Understanding and managing water transitions: a policy science perspective

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1 Water management, a field in flux

Water is a resource that man cannot do without. Water fulfils a range of functions for humans. Water is used to grow agricultural produce, as a line of defence by inundating land, for drinking water, as a repository for waste, as political and cultural symbol, and a location for recreation to mention just a few possibilities. Given its value for humans it is no surprise that attempts at managing water, that is, simply put, 'taking care that users have the right amount of water, of the right quality available at the right time', has attracted the attention of human societies for long.

Obviously, the way in which water is managed has changed considerably over the time that human beings started intervening in its natural course. Such changes, for instance, reflect the continuously evolving technological capabilities, altered understandings and perceptions of water, new lifestyles and locations, and economic development. The connection between the ecological (water) system and human society has become so close that some have argued we are now in an era of 'social-ecological systems'.

This paper aims to further our understanding of the way in which water management changes. Starting point of our journey is the realization that government, government regulations, and government policies play an important role in water management. In simple societies, it is the individual water user or group of water users who can alter the way in which the water is managed. However, in modern and complex societies this is not the case. Even in countries where private property rights over water are strong and relevant, such property rights are only valid if supported by government, and only as far as they have not been superseded by a publicly established system of rights and obligations.

The implication is that changes in water management will often be preceded by changes in government policy and regulations or have to be confirmed and sanctioned by them afterwards. Therefore, if we want to understand changes in water management, we need to understand policy change and its opposite: policy stability. The issue of policy change

and stability has attracted considerable academic attention and this paper seeks to contribute to it. Our interest is specifically in the role that individuals play in the process of preparing, instigating and implementing policy change. We find this question particularly interesting because we feel the work of such individuals is underappreciated in common understandings of policy change, which often center on naturalistic explanations such as disasters. Increasingly, it is becoming clear that disasters or other 'shock events' may provide an impetus for policy change, but that such policy change has to be prepared in advance and that by no means, responses to shock events bear a one-on-one, logical, relationship to these shock events (see e.g. Imperial, 1997). What's more, we will show in this paper that there is a range of theories in our discipline – the policy sciences- which have different takes on how policy change, and more particularly the role of individuals in it, can be explained. This calls for a systematic theoretical exploration, comparing theories. It also calls for systematic empirical comparison, which we will undertake by inviting scholars from across the world to participate in a book project.

The motivation for our desire to comprehend the dynamics of policy change is not merely academic. We are living in an era of environmental change. One needs only think about the issue of climate change and related extreme weather events such as hurricanes. Policy change and the readiness for future change, simultaneously and at various government levels, are main concerns here. In addition, water management has undergone quite fundamental changes in the past decades, as witnessed for instance by the increased importance of the concept of Integrated Water Resources Management. For those planning policy change, it will be insightful to understand the dynamics surrounding the development, introduction, and implementation of such a change.

Several points are worth making before we proceed to further define our interest and associated questions. First, our interest in policy change could be seen to imply a somewhat counter fashionable approach. The emphasis on *water policy* and thus not the currently more fashionable *water governance* is, to a degree, related to the personal interest of the authors. However, it is also based on a substantive position in the debate on governance. Strictly speaking, governance is not a new term (Pierre and Peters, 2000: 2),

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but its popularity has undoubtedly grown in the last decade. The Shorter Oxford English Dictionary defines 'to govern' as to guide, direct or steer society. Political scientists used to treat governance as a synonym for government (Stoker, 1998: 17), but the majority now considers them to be analytically distinct terms. Recently, Bevir and Rhodes (2003: 45) defined governance as "a change in the nature or meaning of government." Governance and government are often regarded not as discrete entities, but two poles on a continuum of different governing types (Finer, 1970). If the extreme form of government was the "strong state" in the era of "big government" (Pierre and Peters, 2000: 25), then the equally extreme form of governance is an essentially self-organizing and coordinating network of societal actors (Schout and Jordan, 2005). In focusing on change and stability in government policy, we do not necessarily deny the changed position of government in many countries. We do however contend that government continues to be a very important factor in the way water is governed. In that sense we connect to Pierre and Peters (2000: 25) who are circumspect in arguing that government endures in the new era of governance, but its form and function vary in several important respects.

Second, our book will also focus on policy changes at the level of the nation state. Governance experts, in disagreement about many things, do agree that the importance of the nation state has decreased considerably in the past decades because of privatization, globalization, and often also decentralization (e.g. Jordan et al., 2007). This is undeniably true, also in water management. But the nation state does still hold a lot of sway, if not by controlling - with other nation states - what international organizations do, then by controlling 'lower' levels of government or by sanctioning the outcomes of private governance. The reality is that governing has become more of a multilevel game, and the empirical chapters in our book will no doubt highlight this phenomenon, but the nation state does have an important position.

