cycle in the waterboard played an important role in the end of the innovation process. It was crucial to come to an agreement within the electoral term of the political executive of the waterboard, because it was not sure how his successor would have dealt with the agreement.

## **5. Innovation and the management of time**



The two pilot projects show some striking similarities and differences. Table one shows the most important findings.

	<b>The New Water</b>	<b>Waalblok</b>
<b>Perceptions of time</b>		
Nature of time	Scarce, socially constructed	Scarce, socially constructed
Rhythm	Economic conjuncture dominant for all parties (they are in the PPP together)	Private parties: growing cycle in combination with market cycles (yearly peaks in flower-demand)  Public parties: electoral terms
Tempo	Strong variance	Strong variance
Quantity	Availability of time depends on market demand (for houses). Little time available to realize first group of residencies, a lot of time available to realize the rest	Private parties have little time available, the waterboards has more time
Time horizon	Public parties: medium term  Private parties: short term	Public parties: medium term  Private parties: short term
Main determinant for time horizon	Public parties: careful decision making and rules. Private parties: the market	Public parties: careful decision making and rules. Private parties: the market
Effect on innovation process	Haste among private parties does not fit well with the patience which is necessary for the development of innovative concepts	Haste among private parties causes a breakthrough in the innovation process.
<b>Management of time for the purpose of innovation</b>		
General	No management of time for the purpose of developing innovations.  There is management of time for the purpose of embedding innovative concepts in policies and rules and regulations	
Rhythm	Rhythm of internal processes regarding rules and regulations determines the rhythm of planning	Gelijkschakelen proces van herstructurering en wateropgave
Tempo	Tempo for different parties has been synchronized through the PPP agreement  Differentiated tempo for different subareas	Delaying the process in order to make innovation possible (waterboard), then in the end speeding it up to sign the agreement within the electoral term (waterboard)
Quantity	Actors have limited control of the quantity of time, it depends largely on developments in the housing market.	Agriculturalists reduce the time available, by setting a deadlines to enforce the innovation

	PPP has put time pressure on process by aiming for short term realization of first houses	
Time horizon	Water board tries to broaden time horizon but is not entirely successful in this regard	Creating different time horizons for different parts of the innovation (waterstorage on short term, other aspects medium term)
Timing	The development of houses could be timed in such a way that it coincides with the need to realize water storage	The restructuring was timed so that it could be combined with water storage and horticultural irrigation measures .

Innovation in watergovernance processes is a matter of dealing with temporal pluralism. The cases show that the perceptions of time are being formed through different rationalities. Private parties' perceptions of time are primarily driven by market logic and striving for efficiency. This has consequences for how they perceive the nature of time (scarce and sometimes capricious), the rhythm of time (cycles in the market become dominant), the tempo (determined by economic conjuncture) and the time horizon (the market requires competitive action on the short term thus making the short term dominant). The perceptions of time among public parties are driven more by rules and regulations, whereby careful decision making is often more important than efficiency. This has its effects in ideas about rhythm (policy cycles and rhythm of electoral terms), the tempo (determined by procedures and rules), and the time horizon (determined by policy programs, but sometimes also by the electoral term).

Under pressure of the market, private parties experience more strongly than public parties the need to act on the short term, especially in a domain such as the water governance domain where public parties only rarely have urgent or acute tasks to fulfill. In addition to this the value of time is often perceived different by public actors: investing time in the preparation of decisions often contributes to thoroughness and acceptance among other parties, while private parties often see this as unprofitable time. At the same time it must be noted that public parties in governance processes are not immune for time pressure resulting from market mechanisms. Especially in PPP arrangements where public parties are involved in taking financial risks, or in area development where public parties have borrowed money against interest, they experience market related time pressure too. Characteristic for governance processes is the blurring of boundaries between public and private (Edelenbos 2010, Koppenjan 2012). Differences in perceptions of time may also blur. This can be seen in the New Water case where the public and private parties participating in the PPP have the same market driven time-logic.

In addition, innovation is a matter of timing. Realizing successful innovation crucially depends on acknowledging and using 'windows of opportunity' which may be opened for only a short

time period. It is not easy in the water governance sector, where many activities have their own rhythm, to adjust flexibly and timely to these windows of opportunity.

## **6. Conclusions and discussion**

Time-sensitive governance differs from more classic forms of time management in project- and process management, which are mainly aimed at fixing deadlines and making sure that activities take place within a certain time period. The cases show that the varying perceptions that actors have of time, influence the relationships between actors. Conflicting perceptions of time can create tensions between parties which hamper cooperation (Waalblok) or even end cooperation (terminating the pilot project in New Water). From the cases we deduct three characteristics of time-sensitive governance:

- it takes into account perceptions of time among different actors involved, tries to connect these and aims at a common orientation regarding time. It makes different perceptions object of dialogue and negotiation, and it makes the timing of activities an integral part of the interaction- and negotiation processes in governance;
- combine these het houdt rekening met de percepties op tijd van de verschillende betrokken partijen, probeert deze effectief te verbinden en streeft naar een gemeenschappelijke oriëntatie op tijd en tijdshorizonnen. Het maakt verschillen in tijdspercepties bespreekbaar en maakt de timing van activiteiten integraal onderdeel van het onderhandel- en interactieproces;
- It makes clever use of the factor time to come to agreement, by selectively and consciously giving time or limiting time;
- It is adaptive in the timing of the cooperation process, by making the evolution of the cooperation dependent on the rhythms that are leading for the participants

The above features can be applied to process management. It implies concretely that process managers give new meaning to aspects of time in their management. Instead of applying one-dimensional planning with deadlines, they take into account participants' perceptions of time. It is important to explicitly discuss aspects of time at the project kick-off, alongside questions like how are we going to work, what is our common goal and everyone's individual aim? What is everyone's perception of time? What are the differences and where can tensions be expected? The time factor is underestimated one in innovation processes in water governance. We conclude this paper with three observations.

