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Sustainable development and the Governance of Long-term Decisions

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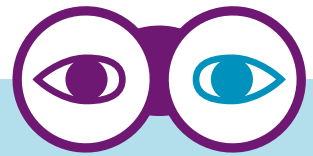
EEAC Working Group Governance

Louis Meuleman and Roeland J. in 't Veld

PRELIMINARY STUDY



Sustainable development and the Governance of Long-term Decisions



Colophon

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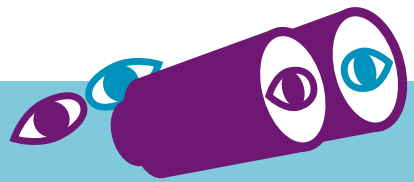
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EEAC Working Group Governance
RMNO



Louis Meuleman and Roeland J. in 't Veld

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October, 2009



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Summary

Topic

We tend to neglect long term futures. Young people for instance do not worry about their future pensions. Humans seem to be “hard wired” to ignoring long term threats but are very sensitive to immediate dangers. On the political level, the realisation of long term concepts like sustainable development requires an adequate political and societal decision making system.

This study analyses the essential aspects of the approaches that are necessary in order to tackle the challenges of long-term decision making, in particular but not solely in the context of sustainable development, taking a broad ‘governance’ perspective.¹ In other words: we will discuss **how** long-term societal problems should be dealt with, and not **what** should be done. The central question of this study is: “What can be learned from ‘good practices’ and ‘worst cases’ about the conditions under which governments and other societal actors may take wise decisions with a long-term perspective?” The aim is to support government decision makers and societal stakeholders on regional, national and EU levels who are involved in long-term policy making.

The problems of long-term decision making: a first glance.

Politicians develop visions, describing desirable futures. A vision may mobilise voters to support the designer of the vision. However whereas developing political *visions* about the future can be attractive for politicians, *specific* political *decision making* about the long term, particularly where costs are imposed early but the benefits are distant and possibly obscure, is neither easy nor popular. The results of such decisions are usually harvested by future politicians but the costs (capacity, money) and other sacrifices are placed on those seeking re-election. This is only one of many reasons why long-term decisions tend to be postponed or not taken, even if considerable evidence exists that taking measures *now* prevents recognisably enormous costs in the future. Reports like that from the European Environment Agency “Late lessons from Early Warnings: the precautionary principle 1896-2000”² present powerful examples - the asbestos case, for example- of the dramatic impact of postponed decisions and non-action in the case of environmental policy making.

¹ We will use the term *governance* in the meaning of the totality of interactions of government, other public bodies, private sector and civil society, aiming at solving societal problems or creating societal opportunities. This broad definition of governance is not confined to one specific style of governing and concerns the impacts of, and interactions between institutions, instruments, processes and actors.

² EEA (2001).

In this report we concentrate on problems with long-term decision making in each of the four dimensions of governance: Institutions, instruments, processes and actors. It should be noted, however, that our focus on decision making about the future does not imply that we believe that future problems will always be solved by (rational) decisions of governments. The future is quite unpredictable and uncertain, and apart from this, governments are not the only actors who take decisions with long-term impacts.

The tasks, remits and structures of governmental **institutions** are solidifications and reflections of the past. Institutions are formed and consolidated on the basis of knowledge, gained by lessons from decisions, actions and consequences which manifested in the past. Consequently, institutions usually lack the potential to deal with unforeseen new problems or opportunities. Institutional change is usually slow and incremental. This may also be an advantage: in an ever-changing, dynamic society we need robust structures which can serve as backbones of more dynamic institutions and processes. Slow governmental change accounts for values which are widely appreciated, like accountability and legitimacy.

Governance **instruments** reflect the ‘policy theories’ which dominated when the policies were created. These policy theories contain implicit and/or explicit beliefs, such as a focus on centralised or decentralised government. In addition, decision (support) instruments may also contain concealed normative assumptions.

The ‘public participation paradox’ influences the decision making **processes**. Participation by private sector and civil society creates more support for a decision, but may because of this also result in less daring policies, as the implications of long-term decisions usually conflict with the political *actors’* 4-5 year life-cycle. Besides this paradox, the decision making process of course is influenced by the degree of uncertainty. Uncertainty about the processes and outcomes is a well-known argument for governments to postpone decisions. What follows is more research and gaining knowledge, either in an attempt to reduce the uncertainty and complexity of the problem, or in order to ‘gain time’. However, more research often leads to more questions than there were before.³

The **actor** perspective is essential to look at the actors involved, their roles, and action strategies towards long-term decision-making. Some of the conditions and trade-offs might be more important for one group of actors than for others. The main actors involved in long-term decision-making are governmental actors, business community / private sector, civil society, knowledge and research institutions, the media and intermediary organisations. For a single political actor an attempt to solve a ‘wicked’ problem is often not

³ This is one of the five reasons Lindblom and Cohen gave for the failure of authoritativeness of (social) science research, in their seminal work “Usable Knowledge” (1979).

attractive, because there will be no simple solutions to satisfy the voters. Non-action or postponing the decision may be the consequence. Sometimes complex problems are simply divided into a range of smaller, more 'solvable' parts. However, simplifying complex problems may result in a sustained stalemate, as can for instance be observed in the discussion on the future of Schiphol Airport in the Netherlands.

Besides the four dimensions of the governance system (institutions, instruments, processes and actors) two other themes are important determinants of success and failure of long-term decision making. The first is the use of **knowledge**. Different views on governance can result in a dispute on the roles and types of knowledge to be believed necessary for wise decisions. The second is the role of (national, regional) **cultures**. The success of a governance approach in a specific situation depends also on the culture and history of a nation or region. Knowledge for sustainable development does not have a common language or cultural currency. The phrase and its purpose are used by all manner of decision takers in ways that are shaped by their institutional prisons, and their restricted breadth of experience and vision. If there is no shared understanding, there can be no shared solutions.

Recommendations

Our analysis has produced the following recommendations regarding the conditions under which long-term policy making may become more successful than it often is.

Types of long-term problems

When we look at the character of long-term decisions, two types must be distinguished. The first category concerns cases with a relatively long period between the intervention and the intended effects: a **long lead time**. If a desired impact is scheduled for 2040 and the lead time is 30 years, then a decision should be made before 2010. If, on the contrary, the lead time is 5 years, it may be wise to postpone a decision and focus for the time being on preventing developments which would make such a decision impossible or useless in the future. A typical problem which this category faces is interference of long-term and short-term objectives during policy implementation. In addition, changing external circumstances may decrease the efficacy of the decisions. This leads to another requirement: decisions with a long lead time must be to a certain extent adaptive: they require a built-in resilience. Emerging informal networks influencing the policy agenda may help increasing the resilience. Finally, redundancy is an important concept: It may, for example, be wise to reserve land for possible future use, even if it is uncertain of this development will take place.

Recommendation 1: Before decisions are made, the lead time(s) of the measures under consideration should be analysed thoroughly, and any decisions should have a sufficient degree of resilience.

The second category of long-term decisions concerns cases in which a **continuous series of interventions** during a long period is necessary to cause desired effects. The lead time of each intervention may be short (for example the introduction of some legislation), but the lead time of the total series of actions is long. Perseverance, consistency and continuity combined with reflexivity are important conditions in such cases.

Recommendation 2: When a continuous series of interventions is necessary in order to reach a desired result in the long term, it is crucial that perseverance, consistency, continuity and reflexivity are secured. Path dependency needs to be constantly recalibrated.

Both types of long-term decision making have in common that the perspective needed to assess the impacts is long-term, although the impacts may be distributed unevenly across time.

Political principle

Policy making is per definition normative and there are no scientific algorithms for long-term decision making. One could say that principles are the politician's algorithms. A wise and broad principle for long-term decision making refers to Kant's categorical imperative and to the precautionary principle:

Recommendation 3: The political principle for long-term decision making should be: "We have no right to make decisions which would, according to our present knowledge and values, impose on future generations such costs and risks as we would not be willing to assume by ourselves."

Knowledge for long-term decision-making

The methodology of gathering and interpreting knowledge about the future must reflect the complexity and uncertainty of the future. Generally speaking, it is recommended that scientific and practical knowledge are combined (transdisciplinary research). Such research designs require participation of actors outside the realms of science and politics, and ensure that a rich set of visions, signals and expectations about possible futures develops.

The political domain should consider the degree of resilience in long-term policy. The more the future is uncertain, the more important resilience is as a building block. In addition, foresight methods like scenario techniques and horizon scanning can be very useful for improving the robustness and the resilience of long-term decisions.

Recommendation 4: Design future-oriented studies in a transdisciplinary, participative way, and make use of foresight methods like scenario techniques and horizon scanning for improving the robustness and resilience of long-term policies.

The next recommendation relates to design requirements of future research. Participation and the inclusion of e.g. citizens' science is not enough; in addition, for example also the roles of principals and of researchers should be clearly defined. The cooperative production of knowledge is a vital requirement.

Recommendation 5: Scientific future-oriented studies have to meet certain knowledge requirements and process requirements, which are different than the requirements for 'normal research' and for 'future-oriented research'.

Long-term orientation of society

Cultures and traditions of public and political actors may induce 'default' results of trade-offs concerning long-term decisions. Improvement may be sought by 'stretching' such results or shifting the results towards the other pole of the trade-off, taking implementation of the decision in the territory in consideration. It is important that all types of actors who have stakes in long-term decision making on sustainability issues reflect on their specific perspectives and action strategies, regarding trade-offs which have to be made. Long-term decision making for sustainable development is not only a responsibility of governments. However, governments have a special responsibility for the organisation of the societal discourse regarding the future, and should stimulate consensus on at least the agenda (which trade-offs are to be faced?) for long-term decision making. Because many actors are involved in long-term decision making, good governance of long-term decision making requires clarity about the roles of states, business, civil society, knowledge institutions and intermediary organisations such as advisory councils.

Governance actors play an important role in long-term sustainable development policies, but they often have opposite interests. It is imperative for long-term decision making to invest in multi-level governance: wise cooperation between local, regional, national and supranational levels of decision-making. One of the key problems is that future problems are not popular with politicians: they are not 'hot' in media and therefore do not bring new voters for the political party. However, the time orientation of politicians is a reflection of the time orientation of citizens. If citizens are myopic, why shouldn't politicians be?

Recommendation 6: Invest in increasing the long-term values of citizens: this may make long-term decision-making politically more feasible.

‘Best practices’ or ‘What works where and why?’

The governance of long-term decisions should not be restricted to policies with a concrete long-term objective: many short term decisions, decisions to postpone policies or even a decision to not act can have important long-term impacts. Knowledge production for long-term policy making requires embedding different types of knowledge (mono-, multi- and interdisciplinary scientific knowledge, and transdisciplinary knowledge) in the policy process with at the same time a well-defined separation of the roles of political and scientific arenas. Decisions must be implementable in the specific socio-politico-administrative culture of the territory (e.g. a country) for which the decisions are meant. Such national cultures and traditions influence to an important extent what works and what does not work. Therefore it is risky to copy ‘best practices’ from one nation to another. Some principles are recommendable for all countries, but an example from another country can not be taken as concrete recipe. Learning from each other does not imply that the same approach will work elsewhere.

To conclude: there are no solutions in a ‘one-size-fits-all’ manner for solving the problems linked with the governance of long-term decisions. Every case is different by time, country, political reality and many other factors (culture and traditions, level of uncertainty, degree of urgency, available knowledge, accessibility of information etc.). In order to improve the quality of long-term decision-making, specific conditions are required:

Recommendation 7: Always translate ‘best practices’ into a spatial and cultural form which works in a specific situation, tradition and societal expectation. The crucial question is: What works where and why?

Another process aspect of especially sustainable development is that the three main dimensions of sustainable development (people, planet, profit or prosperity) together form a triple dilemma or trilemma. Trilemmas often result in neglect of one of the three dimensions. In sustainable development this typically is the social dimension (people), because trade-offs between environmental and economical interests tend to attract more (political) attention.

Governance approach

The governance approach ideally should be a situational mixture of network governance (laying the basis of consent and of long-term support), market governance (stimulating entrepreneurship and self-regulatory responsibility of all actors) and hierarchical governance (creating level playing fields, ensuring implementation of decisions, and securing a legal framework with a required level of firmness).

For a good governance of long-term decision making it might be argued that in such a governance mixture an interactive (network) approach should play

a central role, because, as we already concluded in 2003⁴, many long-term problems are complex, ‘wicked’ problems which cannot be solved by one actor, even if this one actor is government. However, complexity may provide an excuse for doing nothing. We should acknowledge that not all problems are complex. On the other hand, broadening the width and length of assessing an issue can help creating more interesting win-win solutions.

A typical weakness of the network approach is however, that it may result in ‘never-ending talks’. The more an issue is considered urgent, or, at the other end of the spectrum, rather a routine issue, the more important the other governance styles (hierarchical and market governance, respectively) may become. One of the most difficult challenges seems to be able to refrain from the dominating governance ‘fashion’. None of the three basic styles is a panacea, and focusing only on ‘new modes of governance’ (like market mechanisms and network management) neglects that experience that the ‘old’ hierarchical governance approach (e.g. the use of legislation) sometimes is even more accepted, effective and efficient than the newer approaches.

Recommendation 8: The governance for sustainable long-term decision making requires a situational combination of network, market and hierarchical mechanisms, instruments and measures, in which in most cases the degree of complexity asks for some dominance of network governance.

Institutions: Institutional resilience

As mentioned in the introduction, institutions can be the backbone of the long-term decision. However, institutions have to cope with unforeseen problems or opportunities, for example, regarding the tasks of governmental actors and the organisation of knowledge production. Therefore, long-term decision making requires a certain *institutional* flexibility to create the resilience for handling and anticipating unforeseen problems or opportunities, for example, regarding the tasks of governmental actors and the organisation of knowledge production. Government institutions should develop the flexibility for putting future problems on the agenda and work on them with the same intensity and professionalism as they use for current problems. This requires, for example, striving for enough variation in staff orientation: a good balance between those with a long-term and those with a more practical, short-term orientation.

Recommendation 9: Ensure that institutions involved in long-term decision making are able to act in a resilient way; this implies investing in flexibility and in alertness (creating ‘watchdog capacity’), without making the institutions unstable and unreliable.

4 EEAC WG Governance Statement on European Governance.

Instruments: Assumptions behind decision support methods

Long-term decision making requires the availability of sophisticated decision support methods. When ethical and political assumptions are used in ex-ante assessment methods, it is important that such assumptions are chosen in the political domain, not in the scientific or technical arena. The main objective of such methods, namely to create a debate in which the ‘right’ (which may mean ‘inconvenient’) questions are asked, may be reached with anything between detailed scenarios and relatively simple questionnaires based on a general horizon scan. The assumptions behind support methods should be transparent for the actors using these methods, and for actors confronted with these methods. Assumptions may limit the use of instruments. For example, cost benefit analysis is not applicable for very large-scale problems like global climate change, because decisions on such a scale would influence a basic parameter, the future state of the economy and national income. The logic of assumptions generates certain results. Subjective (political, ethical) assumptions used in decision support models belong to the political arena instead of the technical arena in which they often are chosen.