Third, we need to clarify which types of policy change we are interested in. Some of these changes may be substantial, meaning that government starts on a new course in addressing water management. For example, some governments have becomes less keen

on building large dams for safety or for power generation, and some have installed policies that forbid the use of groundwater where it was previously free. Other changes may be procedural, relating to the way decisions are reached. One can think of the introduction of new decision-making techniques such as cost-benefit analysis, and of new decision procedures such as participation methods. Finally, the change may be organizational, meaning that new types of organizations are founded to manage water or to develop water policy. Here, we can point to the increasing number of river basin management organizations. In this paper, and later our book, we shall deal with all these types of policy change, but we are interested in what we will call transitions that, for now, can be described as the more fundamental changes.

Now, having sketched the background of our work, we can summarize the objectives of our paper, and later our book as follows:

o The scientific objective is to gain a better understanding of the role of agency in water transitions

o The practical objective is to help transition managers in developing successful strategies.

o The agency-perspective is chosen because it is most helpful in formulating recommendation for transition managers.

Our central questions are:

o How to account for water transitions?

o What strategies have agents used to realize water transitions, and have these strategies been successful?

o What strategies are used to block transitions and have these been successful?

In this paper, we lay the foundations for our book project by first exploring the various ways in which policy stability is defined, and discussing the various explanations of policy stability. Thereafter, we discuss the concept of policy change and the conditions conducive to policy change. Finally, drawing on these conceptualizations of policy stability and change, we discuss how, in policy sciences, the role of agency/ agents in

bringing about policy change has been addressed. What strategies may actors use to bring about policy change/ to manage transitions? And what specific skills do these agents need to be successful?

2.   Water transitions and the conceptualization of policy stability

What exactly are water transitions, how can we explain these transitions, and what are the possibilities to manage water transitions? Because the concepts of transition and policy change are strongly related, policy sciences may be helpful in answering these questions. Policy science is often defined as a sub-discipline of mainstream political science, which comprehends 'the totality of public decision-making' and 'investigates the complex links between inchoate public demands and the detailed implementation of policy choices' (John, 1998: 3). The Policy sciences have not produced a uniform and coherent framework so far. They are inspired by a large variety of approaches and theories, which are based on different ontological, epistemological and theoretical stands. Groups of theories that have informed the policy sciences are (John, 1998, 15): institutional approaches, group and network approaches, socio-economic approaches, rational choice theory and ideas-based approaches.

The policy science literature reveals that there are many ways of conceptualising let alone of explaining policy stability and change, and that often a distinction is made between on the hand incremental and on the other hand radical, fundamental, deep or paradigmatic policy change (Schlager, 2007; John, 1998; Huitema et al., 2006). In the following, we will explore how the policy sciences conceptualize and explain policy stability, incremental and fundamental policy change respectively.

Most theories argue that under normal circumstances policies are rather stable and only develop or change incrementally. This is often called 'normal politics'. Policy domains tend to be stable because they are captured by groups of actors who share an interest in

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maintaining the status quo, and who resist attempts to change the prevailing policies and policy programmes. In political sciences, these groups used to be called iron triangles, in policy network theory these actors form issue networks or policy communities (Rhodes and Marsh, 1990), and in the Advocacy Coalition Framework these actors are said to be member of a dominant advocacy coalition (Sabatier 1993, 2007). Whatever this group of actors is called, the members share a common understanding of a policy domain, the main policy problems and the desirability and feasibility of various policy options. The policy science literature has produced a rich diversity of conceptualizations of such ideas or worldviews. They, for example, may be described and analyzed as a belief system (Ibid.), a discursive structure (Hajer, 1995, 2005; Fischer, 2003), an institutionalized policy image (Baumgartner and Jones 1991, 2002; Jones, B. and F. Baumgartner, 2005), a policy frame (Schoen and Rein, 1994) or as a policy paradigm (Hall, 1993). To give but one example from the water policy domain, the institutionalized policy image of the manifold benefits of taming and controlling water has characterized the dam building era in many countries, but nowadays this image is largely replaced by an image of dams being detrimental to river ecosystems, communities and fisheries.

How, then, should we account for policy stability? In other words, why is it so difficult to bring about policy change in a world full of problems and in need of new solutions to these problems? A first and obvious explanation is that the group of actors in power possesses the means and resources to remain in power. They may, for example, issue legislation reflecting and supporting their policy ideas, they may formulate decision making rules that are favorable to them, and manipulate the various forums where decision making takes place. Policy scientists writing on policy stability and change strongly reflect the idea that the process of policy change is influenced by a good deal of resistance and strategic manoeuvring. The resistance follows for instance from the relatively simple desire to be left in peace for a certain moment of time and work within the policy paradigm or equilibrium of the moment. On the other hand, there are the issues of vested interests (e.g. careers depend on policy programs) and of ideology and convictions.

Bachrach and Baratz (1970) point at the various barriers that have to be overcome on the way towards policy change. First they identify an ideological barrier based on the dominating pattern of values. A problem can be debated only to the extent to which it is recognized as a problem that needs to be solved. In other words, problem definitions should be compatible with the dominant policy discourses, frames or beliefs. Secondly, institutional barriers, like required procedures and the way in which public tasks and competences are organized, could determine the chance and the way in which a problem proceeds in the agenda setting process. Third, the public decision making process determines if proposals to tackle a problem will be adopted, rejected or amended. A fourth barrier is in the implementation process where wrong interpretations or failures may prevent successful problem solving.