Firstly the need for innovation is highly time bound. There needs to be a sense of urgency to deviate from existing, familiar practices. In other words, the momentum is important. Waterframework Haaglanden has cleverly acted upon that by creating pilot projects around concrete problems and tasks in the area. Something needed to be done in those pilot projects, and that could only be realized by interconnecting and combining tasks. There is little use to developing a pilot project at the moment when there is no need for innovation. This also calls for knowledge programs which are programmed in an adaptive way.

Secondly it is important to 'give time' to innovation. Actors in a hurry are a blessing on the one hand, but on the other hand they are a scourge to innovation processes. It takes time to think out and underpin innovations, and the same accounts for making innovations policy proof and rule proof. Further, time is needed to take another path if an innovation does not work. Therefore the time-pressure on innovations in water governance should not be too high. In cases where there is urgency to develop a solution fastly, there is little time to participate in time consuming innovation processes. The application of quick solutions, usually existing techniques, prevails in such situations (see e.g. Sartorius and Zundel 2005). At the same time it is important there is some time-pressure in innovation processes, especially in the phase of implementing innovative concepts. Otherwise innovations can be thought out, but instead of moving towards implementation they may be discussed endlessly. There is always something against an innovation. A concrete deadline helps to prevent endless discussions about what are the possibilities, what is allowed, et cetera. This became very clear in the case of Waalblok. However the pressure should not be that high that it precludes time to develop creative concepts anyhow. At the start of innovation processes time is needed for exploration, but during the process time-pressure is important to arrive at implementation.

## References

- Berg, B. (2007) *Qualitative research methods for the social sciences*. 7<sup>th</sup> international edition, Pearson.
- Bleudorn, A.C. and R.B. Denhardt (1988) Time and Organizations. *Journal of Management* 14 (2) 299-320
- Burrell, G. (1992). Back to the future: time and organization. In M. Reed and M. Hughes (eds) *Rethinking Organization. New directions in organization theory and analysis*. London: Sage
- Edelenbos, J. (2010). Water as connective current/water als spanningsvolle verbinding. The Hague: Boom Lemma.

- Flyvbjerg, B. (2006) Five misunderstandings about case studies. *Qualitative Inquiry* 12 (2): 219-245
- Goetz, K.H. and J.-H. Meyer-Sahling (2009) Political time in the EU: dimensions, perspectives, theories. *Journal of European Public Policy* 16 (2): 180-201
- Koppenjan, J.F.M. (2012) *The new public governance in public service delivery. Reconciling efficiency and quality*. The Hague: Boom Lemma.
- Linz, J.J. (1998) Democracy's Time Constraints. *International Political Science Review* 19 (1): 19-37
- Lundin, R.A. and A. Söderholm (1995) A theory of the temporary organization. *Scandinavian Journal of Management* 11 (4): 437-455
- McGrath, J.E. and J.R. Kelly (1986). *Time and human interaction: toward a social psychology of time*. New York: Guilford Press.
- Nowotny, H. (1992) "Time and Social Theory: Towards a Social Theory of Time." *Time and Society*, 1(3): 421-454.
- Nowotny, H. 1994. *Time: the Modern and Postmodern Experience*. Cambridge: Polity Press.
- Pierson, P. *Politics in Time: History, Institutions and Social Analysis*. Princeton NJ: Princeton University Press.
- Pollitt, C. (2008) *Time, policy, management*. Oxford: Oxford University Press.
- Sartorius, C. and S. Zundel (eds) (2005) *Time Strategies, Innovation and Environmental Policy*. Cheltenham: Edward Elgar
- Schedler, A. and J. Santiso (1998) Democracy and Time. *International Political Science Review* 19 (1): 5-18.
- Schmitter, P.C. and J. Santiso (1998) Three Temporal Dimensions to the Consolidation of Democracy. *International Political Science Review* 19 (1): 69-92.
- Teisman, G.R., M.W. Van Buuren, and L.M. Gerrits (eds) (2009). *Managing complex governance systems: Dynamics, self-organization and coevolution in public investments*. London: Routledge.
- Van Buuren, M.W. and J. Eshuis with W. Belabas and J. Verkerk. 2009. *Van concept naar contract: waterberging, herstructurering en innovatie in proeftuin Waalblok*. Rotterdam, Erasmus University Rotterdam.
- Yin, R.K. (1984) *Case Study Research: Design and Methods*. Beverly Hills: Sage Publications.