Independent bodies such as the IPCC and advisory councils fulfil important roles in facilitating and organising socio-political-scientific discussions. The independency of such institutions which were also established in, for example, the financial world (European Central Bank) ensures that they are able to take a more long-term perspective and thus create a countervailing power against short-term political thinking.

Recommendation 10: Be transparent and realistic about the limitations of decision support systems, and ensure that ethical and political assumptions in decision support systems are chosen in the political arena, and use where appropriate independent bodies.

Processes: Dealing with dilemma's

Processes of long-term decision making involve solving dilemma's, for example the dilemma between long and short-term interests. Dilemma-management is producing trade-offs that enhance the awareness of opportunities, that balance process quality (incl. stakeholder involvement) and speed, that have an open eye to the eventual necessity of systemic change (transitions), that balance make-ability and contingency factors, and which makes use of the strong points (regarding long-term decision making) of (national) cultures and traditions and strives for mitigating cultural weak points. Policy-making always involves trade-offs between short-term and long-term objectives. However, more often these trade-offs are implicit rather than made explicit. Therefore, an effective incorporation of long-term concerns into political decision making above all involves making these trade-offs explicit and identifying the factors that favour either short-term or long-term concerns.

Recommendation 11: Make trade-offs between short-term and long-term objectives transparent and identify, through shared understanding, the factors that favour either side.

Problems that are too big or too inconvenient tend to be kept away from the political agenda. They are taboos. The asbestos case was an example. Problems which (may) be linked to societal lifestyles, like currently the increase of diabetes, are often politically taboo. The existence of independent bodies (such as advisory councils) which signal such problems can prevent large societal costs. However, politics is no exception to the rule that messengers of bad news tend to be killed, or at least attacked; this is one of the main reasons why advisory councils, in many EU countries, almost permanently have to struggle for their survival.

When such an issue with possibly long-term impacts finally has arrived on the political agenda, another problem arises. Like all political issues, long-term problems have a political lifecycle which predicts that they will disappear again from the political limelight – and maybe long before all measures have been implemented. This risk seems highest for decisions with a long lead time. The question is how such issues can be kept on the political agenda. Awareness of policy windows and the use of concepts like trajectory management and transition management may be required.

Recommendation 12: Long-term decision making requires policy mechanisms that prolong the policy lifecycle of policy issues.

Actors: Who values, and who represents the future?

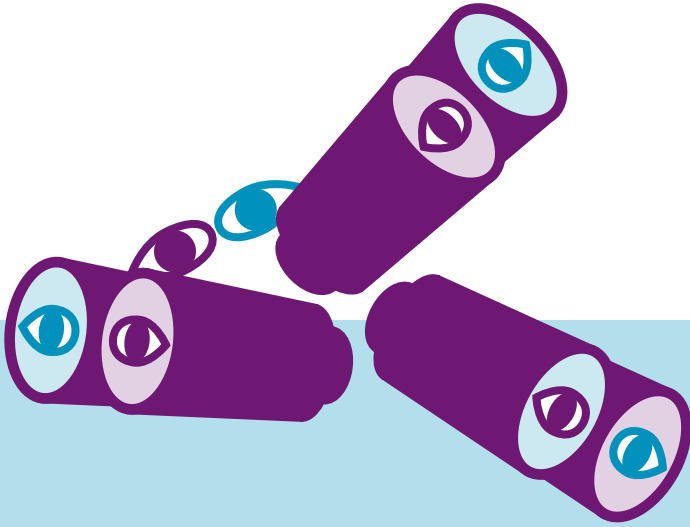
One of the problems of long-term policy-making is that, if the lead time is long, the people who will profit or suffer from the decisions, may not yet be born. This is why the Brundtland definition (1987) of sustainable development explicitly addresses the responsibility of current generations for later generations. However, some stakeholder groups will focus more on the interests of future people than others. Is the first category more representative, or not? Another problem is that the interest conflicts are doubled: they arise not only between actors, but also for each actor between short and long term interests.

These two problems should be tackled when the question of participation or co-decision is dealt with. A general recommendation with regard to the process design is the following.

Recommendation 13: During long-term decisions making processes, mapping the long- and short time interests of all stakeholders creates more complexity but also more opportunities for package deals; in addition, it may be useful to explicitly ‘emulate’ future (not-yet-born or -articulate) stakeholders’ interests.

Key problems and issues regarding long-term decision making				
	... - ... Sensing	Agenda-setting	Decision-making	Execution
Governance Institutions	No independent instit. like advisory councils, horizon scanning units	No early warnings	Stability vs. flexibility	Institutional resilience
	Observatory for weak signals? Data unavailable/not transparent			Watchdog capacity
Governance Instruments	Scenario techniques Horizon scanning	Instruments reflecting 'old' policy theories?	Decision support methods	Continuity
	Participative instruments	Values or price?	Adaptation Precautionary Principle Policy resilience Reversibility	Monitoring methods and procedures
Governance Processes			Optimal governance style combinations	
	Disagreement on data & values Problem complexity	More participation, less daring policies Sense of urgency Process requirements preventing e.g. never-ending talks, bad representativeness, stereotypes,	Windows of opportunity Opportunism Prolonging policy lifecycle	
Actors	Short term vision Mindfulness? Investigative/Independent Journalism	Short term bias private sector Short/long term trade-offs Complexifying vs simplifying	Short political lifecycle	Organisation degree civil society
	Stories; plurality of signals	Who represents future generations? Balance leadership with co-decision and participation		
Knowledge	Orientation/Research/Design	Total verification	Usable knowledge	Knowledge integration/assessment
	Independency	Disputed knowledge & normative assumptions		
Cultures		Short-term societal orientation, myopic citizens		
		'What works where & why?' versus 'best practices'		

In the following scheme most of the problems and issues around long-term decision making which are addressed in this study, have been integrated. The schema uses the policy lifecycle metaphor, which shows a neat division of phases. In reality, however, the order of phases can be different and sometimes a political decision is taken before relevant data have been collected and interpreted. But for long-term decision making the more typical case is when after sensing and agenda setting activities, no decision is made.



1 Introduction

1.1 Central question

On the political level the realisation of long term concepts like sustainable development requires an adequate political and societal agenda (*what to do?*) and a well-functioning governance system (*‘how to act?’*)

This report analyses the governance of long-term decision making, in particular in the context of sustainable development, taking a broad ‘governance’ perspective. We will use the term governance in the meaning of the totality of interactions of government, other public bodies, private sector and civil society, aiming at solving societal problems or creating societal opportunities. This broad definition of governance is not confined to one style of governing¹ and concerns the design and impacts of, and the interactions between institutions, instruments, processes and actors (figure 1).

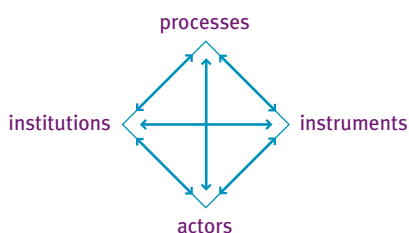


Figure 1 The governance system

Our central question is: “What can be learned from ‘good practices’ and ‘worst cases’ about the conditions under which governments and other societal actors may take wise decisions with a long-term perspective? How is empirical evidence to be generalised in explanatory statements?”

We develop an analytical framework and use this in order to look at a number of ‘best’ and ‘worst’ cases of long-term decision making, in order to gain insight in the conditions of successful long-term decision making. The result is not a ‘one-best-way’ type of solution to the very complex problems related to long-term decision-making, but a series of recommendations which can assist and inspire not only politicians and policy makers, but hopefully also other actors, including intermediary organisations.

¹ Unlike other definitions, such as ‘governance is good governance’ or ‘governance is network governance’.

1.2 Key problems of long-term decision making

Firstly, examples are given that illustrate how huge the societal impact of a short term bias in political decision making can be. Secondly we will argue that the reasons for such myopic behaviour may lie in failures of each of the aspects of the governance system: institutions, instruments, processes and the roles of actors.

Impact of “early warnings, late action”

Reports like EEA’s “Late lessons from Early Warnings: the precautionary principle 1896-2000” present powerful examples of the dramatic impact of postponed decisions and non-action in the case of environmental policy making. Take for example PCBs (polychlorinated biphenyl), the first obvious example of a substance that was not intentionally spread into the environment, but nevertheless became widespread and bio-accumulated to high concentrations. PCBs were used for a range of different purposes in electric equipment, heat exchangers, PVC plastics, paints, adhesives, lubricants, carbonless copy paper, etc. This example shows that non-action by regulators had costly and unforeseen consequences for human health and the environment. Early warnings, and even “loud and late” warnings of the emerging problems, were ignored. Mass production of PCBs for commercial use started in 1929. By the late 1930s, evidence already existed, albeit at a low level of proof, that PCBs could poison people. This information was not widely circulated among policy-makers or other stakeholders until 30 years later when there was a higher level of proof that PCBs could cause serious harm to human health and could accumulate in the food chain of seals in the Baltic. It was until the 1970s, however, that the first regulatory actions were taken by Sweden to ban these chemicals. The EU directive to eliminate PCBs was not implemented until 1996, with a total phase out planned by 2010.²

The second example is the case of asbestos. The estimated economic cost to Europe of the predicted “pipeline” asbestos induced deaths up to 2035 (since 2000), which, using a conservative road transport estimate of the value of a statistic life of 1 million Euros per life, will be some 400 billion Euros (in costs to society-EU concerns only). The Dutch national government made an estimate of the potential benefits of an earlier ban on asbestos in 1965 (compared to the actual ban in 1993) which would have saved some 34,000 victims (premature deaths) and around 19 billion Euros in building clean up and compensation costs. This estimate can be compared to the estimated long-term costs of asbestos to Dutch society which they calculated as 56,000 victims and 31 billion Euros over the period 1969-2030.³ The considerable time between the discovery of the effects of asbestos and taking adequate policy measures caused not only societal damage, but was also quite costly.

² Gee (2008): Presentation to the RMNO SCBA Conference in the Hague. 17.01.2008.

³ EEA (2001: 58): Late lessons from Early Warnings: the precautionary principle 1896-2000. Environmental issue report No 22.

These examples from the field of environmental policy show that the consequences of inappropriate action, late action or non-action are sometimes huge and in any case concern a broad spectrum: human casualties and suffering, serious damage to people's health and animal welfare, hazard of species' extinction, environmental damage and economic costs. They could be supplemented with examples of social and economic policy making. The examples have in common that 'early warnings' were not listened to, because postponement or the decision to do nothing was considered to be politically more opportune. Problems which are too big, too inconvenient, and for which no solution is emerging, tend even not to reach the policy agenda.

Failures of the governance system

The 2006 EU SD Strategy encouraged Member States to develop long-term oriented SD strategies. Increasing political and societal pressure and recent policy failures like the widely-discussed SD impacts of too hastily set targets for bio fuels have increased the need for practicable governance approaches for long-term decision-making. The problem is that such approaches are not, or only to a certain extent, available. In fact, long-term decision making is problematic in all four dimensions of the governance system.

The remits of government **institutions** like ministries are usually determined by societal challenges in the past. They often lack the organisational capacity to deal adequately with new and future problems. For example, there are no (national) policy-making bodies with the primary task to deal with climate change, poverty or demographic changes. Another failure is the fact that available data on for example environmental pollution are often not aggregated or otherwise coupled. Since '9/11', in many countries much information is gathered about the behaviour of citizens, which is not accessible, at least not in an integrated way, for environmental policy making. This may be one of the reasons why the particulate matter problem in Germany and the Netherlands was such a surprise. If new technologies, such as the analysis of exhaust gases via digital pictures had been applied, and other relevant data had been connected, the damage could have been smaller.

Governance **instruments** reflect the 'policy theories'⁴ of the moment at which they were established. For example, environmental policy instruments made in the 1970s and 1980 were mainly legislative instruments, but since the Millennium the general belief of European politicians seems to be that the utilisation of market mechanisms and the application of network concepts (combined in the EU 'Open Method of Coordination', for example) are better approaches. Apart from the fact that considering one or two of the three ideal-typical governance styles as a panacea neglects the complexity of societal problems, such approaches also deny policy makers the use of a rich 'tool-box'. Furthermore, long-term policy making requires ex ante assessment methods. The currently available methods, such as cost benefit analysis, are

4 A policy theory is the totality of assumptions of an actor regarding a policy (field/issue).

often disputed: many of them contain concealed normative assumptions.⁵ Politicians often do not take the time to make those assumptions explicit and judge upon them timely.

Although the growing attention for the quality of the **processes** of governance allows for more future-oriented thinking⁶, this may make it increasingly difficult to develop and implement unpopular and firm decisions. The longer the impact of a decision, the more uncertainty is involved. This is an often-used argument for postponing decisions.⁷ In addition, the sheer complexity of the many ‘wicked’ problems on the SD agenda, and disputes about the roles of knowledge (what is ‘evidence-based’ policy?) add to the governance challenge.

Finally, problems also arise on the dimension of **actors** involved in policy making. Not only can future generations not be asked about their preferences, there are also quite different opinions on who should be involved when and why. There is a tendency to increase stakeholder participation as well as involving ‘the public’. This has brought about the paradox of: the more support, the less daring policies. In general, the agenda setting of long-term problems is difficult. Long-term decisions conflict with the usual 4-5 years political life cycle of a government: the potential successes are not harvested during the ruling period. Therefore, the interests of those who determine the political agenda may be rather short term than long-term oriented. Unsolved problems and seemingly unreachable results tend not to achieve the status of political priorities. In some cases however the civic society itself becomes long-term oriented. Then politicians have no choice but to follow that point of view and to adapt the long term problem as an immediate priority. In this manner it can be understood how the issue of climate change finally has become a global political top priority in 2007/2008.

Lessons learned?

The accumulated complexity of our societies and of the problems governments and other actors are dealing with has made the challenge of successful long-term decision making more important than it already was. The emergence of large scale problems like climate change, energy supply and the global distribution of chemicals in the environment may have raised the political attention for long-term issues. The 2006 EU SD Strategy encouraged Member States to develop long-term oriented SD strategies. A more concrete example of long-term policy-making on the EU level is the “20 20 by 2020” goal known also as “Europe’s climate change opportunity”. In March 2007 EU Member States agreed to set a target for mitigating climate change

5 Take for example the discussion on the height of discount rates (Stern Report, 2007; Social Cost Benefit Analysis for Environmental Policy-Making, RMNO 2008). High discount rates make many long-term investments seem unwise in a monetary sense.

6 A process approach is, compared to a project or linear approach, more suitable for dealing with uncertainties. The challenge is always to find a usable balance between these approaches.