According to Baumgartner and Jones (2002; True et al., 2007) successful policy monopolies are able to dampen pressures for change. These processes of negative feedback are very similar to Kuhn's theory about scientific revolutions. Policy monopolies are able to accommodate pressures for change for a long time, only if pressures are sufficient they may require a fundamental rethinking of policy principles.

Policy stability and institutional inertia are not the result of deliberate strategic manoeuvring only. Historical institutionalists argue that 'history matters' (North, 1990) and that the legacy of the past conditions our future (Gains, John and Stoker, 2005). The notion of 'path dependence' refers to the idea that preceding steps in a particular direction direct further movement in the same direction (Needham and Louw Forthcoming). Path-dependent developments often are explained by increasing returns (Gains, John and Stoker, 2005). In an increasing returns process, Pierson (2000: 252) explains, 'the probability of further steps along the same path increases with each move down that path. This is because the *relative* benefits of the current activity compared with other possible options increase over time'. To put it differently, considerations of profit and loss often lead to the decision to continue the same practice. Hence, increasing returns processes are also described as self-reinforcing processes (*ibid.*). The costs of exit (that is, of choosing a different institutional path) rise with each step taken.

The usefulness of the concept of increasing returns in policy studies is the subject of debate. Kay (2005), for example, argues that increasing returns processes are sufficient but not necessary for path dependency. There are several other, non-increasing returns, mechanisms, which may explain a path dependent development of policies. Two of the various examples discussed by Kay (2005: 536) are that 'policies involve investments or disinvestments in administrative infrastructure; this transforms governmental capacity and the set of possible future policies that may be enacted' and that 'policies involve the establishment of formal or informal contracts with individuals which are costly to change'. Kay points to the high transaction costs of changing *type* of contract for the parties involved. The transaction costs of reaching agreement on a type of contract that parties are familiar with are considerably lower than that of a different type of contract. As an example, if water managers have a good deal of experience with command and control based strategies, they may not be inclined to experiment with more interactive policy processes. These mechanisms do not rely on an increasing returns process, but have in common that they may cause 'high future switching costs' of a policy (Ibid.). In the water policy domain, physical infrastructure, such as dams or dikes, may account for a path-dependent development of policies or 'lock ins'. Once these works have been constructed, land-use has changed accordingly and private investments made, water and spatial policies are next to irreversible.

The Epistemic communities-framework (Haas, 1992) addresses explicitly the question of policy persistence or stability as well. It is argued that the ideas and policies put forward by epistemic communities, once adopted and institutionalized, can easily gain the status of orthodoxy (Ibid). In EC-theory the metaphor of developmental biology is used for understanding policy evolution (Adler and Haas, 1992; Haas, 1992). This is based on the observation that '[…] evolutionary changes to structures, once in place, are largely irreversible and virtually determine the array of subsequent choices available to the species.' (Ibid.: 372). This path-dependent evolutionary model implies that the effects of epistemic involvement are not easily reversed. Epistemic communities often are strongly related to and informing advocacy coalitions (Dudley and Richardson, 1996; Meijerink, 2005)

A path-dependent development of policies does not mean that there is no dynamics at all. Changes, however, always are marginal or incremental changes, i.e they fit within the dominant policy paradigm, and do not affect the basic interests of the (network of) actors in power. In the Advocacy Coalition Framework these changes are defined as changes to the secondary aspects of a policy belief system, which by definition are narrow in scope. Such changes may relate to detailed regulations, budget allocation within a specific program and so on, but do not affect the core of a policy program. Across-coalition policy learning, which means that the dominant coalition incorporates some elements of the belief system of opposing coalitions in its own belief system, may account for such minor changes to the status quo (Jenkins-Smith and Sabatier, 1993). Hall (1993) would call such minor changes changes in the fine tuning of instruments or changes at the level of instruments at best.

3   Water transitions and the conceptualization of major policy change

What, then, about major, fundamental, radical, deep or paradigmatic policy change, changes which entail a fundamental reorientation of policies and which we have called transitions? In the Advocacy Coalition Framework such changes are defined as a change of policy core beliefs. Sabatier and Jenkins-Smith have defined eleven components of these core beliefs 'including the priority of different policy-related values, whose welfare counts, the relative authority of government and markets, the proper roles of the general public, elected officials, civil servants, and experts, and the relative seriousness and causes of policy problems in the subsystem as a whole.' (Sabatier and Weible, 2007: 195). This definition of policy change does not only cover substantive policy change, but also changes of the dominant governance paradigms, such as a coalition's reliance on the free market, on civil society or on government intervention for realizing its objectives. Hall (1993) defines paradigmatic policy change as a change at the level of overarching goals, and True et all. (2007) speak about change as large-scale departures from the past, which include new issue definitions or policy images.

What is needed for fundamental policy change? And under what circumstances may we expect policies to change fundamentally? Drawing on the policy science literature a first answer is a set of new policy ideas challenging the status quo. Richardson (2000) has made an expressive and revealing comparison between policy ideas and viruses. New or competing policy ideas may be able to disrupt seemingly stable policy networks. Similarly, in his article 'The politics of path dependency', Peters et al. (2005) argue that new ideas may influence the trajectory of policy development. As indicated before, such new ideas may be conceptualized as a new policy core belief (Sabatier, 1993), a new policy image (Baumgartner and Jones, 2002), a new policy discourse (Hajer, 1995), or as a new policy frame (Schoen and Rein, 1994), and new ideas, generally entail a different value orientation, new problem perceptions, and new policy preferences.

Both Richardson (2000) and Peters et al. (2005) argue that for ideas to be able to change the course of a policy, they must be articulated and inserted into the political debate first. In other words, ideas and agency are strongly related. Typical agents that produce and proliferate ideas are social movements (Benford and Snow, 2000), advocacy coalitions (Sabatier, 1993), epistemic communities (Haas, 1992, 2004), or shadow networks (Olsson et al., 2006). These networks actively try to influence governmental decision makers and by that they try to change existing policies and institutions. Just like a policy monopoly can be analyzed as a group of actors sharing a particular worldview, policy enterprises challenging the status quo can be analyzed as groups of actors sharing a different worldview, and trying to make their world view dominant.

As we have argued before, fundamental policy change can be a painstaking enterprise for many reasons. Because of negative feedback, increasing returns and other mechanism keeping a policy on a particular path, policy communities tend to be rather stable over time. Still, at some moments fundamental policy change takes place. According to historical institutionalists, fundamental policy change implies a change of a policy path, and such change is only possible in exceptional cases of fundamental performance crises or external shocks (Knill and Lenschow 2001: 193). Sources of such 'discontinuous institutional change' are wars, revolutions, conquests and natural disasters (North, 1990).

Similarly, the Advocacy Coalition Framework points to the importance of perturbations external to the policy subsystem (or external system events) for understanding fundamental policy change. Such events can be changes in socio-economic conditions, changes in public opinion, changes in systemic governing coalition or policy decisions and impacts from other subsystems (Sabatier, 1993; Sabatier and Weible, 2007). If such events take place, opposing coalitions may manage to successfully challenge dominant policy beliefs. This part of the Advocacy Coalition Framework is inspired by Kingdon's agenda setting theory (1995).

According to Kingdon, the policy process consists of three relatively independent streams: the problem stream, the policy stream and the political stream. In his model two types of policy windows are distinguished: problem windows and political windows. Focusing events or shock events may raise awareness of issues (see also Birkland, 1997). As a consequence a problem window may be opened (for a limited period of time). Policy entrepreneurs, then, have the opportunity to put forward their policy proposals. In other words, the window has to be exploited by the entrepreneur. It is the task of the policy entrepreneur to link solutions to problems and to get them accepted by decision makers. Next to problem windows, so-called political windows may open. These windows, for example, open when there is a change of government. The formation of a new political leadership is a unique opportunity to get attention for new problems or problem definitions, and to gain support for new policies. Not surprisingly, at these moments interest groups are most active. In spite of the importance both theories of the policy process attach to the successful exploitation of policy windows by policy entrepreneurs, there is at least one fundamental difference in their respective conceptualization of the policy process. Where Sabatier is of the opinion that problems and solutions are strongly related, and that actors within an advocacy coalition share problem perceptions and policy preferences, Kingdon argues that the problem and policy streams develop relatively independent from each other.

To give a few examples of policy windows from the case of Dutch water policies: The storm surge of 1953 and the near river floods of 1993 and 1995 clearly were focusing events (Meijerink, 2005). It is also clear that these events did have an impact on policy making. It is, however, less evident to what extent these events did cause fundamental policy change, put otherwise: whether they caused the selection of a new policy path, and caused a critical juncture, or whether they merely resulted in an acceleration of policies on an existing path. After all, plans for a total enclosure of the estuaries in the south western Netherlands had already been developed before 1953, and in fact the Delta plan policies are very similar to the policies that aimed at the enclosure of the Zuiderzee and the construction of the Afsluitdijk in the 1930's. (Huitema and Kuks, 2004). In similar vein, the first governmental reaction after the 1993 and 1995 river floods was to issue emergency legislation so as to speed up the implementation of the already planned projects for strengthening dykes. On the other hand it is true that these floods were increasingly perceived as a sign of the failure of the existing policy paradigm of fighting the water with technical means only. As a consequence, the alternative paradigm of creating giving more space water gained importance. To give just one example of a political window, several studies have pointed to importance of the Dutch government led by prime minister Den Uyl in 1973 for understanding decision making on the construction of the famous Eastern Scheldt storm surge barrier. Only after this Cabinet came into power, the coalition of environmentalists gained access to decision making in the Cabinet, and therefore were better able to sell their ideas. This example, just like the interesting example of Thatcherism as used by both Peters et al. (2005) and Richardson (2000), indicates that politics may matter a lot.