7 Therefore, also the ‘governance of non-decision making’ will be discussed in this paper.

by reduction in carbon greenhouse gases (GHG / CO₂) and by increasing renewable energy. The Communication from the Commission of 23 January, 2008 promises a carbon dioxide emission reduction of at least 20% by 2020 (compared to 1990) and an increase of the share of renewable sources (solar and wind power and hydroelectricity) in the energy production by 20% by 2020. Moreover, the EU has an ambitious goal to set a target of 50% cuts in global emissions by 2050.

Why were these policies adopted? The EC believes that climate-friendly policies can be a good driving force for growth and jobs in Europe. This is probably not the only reason for adopting long-term policies. Wind and solar energy had become commercially viable because of new technologies and high oil prices. In addition, public pressure, media attention, the influential Stern Report, Al Gore's crusade against negligence of the consequences of climate change and last but not least the work of the IPPC, have contributed to a context in which long-term policies seem politically less risky than usually. In essence, civil society itself has become convinced that the climate problem should be tackled. It therefore seems that 'accidental' factors may have quite an impact on the feasibility of long-term-decision making. For the purpose of this report we should look 'behind' these contingent factors (without neglecting them) and make an attempt to answer the main question: what are the structural problems with long-term decision making?

1.3 An analytical framework for long-term decision making

Long-term problems have been defined as “public policy issues that are surrounded by considerable degrees of uncertainty, will persist for at least a generation if the causes operate unabated, the option of “solving” the issue in one to two legislative periods is either not possible or not politically feasible, and maximum political effort must (at least counterfactually) offer the chance to substantially ameliorate the welfare of all or most entities involved in a specific issue area”⁸.

Different actors typically have different time horizons. Politicians divide their time horizon in short-term (1-5 years), following the political cycle and democratic legitimacy of the current government; medium-term (5-10 years, or the next government); and long-term (more than 10 years, or a generation or more). The time horizons of politicians are partially dependent on the time horizons of citizens. Other actors have different time perspectives. Long-term business innovations usually imply 5 to 10 year time horizons, environmental and SD policies often have a 20 year or more time span. Researchers on climate change or geo-physicists can have time horizons ranging from 100 years to millions of years.⁹

⁸ Sprinz (2008): *Long-Term Policy Problems: Definition, Origin, and Responses*.

⁹ Goverde (2006: 31): *Klimaatverandering en 'politiek klimaat'*.

Long-term decisions

Long-term decisions are not characterised by the long-lasting character of the effects. Every real world intervention leads to an infinite series of effects, because of infinite causality. In a certain case the aims and values of decision makers determine what are the **relevant** direct and indirect effects of an intervention. Tensions between objectives and reality, and between values and status quo, often are described as problems and so become drivers for decision making. Decisions may be based on lessons from the past, but concern only the present and the future.

Long-term decisions relate to objectives concerning the future that must be reached by taking decisions today. Some of such decisions explicitly aim at achieving results at a certain point in the future, while others have objectives with an indefinite time horizon.¹⁰ From a politician's viewpoint, a fixed point in the future has the advantage that it may mobilize people to act, but the weakness of deadlines lies in their vulnerability: the distinction between success and failure then is sharp, which brings about a political risk.

When we look at the specific character of long-term decisions, two types must be distinguished (Figure 2).

	1A. LONG-TERM DECISIONS	1B. LONG-TERM DECISIONS	2. IMPLEMENTATION OF SHORT-TERM DECISIONS	3. POSTPONED DECISIONS	4. NON- ACTION
Objective	Future	Future	Now	Future	No
Action/ Costs	Now	Series of actions, starting now	Now	Future (postponing)	No
Main impact/ Benefits	Future after long lead-time	Now - Future	Short term - Future	Future	Now – Future

Figure 2 Typology of decisions with a future impact

The first category concerns cases with a relatively long period between the intervention and the intended effects: a long lead time. Already from a simple economic viewpoint it is clear that the benefits will have to be discounted again and again, while the costs of the intervention have to be made from now on. Climate change mitigation is an example of this category. A too high discount rate in these cases may lead to such a high cost-benefit ratio that the decision tends to be postponed or even turns into a non-decision. A typical complication which this category of problems has to face is the interference between long-term and short-term objectives during policy implementation.

¹⁰ The objective may be to have the Olympic games in the Netherlands in 2028 or to have the Olympic games in the Netherlands sometime in the future, for example.

Recommendation 1: Before decisions are made, the lead time(s) of the measures under consideration should be analysed thoroughly, and any decisions should have a sufficient degree of resilience.

The second category of long term decisions regards cases in which a continuous series of interventions during a long period is necessary to cause favourable effects. The lead time of each intervention may be short (for example the introduction of some legislation), but the lead time of the total series of actions is long. The drop-bucket metaphor is adequate here. Perseverance and consistency are important conditions in such cases. An example is the 2007 sustainable public procurement programme of the Dutch government. This programme is based on a steering philosophy which combines standards, competition (a score system) and long-term vision. The idea behind the latter is that presenting a ‘road map’ may attract producers and customers to voluntarily ‘walk’ on that road.

Recommendation 2: When a series of interventions is necessary in order to reach a desired result in the long term, it is crucial that perseverance, consistency, continuity and reflexivity are secured. Path dependency needs to be constantly recalibrated.

Both types have in common that the perspective needed to assess the impacts is long-term, although the impacts may be distributed unevenly across time.

Besides long-term decision making *pur sang* (1a and 1b in Figure 2), on which we focus in this report, other types of decisions may also have long-term effects:

- Short-term decisions: Some decisions are not aimed at the long-term future, but nevertheless may have important long-term consequences. Such decisions should be taken into account when discussing the governance of long-term decision making.
- Postponed decisions: This category implies that the result of reasoning on a long-term policy objective is to not take a decision now. Of course, also in this case consequences of such a decision may have a great influence on the future.
- Non-action: The last category concerns decisions to not deal politically with a problem. The reason may be that the issue is politically too risky, or that there are no solutions to the problem. Several of the retrospective cases presented in this study illustrate that no matter on which grounds non-action was decided, the future impact of such a decision can be substantial. Non-action may be politically difficult, when the pressure to act is high.

Besides considerations on lead time, other dimensions of long time decision making should also be taken into account: The impacts, actions and objec-

tives are influenced by uncertainty, irreversibility, adaptation, resilience, continuity (effects and conditions), precaution, interest constellations, costs of actions, and the framing of the (long-term) problem.

Long-time decisions may have **irreversible** or almost irreversible impacts, which are not considered when the actual decision is taken. In Chapter 4.5, the example is presented of the privatisation of US public transport systems in the 1930s, which led to closing them down and destroying the transport infrastructure. The same happened in the Caribbean island of Trinidad.

With regard to **uncertainty**, the question arises how much policy-makers should invest in policies to be implemented within an unknown future. Does the wisdom of the decision lie in increasing resilience? Anticipation presupposes that we know something about the future.

Scenarios which picture different possible futures and foresight methods like horizon scanning can be indispensable tools for increasing the potential resilience of long-term policies. There is a need to distinguish between **adaptation** and **resilience**, although there is an overlapping area between these two notions.

The concept of resilience addresses both the governance system under consideration and the policy content. How to develop and maintain sufficiently resilient long-term policies is still an important knowledge question. In addition, how to build resilient long-term strategies in the multi-level context of the European Union? Here we not only face the problem that what is resilient on the EU level may not be resilient on the local level and vice versa, but also the fact that national cultures influence the feasibility of governance approaches. Furthermore, what we know is that resilience requires '**mindfulness**'¹¹: a critical and reflexive attitude/awareness, both inside and outside organisations, in order to detect and select (weak) signals that may have a large impact.

The concept of **continuity** can prevent a type of behaviour based upon the fatalistic notion of 'après nous le déluge'. Continuity can make policy-makers and the public aware of irreversible consequences. By continuity of values we mean not the preservation of the same values in the future but the continuity in time: the demand for continuity necessitates putting things in relation to each other now.

A normative and therefore contested issue is what '**wise**' or '**good**' long-term decisions are. It can be argued that "short-sightedness in purely personal individual decision-making may be merely imprudent; in social decision-making it may also be unethical".¹² This ethical dimension can be formulated

¹¹ Weick and Sutcliffe (2001): *Managing the unexpected*.

¹² Lagerspetz (1999: 149-150): *Rationality and politics in long-term decisions*.

as follows: “Given our limited knowledge, an ‘equal treatment’ of future generations means only that we have no right to make decisions which would, according to our present knowledge and values, impose on them such costs and risks as we would not be willing to assume by ourselves. More detailed planning for the future is not possible.”¹³

Policy making is per definition normative and there are no scientific algorithms for long-term decision making. One could say that principles are the politician’s algorithms. A wise and broad principle for long-term decision making refers to Kant’s categorical imperative and to the precautionary principle:

Recommendation 3: The political principle for long-term decision making should be: “We have no right to make decisions which would, according to our present knowledge and values, impose on future generations such costs and risks as we would not be willing to assume by ourselves.”

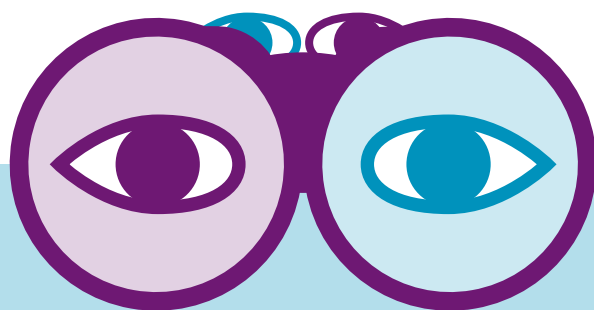
The above also implies that decisions are ‘wise’ from a certain viewpoint. In certain circumstances extensive forms of public participation are necessary, in order to use the ‘wisdom of crowds’, while in others expert knowledge may suffice¹⁴; this is the dilemma of collective versus individual wisdom.

The distinction between two categories of long term decisions is crucial in still another aspect. In the drop-bucket category a necessary condition for success is to produce consistency in the drop-wise interventions during a long period of time while the other category demands a once in a life time grand operation. So long term political stability is necessary in the first case while in the second a forceful momentary coalition suffices.

In this introductory chapter we have addressed some of the main problems of long-term decision making, presented an analytical framework and introduced key concepts like uncertainty, resilience and mindfulness. It also addresses both the deep incapacity for shared understanding over long term decision making, and the fundamental difficulty of obtaining a more sustainable framing and time scale for assessing future gains and dangers. The next chapter concentrates on what we (would like to) know about the future, and on how to execute and use future research.

¹³ Lagerspetz (1999: 157-158).

¹⁴ Surowiecki (2004): *The Wisdom of Crowds*.



2 Roles of knowledge

Policy making on environmental issues is, as is the case with all policy problems, usually a relatively fuzzy process in which many actors in the ‘policy arena’ are involved and influence each other. The production of knowledge to support policy making is also not a neutral process, but is value-laden and influenced by actors in ‘knowledge arenas’. Therefore, a strict separation between science (‘the world of measuring’) and the policy arena (‘the world of weighing’) is not possible.

Knowledge production for complex themes like sustainable development should begin with an open debate about the points of departure that form the basis of knowledge production. Such a debate should lead to a decision by the principal (a cabinet minister, for example), not by the knowledge producer. These are some of the main conclusions of the study ‘Willingly and Knowingly’ which the RMNO published in 2000. In this study knowledge is considered as *negotiated* knowledge. The assumptions are that knowledge is meaningful information. What is meaningful depends on one’s values, and values are often subject of discussion and negotiation.¹⁵ However, hard facts, symbolised by concrete numbers seem to be extremely attractive for politicians and the media, whereas such facts are often scarce or even absent in dealing with complex societal issues from a long-term viewpoint.

2.1 Building a joint knowledge base

When the decision is made to start a policy-making process with a certain set of goals, policymakers will start with collecting facts, figures and information from various sources. Together these will form the preliminary knowledge base. How to do this best depends on the type of policy issue: is it very urgent, or, on the other side of the spectrum, a rather routine issue, then in general there will not be many actors involved in collecting and interpreting the findings. However, for complex and ‘unstructured’ issues, in which many actors have different interests and information, a process of Joint Fact Finding (JFF) is advisable. One reason is that only all actors together can oversee the complexity of the issue. Another reason is that JFF is an approach that helps resolving disputes over the valuation of the collected knowledge. If this is not done in an early phase of policy making, it will return as a boomerang in a later phase, as the experience with e.g. the Dutch Betuwelijn railroad has shown.¹⁶

The main issue in such a process is not whether the produced knowledge is ‘true’, but if it is *useful* for solving the policy problem. Three types of knowledge questions can be differentiated: Phenomenal knowledge questions (What is happening? What can we see?), causal knowledge questions (Why

¹⁵ In ’t Veld (ed.)(2000: 127): *Willingly and Knowingly*.

¹⁶ In ’t Veld (ed.)(2000): *Willingly and Knowingly*.

is this happening? Why is it the way it is?) and actionable knowledge questions (What should be done? What are the possible actions?)¹⁷. Some actors tend to prefer one type of questions.¹⁸ This causes problems when deciding on the ‘usefulness’ of the gained/negotiated knowledge. NGO’s, such as environmental pressure groups, often focus on the first question type: what is happening? Research institutions tend to prefer the second type of question: why is this happening? Politicians seem to prefer the third question type: what actions have to be taken? Therefore, it appears that in (political) processes of gaining (negotiated) knowledge all types of questions have to be covered. Another reason to cover all types of questions is that parties may come up with new questions at an inconvenient moment, such as just before the final conclusion or decision is made, which can cause delay of the process.

2.2 The organisation of knowledge production

Although there seems to be a general interest of politicians in ‘evidence based’ policy making, there are different traditions in EU countries regarding the institutional conditions for ensuring the use of ‘best knowledge’ in such processes.

The first trade-off here is between knowledge production on arm’s length and independent knowledge production.

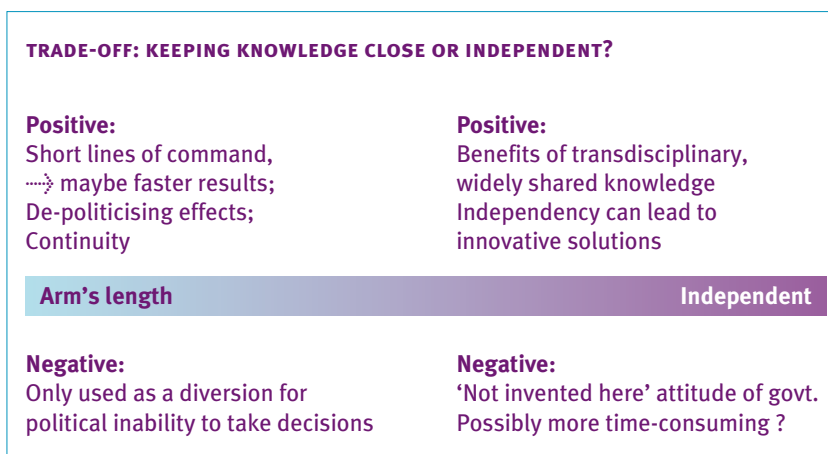


Figure 3 Trade-off: Knowledge production on arm’s length or independent?