Although Punctuated-Equilibrium theory acknowledges the importance of policy windows, it describes an additional mechanism of policy change. Whereas in Punctuated-Equilibrium policy stability was explained by negative feedback processes, policy change is attributed to positive feedback mechanisms. Positive feedback occurs when modest changes cause future changes to be amplified (True et al., 2007). This effect is also called 'bandwagon effect'. Whether or not positive feedback occurs depends on the interplay between policy image and policy venue. Most policy issues are ambiguous, hence may be

defined in different ways. It's exactly for that reason that there often are different and competing policy images. Baumgartner and Jones give the example of nuclear power. First, nuclear power was associated with economic progress and technical expertise. When opponents raised images of danger and environmental degradation, helped by incidents such as the ones that took place on Three Miles Island and Chernobyl, the nuclear power industry began to collapse (Ibid.). And nowadays, in the face of climate change, the image might easily change again, since nuclear energy in some respects is more sustainable than other sources of energy are. New images attract new supporters. It's here where the opportunity structure of modern societies plays an important role. When issues move from the subsystem to the macro political agenda, this means that there are opportunities for major policy change.

Modern western societies are characterized by the presence of complex opportunity structures. There are many places, where policy issues are debated. There, for example, are various levels of government, forums of scientists, and the legislature. As Richardson (2000) argues, these venues are an interest group resource, i.e. they may be exploited. Baumgartner and Jones have called 'venue shopping'. The impact of the European Union on water policy developments offers an interesting case study. On the European level there are various venues that are relevant to understanding decision making on water management issues. Kaïka (2003) has analysed how the environmental lobby managed to exploit the changing decision making rules on the European level. Ingram and Fraser (2006) have applied Punctuated-Equilibrium theory to the case of Californian water policy.

In addition to new ideas, policy windows and opportunity structures, the course of interactions and negotiations between opposing coalitions may be relevant to understanding to policy change (Sabatier et al., 2005; Sabatier and Weible, 2007). The latest contributions to the Advocacy Coalition Framework are inspired by the theory of Alternative dispute resolution. The basic argument is that in some cases fundamental policy change may be based on negotiated agreements (Sabatier and Weible, 2007). This implies that fundamental policy change no longer by definition is accompanied by a

change of coalition, but that a policy stalemate, which is solved after an effective negotiation process may result in a significant change of the status quo (Sabatier, swimming upstream). One of the negotiations strategies that may account such change is the strategy of issue-linkage, which means that issues from different issue-areas are linked to each other not for substantive, but for strategic reasons (Fischhendler et al., 2004; Meijerink, forthcoming). In these situations, parties involved in the negotiations may be willing to accept major policy change even though they not support such a change, because they are compensated in another issue-area. These findings suggest that the theories of Alternative Dispute Resolution and Negotiation Analysis are relevant to understanding and managing transitions as well.

Lowry (2006) has still made another account of policy change. In his international comparative case study of dam politics, and in which he uses a policy science perspective, he has developed the concept of focusing projects. Basically his argument is that next to focusing events, focusing projects often play an important role in processes of policy change. In each case study that Lowry discusses there is one central controversial project around which a solid image of failure starts to build, demonstrating the bankruptcy of the policy paradigm, triggering the debate between members of different coalitions, and bringing about a positive feedback mechanism.

What we might learn form the foregoing is that new ideas can be major source of policy change and that conflict over those ideas, hence politics, is crucial for understanding policy change. These ideas do however need an agent, and these agents may apply various strategies to get accepted their ideas.

In spite of each framework's ambition to offer explanations for policy stability and/or policy change, the importance of serendipity and coincidence in understanding the policy process is recognized by the developers of most theories treated here (Schlager, 2007). Whilst the frameworks emphasize the importance of variables, such as external system events, shock events or governmental turnover, it is recognized these events mostly cannot be predicted. Moreover, it is recognized these events as such do not account for

policy change, but have first to be exploited by policy brokers, policy entrepreneurs or policy opponents.

In this section we have described various generic mechanisms of policy change which are treated in the policy science literature. They may be helpful in understanding real life transitions. For understanding specific cases of a transition, however, these insights should be supplemented with knowledge about the characteristics of the institutional context, since this context is an important intermediary variable in most of the frameworks discusses. Theories of venue change and venue shopping assume the presence of multiple venues. Such opportunity structures are present in most western democracies, but not in all developing countries. Another relevant intermediary variable is the degree of consensus needed in decision-making. It is generally assumed that in pluralist systems, such as the US, fundamental policy change is more likely than in corporatist systems, such as the Netherlands.

Transitions are about fundamental policy change, the institutionalization of a new policy paradigm or policy belief. Hence, the relevance of the various accounts of fundamental policy change for understanding water transitions is obvious. Fundamental changes, however, not necessarily are discontinuous or the result of a sudden shift, but may be the result of a process of continuous incremental change. Kay (2005), who explored the usefulness of the concept of path dependency for policy studies, proposes representing policy as 'a vector in policy space', that is, it has a velocity and a direction. Moments of crisis, then, may cause a change of velocity and/ or a change of direction. Building on this vector image, he argues that a seemingly small change of direction 'may turn out in retrospect to have been a critical juncture' (Kay, 2005: 566). What's more, fundamental shifts which at first sight seem to have taken place within a short time horizon, may be preceded by a long period of more incremental institutional change, such as the growth of a new coalition, a gradual change of national mood and so on (Meijerink, 2005). A detailed study of policy processes often shows that it is more difficult to distinguish between fundamental and incremental policy change than some accounts of policy

change would suggest. These findings are interesting not only for better understanding transitions, but also for learning how to manage transitions.

A final step, then, is to learn more about the role of agency and leadership in policy sciences. What strategies could be used to purposefully alter policy practices and to bring about structural policy change? To put it differently, is it possible to develop a generic theory about successful strategies of transition management?

4. Strategies of transition management

In this section we will highlight strategies for instigating, realizing and implementing policy change that are at the disposal of the individual who wants to achieve change. One question that deserves some treatment before that is what kind of people we have in mind here. As Bachrach and Baratz (1970) show, change can be instigated from within government but also from the outside. Within government, the individuals seeking change may be politicians or bureaucrats. Outside government, they can be members of NGOs, academics, or individual citizens. The individuals we are interested in, are recognized in the policy sciences, but also in other literatures, and can be described with different names such as 'policy entrepreneurs', 'boundary workers', 'policy advocates' and 'visionary leaders'. We are less interested in a detailed discussion of the subtle differences in the meaning of such terms, but we are mentioning them to indicate the type of people that we have in mind.

Working on policy change obviously implies different challenges for different types of 'change agents'. The political leader may have a political party and a bureaucracy to back him or her, which the employee of a small NGO probably does not. Below we attempt to generate a more or less generic list of strategies. Whether or not various types of individuals that seek change have these strategies at their disposal and actually use them is an empirical question that will be addressed in the chapters of our book. Although we do not suggest that the strategies below are necessarily used in a chronological order, it

did help us to think of them in this way when devising the list of strategies. We expect the strategies to be used in wildly differing orders and combinations given varying relevant circumstances and types of change agents. Which strategies are used and combined, in which order, by whom, and to what effect is an empirical question that we hope to be able to address on the basis of the empirical chapters in our book.

1. The development of new ideas

As we have suggested above, infrastructures and regulations in water management can be seen as an expression of human ideas that guide their thinking. At a fundamental level, such ideas can be referred to as a 'policy paradigm', a 'hegemonic policy discourse', and sometimes an 'institutionalized policy monopoly'. Obviously then, if one wants policy change, one needs to develop an alternative idea or approach for managing water. This work has be referred to as the development of a new policy frame (Schön and Rein, 1994), a new policy image (Baumgartner and Jones, 2002), alternative system configurations (Olsson et al., 2006), an alternative policy path (Pierson, 2000, 2004), new long term visions and transition agendas (Loorbach and Rotmans, 2004; Van der Brugge et al., 2005), a new policy theory, and new storylines (Hajer, 1995). There is a long-standing debate in the policy sciences on the relative importance of ideas as opposed to interests (e.g. Majone). Here, we do not wish to take a position in that debate. We are sympathetic to the notion that ideas shape interests, but are aware that (perceived) interests can be a motivating factor behind the entertainment and development of ideas. The relation between interests and ideas may vary according to the forum one works in, with scientists working in a forum that is less accepting of interest based arguments (argumentation), and market parties and politicians being able to express interests much more openly (brokering). The point we wish to make, however, is that policy change requires at least the beginning of an idea in which direction the situation might have to change. The policy sciences suggest that the more extreme visions of alternative futures will develop amongst actors that are outside the government. Because they are free from governmental constraints they are also more likely to pursue major change than incremental change. One of the hypotheses of the Advocacy Coalition Framework is that 'within a coalition, administrative agencies will usually advocate more moderate

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positions than their interest-group allies' (Sabatier and Weible, 2007:220), and Roberts and King (1996) argue that inside the government individual entrepreneurs pursuing incremental change are more common. These are hypotheses that can be explored in the empirical chapters of our book.