On one end of the pole we find ministries which have their own research agencies, and assign research questions to them. The advantage of this system may be that the communication lines are short and that the agencies therefore produce timely answers to their questions. The disadvantage may

¹⁷ Eberhard, Kurt (1999: 15-18): *Einführung in die Erkenntnis- und Wissenschaftstheorie*.

¹⁸ Meuleman (2003: 71): *The Pegasus Principle*.

be that such agencies are only officially independent but in practice may tend to deliver mainly knowledge which fits in the predominant policy theory of the ministries. Moreover it is hard to maintain a high quality level in this type of research centres. The other end of the pole is a situation in which knowledge producers are completely independent. They are embedded in a system of research institutions, for example connected to universities, or they are privatised. The advantage may be independency – although the fact that they need projects in order to survive makes them to a certain extent dependent of the ministries. The disadvantage is that the linkages between policy makers and researchers are often weaker.

In both systems, intermediary organisations like advisory councils or other boundary workers have been successful to ‘bridge the gap’ between science and policy. This raises the question whether countries that have no tradition of advisory councils, like Italy, are in a worse position than other countries to produce knowledge based policies.

It is not clear to which extent the *institutional* dimension of knowledge production influences the degree to which ‘early warnings’ are included in policy making. In the Netherlands the Scientific Council for Government Policies (WRR) has for decades produced future studies of high quality but the degree of utilisation by policy makers has not been impressive. Horizon scans that collect series of future threats and opportunities until now also lack visible impact, although in the UK there is an institutional responsibility for Horizon Scans with the Chief Science Officer. In the Netherlands, the first Horizon Scan of 2007 was developed by a type of knowledge advisory councils (‘sector councils’) which with the abolishment of RMNO end of 2009 has disappeared.

Another role of advisory councils or commissions is to bring different types of knowledge together into advisory reports. The extensive use of this mechanism by governments can have a positive impact (high quality, independent knowledge) or a negative impact (postponing decisions).

Multi-, inter- en transdisciplinary research, thus using knowledge from many academic fields, as well as creating and using knowledge that is generated by non-scientific actors, are generally considered essential for long-term decision-making, both in the production of shared visions, and in the monitoring and developing of instruments for long-term decision-making. Inter- and transdisciplinary knowledge are especially vital for ‘unstructured problems’, such as sustainable development, which are highly complex constellations of problems with a high degree of uncertainty and high complexity, accompanied by dissent on values and goals.

In a transition process science and daily practice need to be integrated, in order to generate ‘socially solid knowledge’. In this kind of situation the most important goal might be to develop a collective problem definition; thus the *process* of achieving transdisciplinary knowledge might be just as important

CASE 1: German Enquete-Commissions on Climate Change

The German Federal Parliament has since 1969 the possibility to install an Enquete Commission. Until 2003 22 Commissions have been working on different future oriented issues, such as climate change, phase-out of nuclear energy or energy systems until 2050. The work of the Enquete Commission can be described as a politically monitored process of collecting scientific and non-scientific evidence. The depth and extent of the evidence collected is broad and deep. Its volume comprises in some cases several thousand pages as a result of several years of intense work, many commissioned studies and countless sessions. The work of the Enquete-Commission tries to seek consensus, however frequently contains documented minority votes on key recommendations.

In 1987 the Federal Parliament decided to install an Enquete-Commission on the protection of the earth's atmosphere. This Commission collected the available knowledge on the risks of Climate Change and the threats of the Ozone layer, analysed the technical and economic potential to reduce greenhouse gases and on that basis recommended a national CO₂-reduction target of - 30% by 2005. In 1990 the Federal Government adopted as a consequence a reduction goal of 25% by 2005. The work of the Enquete Commission laid the ground for a cross-party consensus on a target led, ambitious climate policy and the continuous international diplomatic leadership of the Federal Government. Furthermore it laid the ground for a national policy trajectory, which by this decade reaps the fruits (e.g. as regards renewables). The work of this early Enquete-Commission has been continued by a number of subsequent Commissions working on similar issues. Nevertheless Climate Change policy in Germany cannot be described as a full fledged success story. Progress in the early 90s can be at least partly explained by the profits due to reunification - since 1998 - despite of impressive policy measures - little progress can be reported, simply because most were neutralised by the effects of a few lignite power stations delivering to the grid early this decade.

as the actual *content*. It can be argued that transdisciplinary knowledge gathering might be one of the methods of dealing with long-term governance issues, since it is a means to create shared knowledge (formal and informal), a shared problem definition, and a way to involve different actors at an early stage. To some degree knowledge institutes can guide long-term decision-making through the choices they make in their research agendas. Knowledge institutes also gather information about the long-term effects of policies.

Some of the effects of the role knowledge can play in long-term decision-making will be clarified using two German examples (see Case-boxes 1-2).

TRADE-OFF: POSITION OF KNOWLEDGE IN POLICY PROCESSES	
Positive: In crisis situations knowledge involvement can slow down the process of taking necessary measures	Positive: Benefits of transdisciplinary, widely shared knowledge Independency can lead to innovative solutions
Weak	Strong
Negative: Policy is immune for knowledge: knowledge can be neglected. Less awareness of alternatives	Negative: Uncertainty: because we know more, we know less. Will tough decisions be taken? Postponement?

Figure 4 Trade-off: Weak or strong position of knowledge?

The first case describes a good example of a well established commission that develops a certain authority and a common base of knowledge. As we argued before, a solid political basis is crucial once the necessary policies in order to solve a long term problem bear a drop-bucket character. But it is important to note that commissions can also encounter problems: commissions have their strengths and weaknesses, as is shown in the second case box.

Long-term decision support systems are instruments that help in decision processes for the long-term, but such instruments are not commonly used, and some instruments are simply not effective in assessing long-term consequences of policy choices. Knowledge institutes have a role in critically reflecting on these decision support systems. Cost-benefit (CBA) as well as cost-effectiveness (CEA) analyses are well known.

One example can be the conclusions of the SCBA study of RMNO¹⁹. In economic models often political choices are made (on valuation and on the discount rate). Many of the analyses contain more or less concealed normative assumptions.²⁰ Politicians often do not take the time to make those assumptions explicit and judge upon them timely. As a consequence the results of the exercise will be under attack from analysts who have other normative assumptions, while the minister involved can hardly defend himself. In order to avoid this situation, politicians should invest in overseeing the process of performing the CBA but this is rather time consuming. This implies that a well executed CBA is costly and time-consuming, which

19 RMNO (2008). *Social cost benefit analyses for environmental policy making*.
20 Take for example the discussion on the height of discount rates (Stern Report, 2007; RMNO 2008). High discount rates make many long-term investments seem unwise in a monetary sense.

CASE 2: Germany's Autobahn: Neglecting knowledge of long-term maintenance costs

Rising costs for maintaining the federal road system, coupled with a lack of revenue from truck road user charges prove that the current policy of expanding the federal road system in Germany ('Bundesautobahnen'/federal motorways and 'Bundesfernstraßen'/federal highways) leads to a dead end because of constantly mounting cost of maintenance that are not being met. It is not only that investment into a system of Motorways that can be reached in an average time of 11 minutes is subject to the law of diminishing marginal utility. But the huge investment programmes of the federal government for new roads can't be financed because of growing costs. Apart from the negative effects on environment the road planning and financing system destroys itself. The roads, constructed especially in the 60s, 70s and 80s are getting older and demand higher investments in their renewal. A larger share of investment has been allotted to renewal in 2003 but it is not sufficient as the maintenance costs rise for 20 % between 2003 und 2010. Expanding the net will further increase maintenance costs.

means that not all policy questions can and should be assessed through a CBA.

Other questions related to the knowledge dimension of long-term decision making that can be asked are the following: Which type of research is needed for explaining and developing instruments for long-term decision-making? What are the latest developments in long-term decision support systems, what are the risks and uncertainties linked with different methods, and how do we find a situational optimal instrument mix? Which roles do advisory councils play in influencing the willingness of governments to invest in long-term solutions? How may governments use (sustainable development) advisory councils with civil society and business representatives in order to create more support for long-term decisions?

In order to deal with such questions we will now briefly reflect on the relationship between knowledge and policy. Here we also see a scale that ranges between two poles: from a weak position of knowledge in policy to a strong position of knowledge in policy.

The example of the study of the German highways (case 2) is an archetype for a weak position of knowledge in a certain policy area. In the German example we recognise another process, namely that systems want to survive, but a system can also become self-destructive (in this case because of the quickly rising costs and the decreasing effectiveness of the system). Sectoral interests (in this case related to road infrastructure) are apparently stronger than wise long-term decisions: apparently sectoral systems are very durable. How

can such a negative spiral be broken? One possible solution is the development of checks and balances, for example an independent audit institution, which can overrule sectoral interests. Some of the positive and negative sides of the relative strength of knowledge in policy are depicted below.

Evidence-based decisions

The trade-off between a weak and strong position of knowledge in (long-term) decision-making may also be formulated as balancing between ‘political’ and ‘evidence-based’ decisions. The term ‘evidence-based’ has become quite popular among politicians and administrators. This is an opportunity in the sense that it may increase the attention for knowledge questions, but also a threat: waiting with political decisions until ‘all the evidence’ is collected and interpreted. This ‘total verification model’ may lead to postponing crucial decisions. ‘Evidence’ sometimes is disguised interest:

- the interest of a decision-maker who frames knowledge produced by an authoritative research institution ‘per definition’ evidence;
- the interest of stakeholders, who may call information which is scientifically not (or not yet) verifiable, evidence.

2.3 Future-oriented research and TO₃

All of us are informed about future-oriented research like forecasting, extrapolating, building scenario’s, simulation exercises, and so on. In these types of research researchers and policy makers may still operate on their own, separated from each other.

We deal here with a specific type of future-oriented research that may be adequate in particular in relation to long term decision making. Our observation is that many problems that demand long term decisions have a so called wicked nature. Extreme uncertainty and complexity as well as value disputes underlie wicked problems. “Normal” science or even future oriented research does not deliver sufficient tools for wise decisions. A more complex methodology is necessary:

Future orientation, design and research, to be called from now on TO₃²¹ is a specific type of research. It is more than gathering information. It contains a creative element. This creativity can originate within a person’s brain and/or from a chance encounter. The question is precisely how TO₃, other future-oriented research and normal research are related to one another. If people regard research from the viewpoint of usefulness, then it can be determined that utilization of the research is by definition limited to the future, in the same way as policy is by definition future-oriented. All research would then be future research. This can by no means be the intention.

Scientific research is a specific form of research, aimed at the creation or accumulation of scientific knowledge. This knowledge is formalized in a

21 TO₃ is a Dutch-language acronym: Toekomst -Oriëntatie, - Ontwerp, -Onderzoek.

particular way methodologically, for example it is subject to peer review. It is often put into a rule-based form, such as: ‘A implies B’ in a particular set of circumstances, whenever these circumstances occur. Such an assertion is known as a hypothesis. ‘The more a parent treats a child with respect, the less likely the child is to turn to drugs’, is a statement which could originate from empirical research and which probably holds true for white families in European cities from 1990 to the present time. But not for rural areas in Colombia. And why should this statement hold true for the future? Scientific knowledge is therefore by definition both fragmented and conditional. Its scientific value is dependent on the correct application of the agreed methodology. Scientific knowledge lays claim to validity and is a protection against criticism. What we are talking about here is what is called ‘normal research’.²²

It is difficult to integrate different areas of scientific knowledge because scientific knowledge is by its very nature fragmented. And its conditional character means that in order to apply the knowledge in real world situations, it is necessary to verify whether the conditions set have been complied with. In terms of the future, this question can never be definitively answered. This means that every application of social scientific knowledge for the purpose of policy bears an element of risk.

If a policy-maker in his policies wishes to apply an assertion which is based on a rule, such as ‘for every X, under condition Y: A implies B’, he first has to verify:

- ‘Is the X that I am talking about the same X as in the assumption?’
- ‘Are the conditions which I am faced with the same as the Y in the assumption?’
- ‘Is there really an A in my situation?’
- ‘Will the implication still apply at the time when the policy is implemented?’

This implies that applying scientific knowledge to policy does not always follow the accepted route of meeting the methodological requirements which applied when the knowledge in question was developed. The application of scientific knowledge in a political and governmental context is an exercise in uncertainty, partly based on suppositions and it also requires competences other than scientific ones, such as social intelligence and well-developed social intuition. It appears necessary to link scientific knowledge to other

22 The term *normal research* is a free translation of *normal science*. By *normal (general) research* Kuhn understood: research that is performed by a scientific group within the ground rules of the paradigm applicable within the group. This means precise definition and development of a paradigm and continuing detailed inclusion of reality in that paradigm. Funtowicz and Ravetz (1991) understand by *normal science* the scientific business in which scientific puzzles can be solved along agreed rules and subject to peer review. We recognise that a scientific-philosophical discussion could be held on this subject, where one postulation could be that knowledge from normal research is to a large extent uncertain. In order to clarify what we understand by future research, the assumption is made that normal research produces relatively certain and tenable knowledge.

types of insights without detracting from its relevance and usefulness. Combining knowledge from different scientific disciplines and furthermore mix it with other insights is an opportunity to try to maintain the relevance and usefulness of such knowledge in the relevant application. Multi-, inter- and transdisciplinary developments in research are in full swing. Anyone who realizes this cannot fail to be impressed by the speculative nature of many elements of the methods used. The precision of a great deal of scientific knowledge very soon gets lost in these methods. Robust concepts are often unrefined.

Precise knowledge about natural orders which is gained from normal research is often important for knowledge about the future. This is knowledge which is gained from normal scientific research. It is also possible to make one particular aspect or element of the future the specific object of scientific research, for example the climate in 2100, or the level of the national income in 2010. The issue is then the application to future situations of an existing or yet to be developed theory, which has already been recognized as valid. We refer to such research as future-oriented research. This is then a form of normal scientific research.

The nature of our image of the future as related to our own lives is holistic rather than fragmented. We regard our world and the developments therein as a whole and not per element. This does not mean that we can be aware of all the interconnections, but it does mean that anything that affects us now is relevant.