2. Build coalitions and sell ideas

There are obviously few actors who can see through policy change on their own. The degree to which collaboration will be needed will depend on various factors, including the extent to which change is sought and the institutional arrangements surrounding the decision process. However, that collaboration is necessary would appear to be the case in any situation. The implication is that coalitions need to be built. Such coalitions are referred to as 'discourse coalitions', 'advocacy coalitions', and 'shadow networks'. Coalition building is a delicate task, which implies dealing with sensitive issues such as the differences of opinion, and power asymmetries between actors. It is interesting to note that various theories from the policy sciences propose different mechanisms through which coalitions are built, raising questions for the empirical chapters. Discourse analysts such as Hajer (1995) suggest that story lines, preferably with a certain ambiguity and multi-interpretability, are key in attracting new actors to new ways of understanding. This attraction is referred to by Hajer as 'affinity', a concept that stresses the attractiveness of a new vision in coalition building. Benford and Snow (2000) think along similar 'ideational' lines as they speak of frame alignment as the key factor in coalition building. Folke et al. (2005) and Olsson et al. (2006) speak of the creation of 'shadow networks', a term that seems to emphasize the fact that outside official policy making circles, there is more room for open debate and ideas that may be somewhat on the fringe. The role of academics and scientists, connected to lower ranking bureaucrats is important in such shadow networks, which can use boundary objects such as common books or models to develop a shared alternative vision. Sabatier sees coalition building as a way to 'pool' resources. This suggests that coalition-building efforts emphasize shared beliefs and explicit agreements on how to use the resources of the actors involved to achieve common goals.

3. Recognize and exploit windows of opportunity

John Kingdon (1984) can be credited with the introduction of the concept of 'windows of opportunity' to the policy sciences. The unique contribution of the theory is that it points out the separation of the processes of problem setting, solutions finding and political legitimization, thereby making the often-assumed irrationality of the political process better comprehendible. Actors advocating policy change work in this environment and therefore need to be aware of its dynamics and look for and create the windows of opportunity. Considering the sequence of the agenda setting process, Kingdon thinks in terms of a *problem stream* (public attention for issues: the public agenda), a *political stream* (political attention for issues: the political agenda) and a *policy stream* (attention of policy makers for policy options: the official agenda) have a chance to be coupled. The separate streams come together at critical times, opening a policy window. Sometimes, the window opens quite predictably. At other times it happens quite unpredictably. The probability of an item rising on the official decision agenda is dramatically increased if all three streams – problems, policies, and politics – are joined.

None of the streams are sufficient by themselves to place an item firmly on the decision agenda. If none of the three elements is missing – if a solution is not available, a problem cannot be found or is not sufficiently compelling, or support is not forthcoming from the political stream – then the subject's place on the decision agenda is fleeting. The window may be open for a short time, but if the coupling is not made quickly, the window closes. A subject can rise on the agenda abruptly and be there for a short time. Generally, the rise of an item is due to the joint effect of several factors coming together at a given point in time, not to the effect of one or another of them singly. Kingdon considers developments in the political stream as powerful agenda setters. Consensus is built in the political stream by bargaining more than by persuasion. Proposals are evaluated in terms of their political support and opposition, but partly against logical or analytical criteria as well. On the other hand, the policy stream is more a process of consideration in the policy community, where ideas themselves are important and where rational reasoning as well as evidence of effectiveness is required. The problem stream is dominated by statistics providing feedback on the state of the world, by activities of action groups, and so on.

4. Recognize, exploit, create and/or manipulate the multiple venues in modern societies

In a world where democratic thought –expressed for instance in the separation of powers- is close to being the only publicly discourse on the functioning of government (and governance for that matter), and in a world where the internet allows networking on a scale previously unseen, there are many 'venues' where one can try and instigate policy change. 'Venue shopping' is the term coined to describe the strategic behaviour associated with the choice between the various possible places where one can try and effect change. When they are engaged in venue shopping, policy actors "*try to alter the roster of participants who are involved in the issue by seeking out the most favorable venue for the consideration of their issues. In this process, both the institutional structures within which policies are made and the individual strategies of policy entrepreneurs play important roles*" (Baumgartner and Jones, 1991: 1045). Within government, actors may decide to by-pass a decision process that offers unfavourable terms for representing their arguments and they may wait for the next opportunity. Alternatively, one can try and exploit venues for the representation of arguments that were not originally intended for that forum, thereby attempting to change the nature of the venue. The strategies that change agents can use range from the simple recognition that the existence of multiple venues is an advantage to them and can be used as a resource (Richardson, 2000), to the active use of multiple venues at various levels of government (Baumgartner and Jones, 2002; Pralle, 2003) and of those outside government (media, research, etc.), to the manipulation of venues (composition, decision making rules), and the creation of new venues.

5. Orchestrate and manage networks

There is a relation between coalition building and network orchestration. We distinguish them however on the basis of the notion that any coalition will be confronted with a much broader set of actors engaged in a certain policy domain, which we call networks. Referring to the introduction, we have demonstrated how some see networks as spontaneous, self-organizing entities. If one applies a state-centrist view, this is correct, because networks will exist without state intervention – although the state can actively