Furthermore, elements of what is as yet unknown will also be important. We do not yet know how or what. This awareness creates a thirst for more certainty and probably also more knowledge about this future. Just beyond the borders of what is strictly scientifically possible, and with a renewed striving for integrated images and policy. Striving for certainty about the future is by nature double-edged and relative. On the one hand, it is possible to become aware of threats which we could eliminate by taking sensible actions, and on the other hand there is the possibility to invent windows of opportunity of which we could make use. This knowledge about the future is related to the perspective for (political) action which we adopt. We understand that this knowledge is formulated in uncertainty, but at the same time we know that we have the opportunity to exercise some influence. The link between the type of knowledge and future actions which are tailored to it also has far-reaching consequences for the nature of the relationship between future researchers and other parties involved.

This has given rise to the concept of TO_3 . TO_3 is about creating related future images which are based on multi-disciplinary and/or transdisciplinary scientific knowledge, permeated with uncertainty as a result of a high degree of complexity, and which produce the players' perspectives for action. These are the prime characteristics of this type of research.

We also have to recognize the specific characteristics of long term decisions, in particular those related to environment. It is more than likely that this policy will require particular forms of TO_3 because of its specific nature. In any case, we know that the notion of environment has an anthropocentric character. Unlike in some other cultures, the Western person or citizen does not form part of the environment, but relates to the environment. Physical and social environment are made up of a number of aspects and are complex in nature. Environmental and spatial policy makes use of comprehensive concepts within which there are many interdependencies. The reflexive character of social systems and behaviour prohibits trustworthy forecasting, and creates continuous uncertainty.

Generating knowledge for environmental long term policy therefore requires many of the obligatory activities described earlier. TO_3 for environmental and spatial policy is therefore twofold complex; it is played out in areas where there is a high degree of uncertainty and probably also engenders considerable dissent. A policy area which is so complex and uncertain demonstrates a high degree of similarity to the field mentioned by Ravetz for post-normal science. Here, too, there are complex problems. The recommendations formulated by Ravetz advocate interaction and ask for intermediaries.

TO_3 is always linked to a principal. This means that the principals determine the function of TO_3 . In order to ensure that the research is not obstructed because the principals decide to shelve it or to suppress it, TO_3 has to be related to the (policy) perspectives for action. But it is the responsibility of the researchers to ensure that they do not indiscriminately implement TO_3 and dance to the tune of the principals. The principals and researchers together have to make sure that the research does not result in undemocratic or useless practices.

We have elected to indicate the route to a methodology for scientific research in two diagrams. These include knowledge requirements and process requirements which have to be met by TO_3 in order to avoid the problems previously described. It is the responsibility of the principals and the researchers to develop their own methodology for TO_3 based on these charts.

The subject of research of normal research, future-oriented research and TO_3 looks as follows:

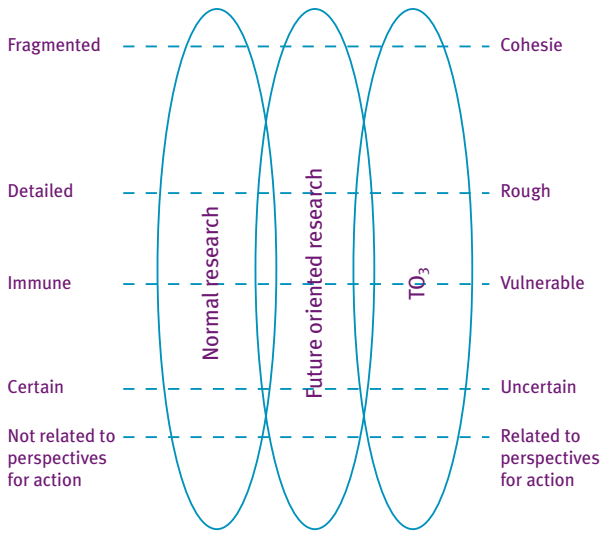


Figure 5 Normal research, future-oriented research and TO₃

We have described the characteristics of TO₃ more detailed in Attachment 1.

The discussion on future research leads to two recommendations. The first is more general. The methodology of gathering and interpreting knowledge about the future must reflect the complexity and uncertainty of the future. Generally speaking, it is recommended that scientific and practical knowledge are combined (transdisciplinary research). Such research designs require a certain degree of participation of actors outside the realms of science and politics, and ensure that a rich set of visions, signals and expectations about possible futures develops.

Recommendation 4: Design future-oriented studies in a transdisciplinary, participative way, and make use of foresight methods like scenario techniques and horizon scanning for improving the robustness and resilience of long-term policies.

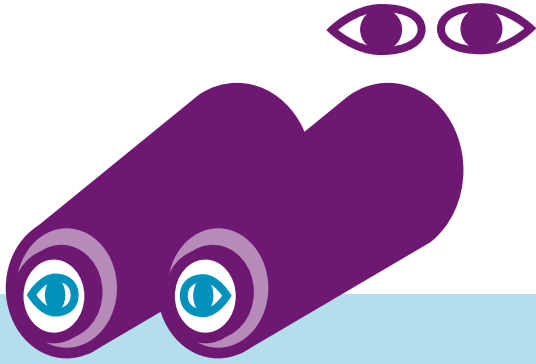
The second recommendation relates to design requirements of future-oriented studies (which we have called TO₃). Participation and the inclusion of e.g. citizens' science are not enough; in addition, for example also the roles of principals and of researchers should be clearly defined. The cooperative production of knowledge is a vital requirement.

Recommendation 5: Scientific future-oriented studies have to meet certain knowledge requirements and process requirements, which are different than the requirements for 'normal research' and for 'future-oriented research'.

POTENTIAL OF ALTERNATIVE APPROACHES

TYPE OF RESEARCH OBJECTIVES		NORMAL RESEARCH
Agenda-setting		Because with ‘facts’ assumptions in policy are put up for discussion and in this way new problems are placed on the agenda. (lobby groups do this, for example).
Formulation of a vision		Because facts provide support for whether or not a vision is feasible.
Coalition forming		Because with ‘facts’ it is possible to see where assumed conflicts in the future exist or not and where there are analogies.
Generate policy options		Because with ‘factual’ research new (technological) solutions can be generated.
Select policy options		Because with ‘facts’ it is possible to demonstrate which options could now be feasible.
Map out policy effects in advance		Because with ‘factual’ research it can be demonstrated which options are achievable.
Increase learning and adaptive capacity		Because assumptions are made the object of discussion.
Support and legitimization of policy		Because with ‘facts’ rights can be demonstrated and substantiated.

FUTURE-ORIENTED RESEARCH		TO ₃
	Because with 'factual developments' assumptions in policy are put up for discussion and in this way new problems are put on the agenda.	Because with the contribution of other types of knowledge (local knowledge and the interests of the players), it is possible to redefine the problem, which can result in the issue being put on the agenda again.
	Because with 'facts' the expected developments in sector areas can be used as input for the formulation of a vision.	Because experts and others with knowledge gained through practical experience or eminent, creative people can make links with possible (related) developments.
	Because with 'factual' future developments it is possible to see where assumed conflicts in the future do not exist and what analogies there are.	Because by mapping possible developments or designing target visions or ideals, actors can see things from one another's perspective. Moreover, their wishes, interests or knowledge can be used in making these images or in mapping the developments.
	Because with 'factual' developments possibilities for new (technological) solutions become visible (consider market research which is extrapolated).	Because by opening up new possibilities with the help of new perspectives and developments, uncertainties can be considered and discussed.
	Because with 'factual' research it is possible to demonstrate what options can be achieved.	Because with uncertain, but possible developments, a 'wind tunnel' effect can be achieved.
		Because possible policy developments on the basis of more creative and intuitive research can make these links and traditional research methods cannot.
		Because through the participation of players in the process of exploring the future, by also considering uncertainties, people can in their attitudes prepare themselves for the uncertainties: learn how to handle unexpected developments more flexibly.
	Because with 'factual' developments rights can be demonstrated and substantiated.	Because the process of future research is at times used for this, but creates frustrations because the contribution is not accepted if support and legitimization alone are the goal (too top down).



3 Governance and national cultures

3.1 Introduction

Governance styles are, apart from politico-administrative structures, also belief systems. Governance relates to a form of social coordination, and governance *styles* reflect specific sets of shared values and beliefs and certain patterns of interpersonal relations. This makes them cultures, or at least: images of cultures. Culture is an aspect of political and public administration science that was neglected for a long time because it did not fit in the dominant paradigm of the post-war period: rational choice theory. The three main cultures or ‘ways of life’ of cultural theory are similar to the three governance styles. Like the three governance styles, these three ways of life compete with each other, often in a hostile way, but on the other hand require one another, and they therefore continue to co-exist. This co-existence often takes the shape of mixtures: “That what we today define as free societies – those with the rule of law, alternation in office, and the right to criticise – are a product of the interpenetration of hierarchism, individualism, and egalitarianism”.¹⁵

The socio-politico-administrative context in a country has an influence on the question which governance style mixtures are feasible. The market culture of Anglo-Saxon countries, the network culture of the Netherlands and Scandinavian countries, and the hierarchical culture of France for example, play a role in the direction and acceptance of public-sector modernisation programmes, and in how policy-making processes are designed.¹⁶

3.2 Long-term decision making and European cultures

The influences of historical, socio-political and administrative contexts have consequences for long-term decision-making: some contexts are more conducive for long-term decision-making than others. Hofstede developed a model that identifies five primary dimensions to assist in differentiating cultures: “Power Distance, Individualism, Masculinity, Uncertainty Avoidance, and Long-Term Orientation”¹⁷. Based on Hofstede’s research, we can draw the general conclusion that in comparison to Asian countries, European countries do not have a strong tradition of long-term decision-making and are rather similar in the fifth dimension than, quite different from the variety in the earlier four dimensions.

¹⁵ Thompson, Ellis and Wildavsky (1990: 50, 257). *Cultural Theory*.

¹⁶ Meuleman (2008). *Public Management and the Metagovernance of Hierarchies, Networks and Markets*.

¹⁷ <http://www.geert-hofstede.com/>

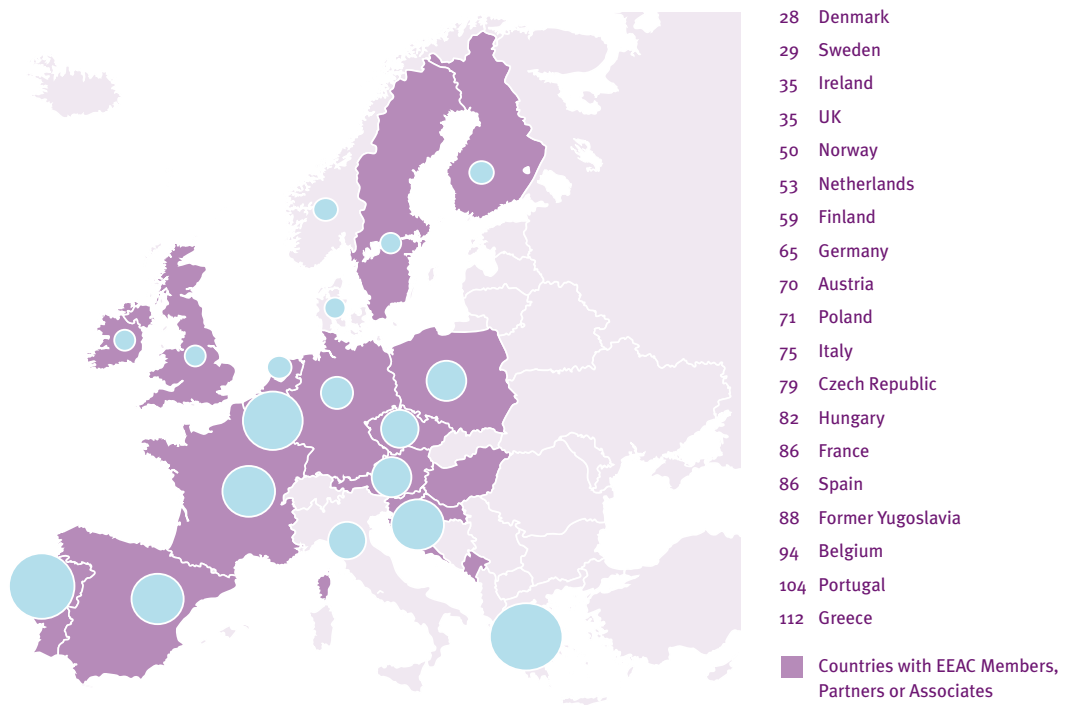


Figure 6 Uncertainty Avoidance Index in the EU (after Hofstede)

The dimension of uncertainty avoidance (UA) may be a crucial one with regard to long-term decisions: the future is per definition uncertain. Figure 6 shows a general picture of how this index differs in European countries.

Hofstede (2000) found in low UA countries a more open-minded mentality, in searching for information and in accessibility to innovation.¹⁸ If we wanted to distinguish more and less long-term-oriented countries within Europe, it is relevant to divide European countries into six subcategories, namely: egalitarian/social-democratic/networking countries (Scandinavian countries – Denmark, Sweden, Norway); individualistic/liberal/market-driven countries (the UK); continental/ corporatist/-hierarchical countries (Germany, France); hierarchical/family-driven countries (Southern European countries); Eastern European new EU countries (Poland, Hungary and others); and the Netherlands as a mixture of different types (networking/individualistic). Scandinavian countries and Southern countries seem to represent two extremes of this subdivision.

Analysing the differences that appear between the six subcategories, we can draw the conclusion that the Netherlands and Scandinavian countries seem

¹⁸ Hofstede (2000): *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*.

to have a more consistent and profound view of the future (especially in comparison to Southern and liberal countries) together with a lower ‘uncertainty avoidance index’ (on average almost twice lower than in Southern countries). This could mean that, on one hand, peoples in Scandinavian countries do not have to reflect a lot on the future as they think they are able to adjust to changes; on the other hand, due to not having too many uncertainty concerns, they might be more resilient and able to think and make decisions with regard to the future. The cultural orientation of nations and its consolidation in governance structures, instruments and processes, may help to explain why, at least in environmental politics, North-West European countries have shown to be early movers. They also seem to have a more risk-taking attitude, another characteristic which seems to be beneficial for long-term decision-making. The other way around, risk averseness may be an important factor obstructing long-term policy-making.

However, like all advantages have their disadvantages, the openness to futures and the flexibility of NW-European countries may also lead to disregard the stability and the openness to history, which we find more clearly in Southern European nations. Another difference is that Southern European countries are in average more hierarchical (Power Distance Index), which is reflected in for instance the much faster decision making on long-term investments like (rail) infrastructure.¹⁹

It is often argued that Asian nations have a strong long-term dimension in their culture. In fact, this was what forced the sociologist Hofstede to add his fifth dimension (‘long-term orientation’). However, if Asian governments sometimes seem less reluctant to take long-term decisions, it can be argued that this is also smoothed by the fact that in most Asian countries there is little possibility of participation by civil society and private sector.

We can conclude that when we discuss the cultural dimension the different styles of decision-making, legal families and institutional transplantation will have to be taken into account. We recognise that there is a certain path dependency in decision-making, although there is room for carving out new paths. A critical appraisal of the “best” and “worst” examples can be useful, but the influences of the different contexts should not be neglected. Institutional transplantation (learning from distant practices) is not unproblematic, but the ‘solutions’ should be implemented according to the specific contexts in which the solution has to operate (see also 3.3).

Cultures and traditions of public and political actors may induce ‘default’ results of trade-offs concerning long-term decisions. Improvement may be sought by ‘stretching’ such results or shifting the results towards the other pole of the trade-off, taking implementation of the decision in the territory in consideration. It is important that all types of actors who have stakes in

¹⁹ *Ibidem*.

long-term decision making on sustainability issues reflect on their specific perspectives and action strategies, regarding trade-offs which have to be made. Long-term decision making for sustainable development is not only a responsibility of governments. However, governments have a special responsibility for the organisation of the societal discourse regarding the future, and should stimulate consensus on at least the agenda (which trade-offs are to be faced?) for long-term decision making. Because many actors are involved in long-term decision making, good governance of long-term decision making requires clarity about the roles of states, business, civil society, knowledge institutions and intermediary organisations such as advisory councils.

Analysing impacts of cultures on “governance” and “decision-making”, one could say that states have very different approaches to *long-time decision-making*, roles of stakeholders, established institutions and applicable instruments for long-term decision-making. There is a country-specific understanding and approach to what are “governance” and “long-term decision”, levels of their policy-making. For instance, “in the UK, Germany and Sweden, long-term targets are considered as useful instrument, which is in line with the attitude towards targets in general”²⁰. Meanwhile, the roles of the stakeholders involved in long-term decision-making frequently vary by the three governance styles (hierarchy, network and market). “For example, a strong corporatist tradition might hamper other civil society organisations from getting established and heard; the more civil society is organized, the more governments are open for dialogue”²¹. A comparative research showed that in the UK, the Netherlands and Germany, concerning the same environmental policy problem, first the national ‘default’ governance style was tried, before from the specific conditions of the cases a specific governance style mixture emerged.²²

The conclusion is that it is plausible that socio-politico-administrative cultures, to a certain extent, induce a specific type of result of the trade-offs we will discuss in Chapter 4. Improving long-term decision making may require changing the ‘standard’ result of these trade-offs; at least, it is advisable to reflect on the question if trade-offs are made along the lines of a (national) culture – and if that is always the best way.

Recommendation 6: Invest in increasing the long-term values of citizens: this may make long-term decision-making politically more feasible.

20 Niestroy (2005: 31). *Sustaining Sustainability: a Benchmark Study on National Strategies towards Sustainable Development and Impact of Councils in Nine EU Member States*. Den Haag: EEAC.

21 *Ibidem* (2005: 37).

22 Meuleman, Louis (2008).

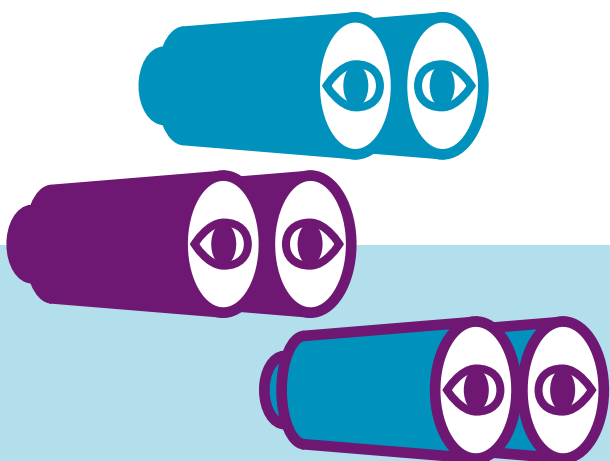
3.3 ‘Best practices’ or ‘What works best and why?’

Long-term decisions must be implementable in the specific socio-politico-administrative culture of the territory (e.g. a country) for which the decisions are meant. Such national cultures and traditions influence to an important extent what works and what does not work. Therefore, it is risky to copy ‘best practices’ from one nation to another. Some principles are recommendable for all countries, but an example from another country can not be taken as concrete recipe. Learning from each other does not imply that the same approach will work elsewhere.

From this we should conclude that there can not be a ‘one size fits all’ approach to the governance of long-term decisions. The often-used term ‘best practice’ suggests that copying one approach to a different situation should be successful. However, cultural theory and governance studies show that this is highly implausible. Every case is different by time, country, political reality and many other factors (culture and traditions, level of uncertainty, degree of urgency, available knowledge, accessibility of information etc.). In order to improve the quality of long-term decision-making, specific conditions are required:

Recommendation 7: Always translate ‘best practices’ into a spatial and cultural context which works in a specific situation, tradition and societal expectation.

Another process aspect of, especially sustainable development, is that the three main dimensions of SD (people, planet, profit/prosperity) together form a triple dilemma or trilemma. Trilemmas often result in neglect of one of the three dimensions. In SD this typically is the social dimension (people), because trade-offs between environmental and economical interests tend to attract more (political) attention.



4 Identifying conditions for long-term decision-making

Institutions, instruments, processes and the beliefs and actions of actors, are expressions of three basic forms of steering, coordinating and organising, namely hierarchical, market and network governance. These governance styles are not mutually exclusive, but complementary and, moreover, sometimes mutually undermine each other. Complex issues such as sustainable development cannot be solved by using one of the three ideal-typical mechanisms, but require a situational optimal mix of hierarchical, network and market concepts, mechanisms and instruments²³, to the extent that such an optimal approach is viable. This approach reflects the line of thinking of the 2003 EEAC WG Governance Statement 'European Governance for the Environment', which distinguished three approaches that were labelled 'directive' (hierarchical style), 'participative' (network style) and 'self-regulatory' (market style).

For a good governance of long-term decision making it might be argued that in such a governance mixture an interactive (network) approach should play a central role, because, as the 2003 WG Governance Statement on European Governance concluded, many long-term problems are complex, 'wicked' problems which cannot be solved by one actor, even if this one actor is government. However, complexity may provide an excuse for doing nothing. We should acknowledge that not all problems are complex. On the other hand, complexifying an issue can help creating more interesting win-win solutions. However, a typical weakness of the network approach is that it may result in 'never-ending talks'. The more an issue is considered urgent, or, at the other end of the spectrum, more a routine issue, the more important the other governance styles (hierarchical and market governance, respectively) may become. One of the most difficult challenges seems to be able to refrain from the dominating governance 'fashion'. None of the three basic styles is a panacea, and focusing only on 'new modes of governance' (like market mechanisms and network management) neglects that experience that the 'old' hierarchical governance approach (e.g. the use of legislation) sometimes is even more accepted, effective and efficient than the newer approaches.

Recommendation 8: The governance for sustainable long-term decision making requires a situational combination of network, market and hierarchical mechanisms, instruments and measures, in which in most cases the degree of complexity asks for some dominance of network governance.

²³ This 'meta-approach' to governance is called 'metagovernance'. For a discussion on the possibilities and limitations of this approach in e.g. environmental politics, see Meuleman, (2008).

Our analysis of collected examples of successful and failed long-term decision making in EU countries shows that on each of the dimensions of the governance system typical trade-offs are made on which success or failure relies. This chapter addresses the mechanisms which seem of crucial importance in determining the success or failure of long-term decision-making processes.

4.1 Governance of institutions

The tasks, remits and structures of governmental *institutions* are solidifications and reflections of the past; a past which is nowadays usually considered as having been less complex. Institutions are formed and consolidated on the basis of knowledge, gained by lessons from decisions, actions and consequences which manifested in the past. Consequently, institutions usually lack the potential to deal with unforeseen new problems or opportunities. Institutional change is usually slow and incremental. This may also be an advantage: in an ever-changing, dynamic society we need robust structures which can serve as backbones of more dynamic institutions and processes. Slow governmental change accounts for values which are widely appreciated, like accountability and legitimacy.

Consequently, long-term decision-making requires institutional flexibility *and* the stability to stay on the road, which is a difficult combination.

Structure of government

A mismatch between the tasks of government organisations like ministries and the structure of policy issues is one of the reasons why serious attention for long-term problems may be absent. The dilemma here is that, on the one hand, government structures should be stable and reliable, and on the other hand, should follow the development of societal problems. Usually a change in political priorities is followed – with some delay – by a restructuring of government. In Germany and the Netherlands for instance the early 2000s showed a lower priority on agriculture politics and a rising attention for food quality. Hence, in these countries the name of the Agriculture Ministry was changed to add Food Quality. The following Polish example points out how important it can be to bring together policy fields that have a ‘natural affinity’ with each other.

When reorganising responsibilities good and bad synergies have to be recognised. The example of the Polish ministries can be compared with a Dutch example, where there were actually good synergies between nature development and agriculture, when agriculture and nature conservation were put in the hands of one ministry in 1982. This probably has to do with the different position of agriculture in the Dutch and Polish economies. In the Netherlands agriculture has been on the retreat as economic activity, but in nature management lie new tasks for farmers. The large budgets of this ministry led to much emphasis to the creation of the so-called ecological main structure.

CASE 3: The Polish forestry case. Which ministry is responsible?

The Polish ministry dealing with nature and environmental protection was operating since early '70s. Its last name corresponding with the area of jurisdiction in the beginning of '90s was the Ministry of Environmental Protection and Natural Resources (ME). Forestry was administered by the Ministry of Agriculture (MA) that treated woods a bit like one-year-crops, and thus over-harvested its area. The political, economic and social breakdown of 1989 brought several positive changes also in the administrative structure of Poland. One of the consequences was that the supervision over forestry was moved from MA to ME, which was formalized in the widened name of the Ministry of Environmental Protection, Natural Resources and Forestry. Balancing nature protection and the forest economy by putting responsibility in the hands of one ministry has resulted, since that time, in an increase of wood area in Poland from below 27 to over 30 percent.

Such differences reflect the cultural aspect of governance instruments, and the context in which these instruments operate.

As regards the advantages and disadvantages of restructuring responsibilities, the following trade-off can be encountered.

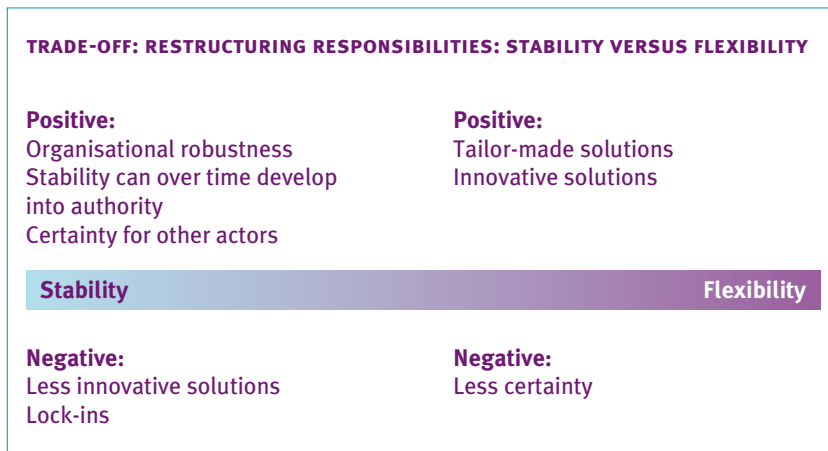


Figure 7 Trade-off: Stability or flexibility?

For the drop-bucket long term decisions stability is more important than for the other category.

An Irish worst case scenario illustrates a related trade-off (Case 4). In this example the lack of sustainability mechanisms in decision-making is apparent. Despite high costs, both in financial and environmental terms there is a continued choice for an unsustainable way of producing energy. The two

CASE 4: The Irish case of peat as energy supply in Ireland: A matter of path dependency?

Peat supplies a significant share of Ireland's total primary energy requirement, mainly in electricity generation. Peat has been used in electricity generation since the 1950s and is currently subsidised for reasons of energy security and to promote employment (about 2,000 people are employed in the harvesting and management of peat bogs for electricity generation). This has high costs in terms of greenhouse gas reductions (the combustion of peat produces the most CO₂ of any fossil fuel; peat extraction also causes further CO₂ emissions from the drained but unextracted parts of the peatland, and removes the living peatland which is an active carbon sink). Other negative environmental impacts include increased risk of flooding downstream in the catchment and loss of habitats of biodiversity and conservation value. The cost of the subsidy for peat is arguably disproportionate to its social benefits: the subsidy for electricity generation is four times that for wind power, and the benefits in terms of employment might be realised at lower cost through subsidies elsewhere in the economy. Despite peat's highly unfavourable profile as a fuel, two new peat-fired power stations have recently been constructed at Lanesboro and Shannon Bridge and came on-line in 2005. The burden of the operation of these stations – initially conservatively estimated for the period 2001-2019 at € 568 million – is now being borne by a levy on all electricity consumption in Ireland. The two new power stations represent significant capital investments that could lock Ireland into peat-fired generation for the coming decades, although there is scope for at least partial co-firing with biomass. The decision to develop the two new generating stations represents a missed opportunity to shift public subsidies away from an ecologically damaging source of energy to a more sustainable way of providing energy security and local employment.

main arguments for this choice are energy security and employment, but both goals can be reached more effectively by more sustainable alternatives.

Here the trade-off between keeping things the way they are ('Systemtreue'), and governing for transitions becomes visible.

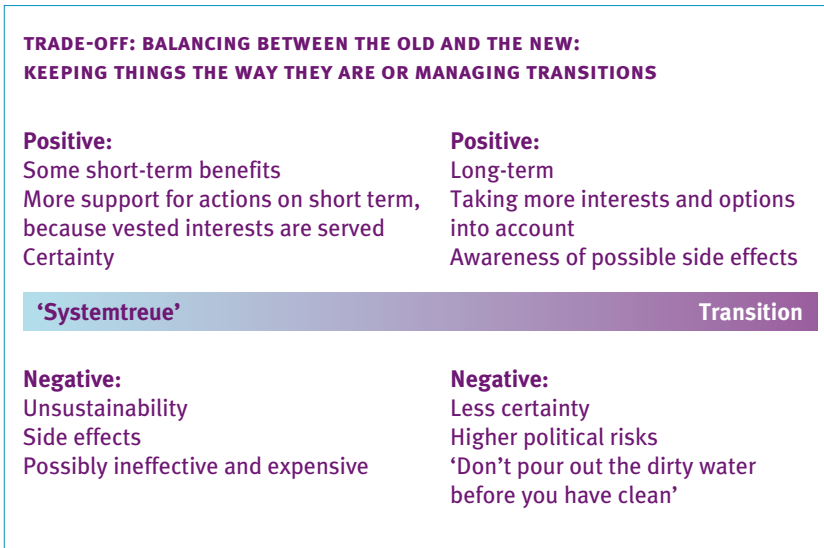


Figure 8 Trade-off: Finding the balance between old and new

Institutional resilience

As mentioned in the introduction, institutions can be the backbone of the long term decision. However, institutions have to cope with unforeseen problems or opportunities, for example, regarding the tasks of governmental actors and the organisation of knowledge production. Therefore, long-term decision making requires a certain *institutional* flexibility to create the resilience for handling and anticipating unforeseen problems or opportunities, for example, regarding the tasks of governmental actors and the organisation of knowledge production. Government institutions should develop the flexibility for putting future problems on the agenda and work on them with the same intensity and professionalism as they use for current problems. This requires, for example, striving for enough variation in staff orientation: a good balance between those with a long-term and those with a more practical, short-term orientation.