alter the existence and operation of networks (e.g. Putnam, 1993). However, adopting a less state-centered view, one quickly sees that networks are far from self-organizing and spontaneous exercises. In fact, many efforts go into creating and maintaining a network. Policy networks differ in nature; they can be relatively closely knit and rather well aligned in terms of collective views and actions (policy communities), but they can also be relatively ad hoc and short lived experiences (issue networks) (Rhodes and Marsh, 1990). Fundamental policy change, transitions, are likely to require the alteration, manipulation, breaking open, or breaking up of policy communities that have crystallized around a policy domain. Policy scientists have focused much attention on the development of network typologies and strategies for network orchestration. According to policy scientists, strategies of network orchestration are essentially either of two types (Kickert, Klijn and Koppenjan, 1997; Meier and O'Toole, 2001; Klijn, 1996: 77, 2005). Those wanting to orchestrate network can focus on managing the interactions within the current network settings, or they can focus on creating and changing the current network setting. In Klijn's view (2005), strategies should cover four aspects crucial for comprehensive and successful network management: activation of actors and resources, developing and applying goal achieving strategies, strategically using organizational arrangements and guidance of interaction. The table below provides an overview of management strategies:

	Activation of actors and resources	Goal achieving Strategies	Organizational arrangements	Interaction guiding
Management of interactions	Selective activation, resource mobilizing, stabilization, deactivation of actors and resources, initiating new series of interaction, coalition building	Searching for goal congruency, creating variation in solutions, influencing (and explicating) perceptions, managing and collecting information and research	Creating new ad hoc organizational arrangements (boards, project organizations, etc.)	Mediation, brokerage, appointing of process manager, removing obstacles to cooperation, creating incentives for cooperation
Management of network	Network activation, changing composition of networks, changing position of actors	Reframing of perceptions, changing decision rules in networks, changing information flow permanently	Creating permanent organizational constructions	Changing or setting rules for conflict regulation, for information flow, changing pay-off rules or professional codes

Table 1: Overview of network management strategies. Based on Klijn, 2005.

5. Conclusions

This paper was intended to explore the concept of policy change and stability from a policy science perspective. The paper is intended as the first version of the introductory chapter of a book on transitions in water management that we intend to edit. The objectives of this book are, on the one hand, to further the scientific understanding of policy change and stability, and on the other to give practical recommendations for those seeking change in water policy. We kindly invite comments to this paper so as to help us improve our interpretation, and to gather a complete overview of what the policy sciences may offer this regard. We also invite comments from other related disciplines, especially those studying transitions and transitions management, a field that we will try and relate this paper to in a later version.

In concluding we have the following observations. The policy sciences clearly offer a rich variety of conceptualizations of policy stability and change, and of the role of agents in bringing about change. Whilst some of the theories we have discussed here essentially focus only on policy change or stability, we have come across several theories that address both aspects in an interrelated, though obviously different way. To start with, we have found several typologies of the degree to which policies change. The sophistication of such typologies differs, but they essentially make a distinction between relatively shallow (sometimes called instrumental) and deeper levels of policy change (often called paradigmatic). Here, we are interested in deeper levels of policy change, which we will equate with transitions. How to distinguish transitions from shallow levels of change can be topic of debate, but there are obvious examples, for instance the introduction of integrated water resources management and adaptive management. We have argued that such transitions should become visible either in the substance of policy (e.g. in policy documents), in the applied procedures (for instance in allowing greater levels of public participation), and in the organizational set up of water management (new organizations such as collaborative management organizations). The more fundamental the changes in these respects, the more they resemble what we would call a transition. In a similar vein,

the greater the level of policy stability, the lesser the likelihood that we speak of a transition.

In our book, we will zoom in on the role of individuals who work to achieve transitions or seek to block it at the level of the nation state. Our discussion of theories from the policy sciences suggest that transitions are related to the emergence of new ideas which challenge the existing paradigm. Such ideas must be carried by individuals or groups of individuals that must prepare them until they are ripe for consideration. They must then find a 'window' to launch them in the public sphere, or look for the appropriate venues to vent their ideas and undermine the substance, procedures, and organizations that work from the 'old' paradigm. This requires the skills and strategies of 'policy entrepeneurs' that we will want to explore further in our book.

Obviously, the entrepreneurs we are interested in do not work in a void. We draw attention to the institutional arrangements in water management, adjacent policy fields and more broadly the government in a particular country. For instance, it has been observed that in countries with an elitist or corporatist approach to policy making, the likelihood of radical policy change in much smaller than in countries with open government systems because the 'opportunity structure' for actors seeking change is better. But does this always hold true, even if the relatively open government holds many checks and balances as it does in the US, and what of the notion that countries with a corporatist approach are capable of pragmatic radicalism? Finally, we intend to include several countries in our book, where the government is less democratic.

Regardless the wider institutional context, we propose that entrepreneurs may employ a set of strategies, or a combination thereof, which is closely connected to the way policy change is achieved according to the policy sciences. The actors seeking change can work on the development of new ideas, the selling of their ideas, the creation or use of windows of opportunity, the selection of venues, and orchestrate or manage networks to achieve transitions. We do not yet know about the order and the combination of strategies, neither do we know about the types of agents actually using these strategies.

Therefore, empirical analyses of various cases of water transitions needed. With our paper we hope to spark exactly such empirical work.

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