Recommendation 9: Ensure that institutions involved in long-term decision making are able to act in a resilient way; this implies investing in flexibility and in alertness (creating 'watchdog capacity'), without making the institutions unstable and unreliable.

Other, related recommendations:

- Simplify organisational change procedures: better 'permanent change' than reorganization;
- Analyse the specific nature of the long term decision to be taken: a combination of stability and transition is necessary for drop-bucket decisions.

4.2 Governance of instruments

Governance instruments reflect ‘policy theories’ of when there were made and the (national) cultures in which they were developed; they are often not transparent (e.g. concealed normative assumptions in cost benefit analysis). Two categories of instruments have been distinguished: instruments supporting the decision-making process, and instruments supporting the policies which result from decision-making.

Decision support instruments

Governance *instruments* reflect the ‘policy theories’ which dominated when the policies were created. These policy theories contain implicit and/or explicit beliefs, such as a focus on centralised or decentralised government. In addition, decision (support) instruments may also contain concealed normative assumptions.

Three types seem important. The first concerns *ex ante* instruments: methods supporting the quality of the decision. Examples are the various types of scenarios, future scans, impact assessment, multi-criteria analysis and cost benefit analysis. The second type includes instruments for maintaining the long-term scope of a policy during the implementation of a policy (*ex durante*). Here, future scans and scenario techniques (as we just mentioned, also relevant in the policy preparation phase) may be relevant to stimulate actors to ‘keep the long view’. The third type, which we will not discuss here, concerns evaluation instruments (*ex post*).

Impact assessment methods: trade-off between values and price

More and more cost benefit analyses seem to be made compulsory during the preparation of a long-term decision (see for example the Impact Assessment that is compulsory inside the European Commission, which includes the use of CBA). It should be noted that there is quite some opposition in society against ‘putting price tags’ on things like nature or on human lives. CBAs have therefore been criticised to produce situations in which we ‘know the price of everything but the value of nothing’.²⁴ However, besides the question if monetisation it is desirable on ethical grounds, there are methodological limits to monetising impacts that are not direct economic costs, and some empirical research has shown that this ‘gets things wrong’. The inherent problem with this approach, and its most common tool cost-benefit analysis, is that it works with assumptions, which are typically chosen by the user of the method, but would require a societal/political choice. However, economists sometimes argue that this is based on a misconception: the key to CBA (or economic valuation techniques) is to determine how many other goods and services humans are willing to maximally sacrifice in order to obtain an environmental benefit (or to prevent an environmental deterioration). ‘Money’ is the measure of consumption possibilities.

²⁴ Ackerman and Heinzerling (2006): *Priceless: On knowing the price of everything and the value of nothing*.

But obviously economic valuation techniques are not the only technique available; multi-criteria analysis (MCA) is another. It is important to stress the difference. MCA and CBA are identical in that they both try to determine what the (physical) consequences of a specific project are. They differ in the final step. Whereas MCA leaves it to the decision maker how to compare for example a 1% increase in biodiversity to the loss of certain number of human lives, CBA tries to infer the weights by establishing how citizens make these trade-offs.

Apart from the acceptability of monetary figures to capture indifference, another factor that may influence the choice of a method is whether it is preferred to have a calculation model such as CBA (the crucial phase is the determination of the assumptions, the rest is arithmetic), or more a process model such as MCA (in which the crucial phase is the determination of weights). One problem is that undisputed estimates of environmental damages are very scarce in environmental politics. SD politics includes even more complex trade-offs. Similar as with innovation projects, there is usually a large deal of uncertainty about the effectiveness and the risks of complex, long-term policy measures. For innovation projects, some experts propose *not* to use CBAs, but rather a mixture of other methods such as MCA.²⁵ There is no reason why this should not also apply to (long-term) sustainable development policy-making. With long-term issues such as climate change, in addition other arguments may apply, such as the precautionary principle. Therefore, many authors plead for a discursive, or at least a participative approach for ‘unstructured’ problems (e.g. In ’t Veld et al., 2000; Ott, 2004, Vatn, 2005). One argument for the use of discursive methods would be that (individual and social) preferences evolve through learning and dialogue. When CBAs are chosen as decision support method for long-term decision-making, the following conditions apply:²⁶

- The ‘meta-choice’ of the method(s) should be transparent (why use MCA and not CBA in a specific case, for example);
- The scope should be broad (‘societal/social’ CBAs);
- The assumptions on valuation/monetisation and discount rate height should be transparent and be made under political responsibility;
- The process should involve stakeholders.

The trade-off that has to be made is between putting values central (which may make calculation of costs and benefits impossible) and putting price central (accepting that all costs and benefits are monetised, including those with disputed values). Methods, as well as assumptions made within a method, need to be made transparent and/or choices are to be made in the political domain.

In practice the favour for cost-benefit analysis has led to a certain asymmetry in considering impacts that cannot or only partially be monetised, notably

²⁵ Van Ree (2006): *Kan een MKBA worden gebruikt voor de evaluatie van innovatieprogramma's?*

²⁶ RMNO (2008). *Social Cost Benefit Analysis for Environmental Policy Making*.

social and environmental impacts.²⁷ One way to go would be to strive for improving methodologies for monetising such impacts. Again, besides the dubiety on more fundamental grounds, this way appears a bit as a rat race, as the structural imbalance will continue. Without denying efforts for improving data quality and also efforts for more quantification, it seems more promising to make use of a variety of available tools for collecting and comparing qualitative and quantitative data, with MCA as the most prominent one for the comparing part. The assessment of impacts of different dimensions and displaying the results need to be kept separate.

Impact assessment should be seen as a process that is intertwined with the policy-making process. This does not have to take a complicated shape and overload capacity; - it is more a matter of concept, design and filling it with life. Analysis and knowledge ‘production’, hence the elements of assessment in the narrow sense, should be embedded in a well-designed process that supports institutional and policy learning.²⁸ Proportionality needs to be kept in mind. The concept of the Commission’s IA system in principle already goes into this direction, but would gain from an improved conceptual basis along these lines and more consistent application in practice. These recommendations might be timely, as at the time of writing the Commission is preparing a revision of its IA Guidelines.

With a few exceptions, member states’ IA systems have apparently not embraced the objectives of a sustainability impact assessment and/or brought it together with the predominant better regulation objective. In this respect the Commission’s system seems to be a model worth to pay regard to. When moving into this direction, methods and processes of Strategic Environmental Assessment should also be considered, which strive for the integration of environmental concerns in sectoral planning, and hence can be seen both as one fraction of policy making as well as covering two out of three sustainability dimensions.

The assumptions behind decision support methods should be transparent for the actors using these methods, and for actors confronted with these methods. Assumptions may limit the use of instruments. For example, CBA is not applicable for very large-scale problems like global climate change, because decisions on such a scale would influence a basic parameter, the future state of the economy and national income. The logic of assumptions generates certain results. Subjective (political, ethical) assumptions used in decision support models belong to the political arena instead of the technical arena in which they often are chosen.

Independent bodies such as the IPCC and advisory councils fulfil important roles in facilitating and organising socio-political-scientific discussions. The independency of such institutions which were also established in for example the financial world (European Central Bank) ensures that they are able to take

²⁷ Niestroy (2008): *Sustainability Impact Assessment and regulatory Impact Assessment*.

²⁸ Niestroy (2008).

a more long-term perspective and thus create a countervailing power against short-term political thinking.

Future scans and scenario methods: trade-off between focused and broad approach

SCBA and MCA are instruments which use a given set of facts, figures or assumptions. The use of these instruments does not guarantee at all that a decision is ‘future proof’. Scenario techniques have become a quite popular instrument to overcome this flaw. Scenarios picture several (usually three or four) contrasting possible future developments of society (or a seemingly relevant aspect of society), with which policy options are compared. A scenario is not a prediction but a ‘what if’-instrument. For long-term decision-making producing scenarios can hardly be avoided, since societal complexity and the inability to predict the future necessitate hypothesizing different development trajectories. One of the choices that have to be made when scenarios are used is how broad the scope of the scenarios will be. Governments seem to prefer to work with economic growth scenarios, which should be criticised because the meaning of, and the way economic growth is measured are profoundly disputed.²⁹ Some multinational companies which have fewer difficulties with developing long-term strategies, if alone because they do not have the 4-5 year life cycle of governments use broad societal development scenarios.³⁰

Scenarios can be essential instruments for assessment of the robustness of a proposed (long-term) policy: how stable and resilient is the proposed policy for various developments?

Horizon Scans

Another approach, in addition to scenario techniques, is organising a future lab based on a broad ‘horizon scan’ of possible future problems/challenges and solutions/opportunities.³¹ A future lab stimulates the discussion about both resilience and innovation power of proposed policies. Such a Horizon Scan was launched in the Netherlands.³² The same instrument exists in the United Kingdom (The UK Foresight Programme³³).

29 However, in the future, figures on Gross Domestic Product (GDP) should be complemented with environmental and social indicators to better measure economic activity, the European Commission stated in a policy paper published in September 2009. Also in September 2009, French President Sarkozy said governments should do away with the “religion of statistics” in which financial prowess was the sole indicator of a country’s state of health. See also the recent book by Amartya Sen, *The Idea of Justice* (London: Allen Lane).

30 E.g. the Shell 2025 scenarios.

31 Horizon scans have been made in the UK and in the Netherlands. The latter report (In ’t Veld et al. (eds., 2008) contains 75 possible future problems and 75 possible future opportunities.

32 In ’t Veld et al. (eds.) (2008): *Horizon Scan Report 2007. Towards a Future Oriented Policy and Knowledge Agenda*. COS/The Hague.

33 The UK Government’s Foresight programme, alongside the Horizon Scanning Centre, uses science based methods to provide visions of the future. Although we can’t predict the future, our research methods are useful in helping us to identify potential risks and opportunities in relation to science and technology, which can enable policymakers to develop strategies to manage our future better. (<http://www.foresight.gov.uk/>)

Sensing

The awareness of future problems often begins with weak signals, not with a red alert. It is therefore important to develop mechanisms which detect weak signals and enforce them. In some cases an institutional provision can be helpful, such as an ‘observatory’ or a horizon scanning unit. But it also depends on in which direction one listens. Fiction and science fiction writers, as well as philosophers, have shown to be relevant sources for weak signals on societal change. The French writer Houellebecq depicts for example extreme solitude, and the German philosopher Sloterdijk extreme individualism in the years to come. Also the type of signals is of influence. For example, the plurality of voices can be a signal that something is about to happen.

Van Asselt (2003)³⁴ argues that we should not talk about future risks but about risky uncertainties. Thinking from uncertainty is a requisite for detecting new risk. She proposes that scientists fulfil the role of ‘early listeners’, and that often citizens, practitioners, journalists and civil society organisations are best able to fulfil the role of ‘early warner’.

Policy instruments

There are three ‘families’ of policy instruments, linked to the three governance styles we distinguished in chapter 1. The question addressed here is: what can be concluded about these instruments in relation to long-term decision-making?

Legal instruments (hierarchical governance)

There are a number of international agreements and other documents where precautionary and other principles towards long-term decisions are indicated. The Treaty on the European Union (Maastricht Treaty, 1992) states that “Community policy on the environment ... *shall be based on the precautionary principle* and on the principles that preventive actions should be taken, that the environmental damage should as priority be rectified at source and that the polluter should pay.”³⁵

If the nature of the problem necessitates a long consistent series of (drop-wise) interventions it might be worthwhile to design a legislative framework that more or less ensures consistency over time. Some kind of “rigid constitution” might here be preferable.

Consensus building instruments (network governance)

An (institutional) instrument based upon network governance ideas that is used quite often in Europe (starting in Finland, but now also in the Netherlands and Portugal) is the establishment of an innovation platform, with the goal of bringing several types of actors together in order to stimulate innovation (and thus generate long-term economic development). Ideally an

³⁴ Van Asselt (ed.) (2003). *Nieuwe risico's in het vizier?*

³⁵ EEA (2001: 14). *Late Lessons from Early Warnings: the Precautionary Principle 1896-2000. Environmental issue report No 22.*

innovation platform is interactive, it formulates goals in participation with other actors and it shows the adaptiveness of governance institutions. There are some obvious benefits of the platforms, since it often involves high-level commitment of governmental, business and scientific actors, and can lead to the creation of momentum for innovative measures. But we do not only see benefits in the strategy of creating innovation platforms. Innovation in practice namely does not necessarily imply sustainability, i.e. the range of issues and the time horizon of such innovation platforms are often short, reflecting the political cycle. The challenge for governmental actors involved in innovation platforms thus becomes not only to create sustained economic growth, but steer innovations towards sustainability in the long run. That this process can be hard can be seen in the Dutch Innovation Platform: during the first years of its existence it hardly focussed on sustainability issues, and it took a lot of effort and a new government, to change this.

Competitive instruments (market governance)

Deregulation: trade-off between efficiency and effectiveness

A development in governance instruments that could affect the capacity for long-term decision-making is deregulation, and a lenient interpretation of norms by (lower-tier) governmental actors. Deregulation and cuts in public spending lead to short-term benefits, but the indirect and long-term effects of such measures are rarely taken into account, as the following example shows. Nature protection in Germany heavily relies on voluntary activism, which according to some estimates delivers services at a cost of more than 400 million, thus doubling the available resources for nature protection. Plan to reducing funding and dismantling staff capacities in public administration will have a negative multiplier effect by frustrating voluntary activism, and may undermine the double long-term assets of the national system to protect biodiversity.

Financial incentives: trade-off between project-based and long-term financing

On the proposal of the Federal Minister of Finance the German Federal Government decided in 1989 to use the proceeds of the sale of a state-owned mining company to establish an environmental foundation (www.dbu.de). The proceeds of around 1.3 bio EUR are the endowment of the set up German Environmental Foundation, and the interest is used for the sponsoring objectives of the foundation. It is one the largest endowed foundations in Europe. Since the start of operation in 1991, it has sponsored 6.800 projects to the total amount of 1.2 billion EUR. The key objective is to sponsor environmental projects with special consideration of small and medium sizes enterprises. Sponsorship shall take place outside of state-programs, but may complement them. It also offers the annual German Environmental Award, which is, with a prize money of 0.5 million EUR, the highest of that kind in Europe. It is usually awarded to 50% to a SME and to 50% to a scientist or for life-long achievements or similar.

This example shows a successful combination of long-term financial security (a large amount of money put in a foundation) and the flexibility of project-based funding.

Recommendation 10: Be transparent and realistic about the limitations of decision support systems, and ensure that ethical and political assumptions in decision support systems are chosen in the political arena, and use where appropriate independent bodies.

4.3 Governance of processes

Dealing with dilemma's

Processes of long-term decision making involve solving dilemma's, for example, between long and short-term interests. Dilemma-management is producing trade-offs that enhance the awareness of opportunities, that balance process quality (incl. stakeholder involvement) and speed, that have an open eye to the eventual necessity of systemic change (transitions), that balance make-ability and contingency factors, and which makes use of the strong points (regarding long-term decision making) of (national) cultures and traditions and strives for mitigating cultural weak points. Policy-making always involves trade-offs between short-term and long-term objectives. However, more often these trade-offs are implicit rather than made explicit. Therefore, an effective incorporation of long-term concerns into political decision making above all involves making these trade-offs explicit and identifying the factors that favour either short-term or long-term concerns.

Recommendation 11: Make trade-offs between short-term and long-term objectives transparent and identify, through shared understanding, the factors that favour either side.

Survival of the policy lifecycle

Problems that are too big or too inconvenient tend to be kept away from the political agenda. They are taboos. The asbestos case was an example. Problems which (may) be linked to societal lifestyles, like currently the increase of diabetes, are often politically taboo. The existence of independent bodies (such as advisory councils) which signal such problems can prevent large societal costs. However, politics is no exception to the rule that messengers of bad news tend to be killed, or at least attacked; this is one of the main reasons why advisory councils, in many EU countries, almost permanently have to struggle for their survival. When such an issue with possibly long-term impacts finally has arrived on the political agenda, another problem arises. Like all political issues, long-term problems have a political lifecycle which predicts that they will disappear again from the political limelight – and maybe long before all measures have been implemented. This risk seems highest for decisions with a long lead time. The question is how such issues can be kept on the political agenda. Awareness of policy windows and the use

of concepts like trajectory management and transition management may be required.

Recommendation 12: Long-term decision making requires policy mechanisms that prolong the policy lifecycle of policy issues.

Windows of opportunities: trade-off between opportunity and opportunism

One of the existing models of decision making is the streams model (Kingdon, 1984), in which streams of participants, problems and solutions connect and create ‘windows of opportunities’. This model emphasises the contingency of the process environment and the autonomy of actors. One of the conditions for long-term decision making is being aware of this contingency and recognising such windows. An example of grasping a window of opportunity which turned out to be an important long-term decision, as is the securing by the last environment minister of the former GDR, shortly after German reunification for nature protection of the corridor along the German-German frontier. Now this north-south corridor consists of 125 000 ha. The corridor is one of the very few long north-south corridors, which may become relevant in times of climate change. The risk of seizing windows of opportunity is opportunism: sudden actions with long-term consequences may lead to unexpected damage and costs.

Sometimes, politicians may want to create a monument for themselves when they face the end of a long career. This may also be an opportunity in which a daring long-term policy decision becomes feasible.

Creating a sense of urgency

In the Netherlands, the threat of high levels of sea and river water as a consequence of climate change, led to the establishment of a special government commission, named by its chairman, the Veerman Commission. This commission was so successful in creating a sense of urgency that the government in 2008 decided to allocate funds based on the most extreme scenario in the commission report. It is too early to assess whether this was a wise decision, but a firm decision it was. This brings up the question how and to which extent a sense of urgency can be created. What are the factors influencing such a broad rise of urgency? Was it the leadership of the commission’s chair, or was it the fact that this happened in the same year when Al Gore presented his film ‘The Inconvenient Truth’?

Risk aversion

When there is much at stake, like in the Dutch delta area the possible flooding of large parts of the country, politicians do not want to be responsible when something goes dramatically wrong. The example of the Enschede firework factory disaster of 13 May 2000, also in the Netherlands, is illustrative. Shortly after this disaster, the Environment minister proposed the cabinet of ministers a very large safety distance between firework factories and housing areas. He asked the largest distance, which was based on the

maximum area where debris could fall after an explosion, and hoped to get a decision on the 'right' measure, which was the result of a risk assessment and measured about half this distance. To his surprise, however, the ministers were risk averse and decided to give him exactly what he had asked. Politicians are risk averse. They are driven by success, and by their conviction that citizens are also risk averse. The latter does not have to be true. A good example is that people do not believe that they suffer more when they are as a group the victims of a disaster, compared to when they suffered alone. There are several expressions that illustrate this: 'Two in distress make sorrow less', 'a problem shared is a problem halved', and 'misery loves company'. In risk policy, however, the opposite is usually assumed: group risk is considered worse than individual risk.

Process requirements: trade-off between quality and speed

Following their analysis that complex societal problems cannot be solved by governments alone, De Bruijn, Ten Heuvelhof and In 't Veld proposed 14 process requirements for complex policy making processes.³⁶ Such requirements, like 'all relevant parties are involved in the decision making process' and 'the core interests of all parties are defended' increase the quality of the decision making process, for example in terms of support and of the inclusion of useful knowledge. However, fulfilling these requirements can be costly and time-consuming. On the one hand this may be a profitable long-term investment. On the other hand, the downside of developing a full-swing process architecture for all policy decisions with a long-term impact, may lead to unacceptable delay. As soon as a policy problem is considered as a crisis, time becomes a crucial resource and focusing too much on process quality may be not wise.

Transition management: trade-off between 'make-ability' and contingency

Transition management, a strategic approach which aims at stimulating systemic change, is often mentioned as important for sustainable development. This concept has become institutionalised in Dutch policies, starting with the 2002 national environmental policy plan NMP4 and in a taskforce that focuses on bringing about a sustainable transition in energy production. Transition management is multi-level, multi-actor, it deals with uncertainties, it aims at keeping options open, and focussing on learning and envisioning. Thus transition management can have a role in stimulating long-term decision-making towards sustainable development.

However, this approach has been criticised because of its optimism that transitions can be 'managed'. The concept of transitions is said to be still in a 'pre-paradigmatic' phase.³⁷ Its high ambition, namely to induce systems change, which often will be only evident in retrospective, makes it a risky strategy if it is not flanked by other strategies, such as increasing resilience and adaptation measures.

³⁶ De Bruijn, Ten Heuvelhof en In 't Veld (1998/2002). *Procesmanagement*.

³⁷ RMNO (2003). *Omgaan met Kennis in Transitie*.

General recommendations concerning the process dimension of governance:

- Make clear that (a) not all problems are complex but also that (b) complexifying an issue can help creating more interesting win-win solutions.
- Accept that knowledge is disputed; use the whole range of knowledge types, from mono-disciplinary to transdisciplinary, but do not mix up the scientific/technical and the political domains.

4.4 Governance of actor involvement

The fourth dimension of the governance system concerns the involved: their roles, and action strategies towards long-term decision-making. Some of the conditions and trade-offs might be more important for one group of actors than for others. The main actors involved in long-term decision-making are:

Governmental actors, such as ministries, parliament, agencies etcetera. Long-term monitoring and decision-making are often perceived as responsibilities of governmental institutions and official bodies. Traditionally, governments are considered responsible for long-term decision-making, especially for consequences and damages, if the appropriate decision has not been made. Universities and knowledge institutes are in this traditional view considered responsible for providing the knowledge for (long-term) decision making, for instance by clarifying the effects of different policy options. Moreover, the governmental actors commonly represent a state at the European and international levels. Nevertheless - although government influences the process of long-term decision-making greatly, by defining the structure of cooperation of all stakeholders, setting the agenda and goals of long-term decisions, stimulating other actors, communicating long-term decisions, producing consistent and flexible visions on a regular basis, applying and trying instruments – these governmental actors are not by themselves able to identify all aspects of long-term decision making, nor to avert all potential mistakes or hazards.

The main limitations to caring for long-term decisions for governmental actors are the political cycles of 4-5 years, which make taking long-term decision-making difficult. Democratic legitimacy requires elections and, therefore, politicians have a big interest in public support in elections. This may lead to politicians placing their emphasis on short-term views and decisions: the direct results of their work can be shown to the public. On the other hand, the electorate can also be long-term oriented in certain respects and care for the future, so the public might value political parties and leaders in accordance with their long-time views and decisions.

Business community/private sector, such as small and medium size enterprises, big corporations, employers' associations. The main interest of enterprises is to make profit as a result of their activities, and in the stability of profit-making. However, both small and large companies may have good reasons to think about the future. Small and medium enterprises (SMEs) may

be short-term profit-driven and may also not have the capacity (incl. funds) to invest in long-term strategies, but sometimes they are run by the same family for generations, which is an incentive for a future orientation. Also large, family-owned companies tend to put a higher value on the long term than companies represented at the stock exchange.

Some of the large (multinational) corporations show a deep interest in the long-term development of their companies because they understand that their size necessitates a long-term perspective, for example in case the organisation has developed into an ‘ocean steamer’ and cannot change easily when the market changes. Larger companies want to be able to ‘foresee’ risks, such as economic crises, the risk of being split by hedge funds, delay of supplies etc. Some of these companies use scenario’s or other methods to mitigate these significant risks. For instance the multinational oil, gas and petrochemical company Shell has become known for investing in exploring scenarios of global development³⁸ and its implications to the future business environment. Scientists have investigated future trends, trade-offs and choices. Global scenarios have been part of the Shell corporate structure for more than three decades. This helped Shell to useful strategies, for example during the oil crisis in the 70s. Another example is the multinational food company Unilever, which is interested in particular in sustainable fisheries for long-term supplies. By 2006, the company invested around 1 billion in research and development, for example at the Unilever Food and Health Research Institute.³⁹ One more example is that some “responsible lumber companies farm their woods on seventy-year cycles”⁴⁰.

Nevertheless, there is also much ‘short-term’ music in the cockpit of large companies; we only have to mention the short-term thinking and incentives (bonuses, short-term shareholder value) of the financial sector which led to a global financial crisis in 2008.

Recent research suggests that it might be very beneficial for firms to engage in socially responsible behaviour, and thus to have a more long-term perspective on issues as child labour or environmental degradation. The econometrist Dam concluded that: “there are in fact strong linkages between corporate social responsibility and financial performance. The linkages are intuitive: engaging in corporate social responsibility compromises pure profits, but it potentially establishes maximum firm value.”⁴¹

³⁸ Shell Global Scenarios to 2025. Note: Having long-term strategies based on sophisticated scenarios does not guarantee that sustainable decisions will be made. Shell, for instance, has cut investments in solar and wind energy in 2009 because the (short term) profits seemed too low.

³⁹ <http://www.unilever.com/ourcompany/aboutunilever/>

⁴⁰ Gee D. (2002: 6). The paper to the 25th EEA Scientific Committee.

⁴¹ Dam L. (2008: 112). Corporate social responsibility and financial markets.

Civil society, comprising NGOs, trade unions, other organized social groups. The general public usually does not show persistent interest in their own future, let alone the future of others or of society as a whole. Nonetheless, people tend to care about their future more when “...they perceive leaders as trustworthy,...they believe the rules of the game are fair,... they have a deep understanding of system dynamics (R. M. Kanter)”⁴². So, it might be hard for people to approve of long-term investments with only indirect effects for the future, and not many visible effects today, such as research and development or environmental policies.

The role of civil society is very important when science or politicians are unable or unwilling to identify potential long-term effects (for example the potential dangers of new technologies). Civil society has to take a role of pronouncing concerns for possible hazards to the general public and setting the agenda for decision making.

This approach has been actively encouraged in many influential reports of the 1990s (National Research Council 1994 (in Italy); Royal Commission on Environmental Pollution 1998 (the UK); U.S. Presidential/Congressional Commission on Risk Assessment and Risk management 1997; WBGU 2000 (Germany)). However, involving the public not only in all stages of risk analysis but also in helping to set research and political agendas and technological trajectories (Wilsdon and Willis 2004) is not easy. Many experiments, in both Europe and the United States, with focus group, deliberative polling, citizen juries, and extended peer review (Funtovicz and Ravertz 1990, 1992), are exploring appropriate ways forward.⁴³

To sum up, the role of the public and civil society is especially essential in setting political and research agenda's for possible long-term precautionary measures and decisions, especially in those cases, where a lot of uncertainty is involved.

Knowledge and research institutes, such as universities, and research centres. Together with governmental actors these actors are often seen as the main responsible bodies for long-term decision-making (for example due to the fact that they take care of intellectual heritage and its transmission to the future generations). Knowledge institutes and governmental actors are involved in long-term decision-making in a different way. The main roles of knowledge institutes are identifying potential hazards, finding proof of its dangers for people, the environment or its cost in/efficiency to the economy, defining consequences and estimating results of delayed actions or non-actions. When the effects are uncertain or contested a transdisciplinary approach of generating knowledge is vital: “the best available science

⁴² Gee D. (2002: 6). *The paper to the 25th EEA Scientific Committee*.

⁴³ Gee D. (2006: 155) *Late Lessons from Early Warnings: Towards Realism and Precaution with Endocrine-Disrupting Substances // Environmental Health Perspectives Volume 114, Number S-1*.

is therefore a necessary but insufficient condition for sound public policy-making on potential threats to health and the environment”⁴⁴.

The **media** play an important role in informing, explaining, selecting, and hyping of policy-relevant information. There is a growing competition between classical media like print and new, electronic media. Both as regards to the past, current affairs and the future, the media are far from neutral or passive. The illusion that they are a neutral mirror of reality belongs to a forgotten past.

In the attempt to maximise the number of voters, political parties are keen to use the media, as it is merely possible to actually “sell” personalities through mass media. This of course significantly increases the structural dependence of politicians on the mass media. Media and politics, is a relationship based on mutual interest. Politicians need exposure, and the media need politicians in order to produce news, one of their main products. So this dependence is reciprocal. The central position of the media – networks themselves –, with their natural focus on the production of news, causes the political debate to become superficial and short term oriented.⁴⁵

Some of the media have responded to their dependency of politician by attempting to become ‘more populist than populists themselves’, almost always at the expense of analytical depth. Investigative journalism has become an expensive exception.

Meanwhile, the worldwide web provides for a drastic change in the rules of the game. A better educated public has wide access to information, and selects itself in stead of by media filters. Moreover citizens themselves have become media. They may produce world famous YouTube pictures.

Media create realities, they also produce knowledge, and moreover report on citizens knowledge. They are the reporters on scientific findings but also competitors of scientists. The same goes for the relations between media and citizens. This increasing complexity demands efforts in order to gain insight.

Intermediary organisations, for instance advisory councils. The main role of intermediary organisations is bringing together representatives of all actor groups involved (science, politics, business, civil society). Intermediary organisations can create conditions for open discussion. They also help to carry out independent research on potential long-term consequences.

Other actors: It is worth noting separately some specific groups who might have their own particular interests in keeping a long-term view and caring for long-term decisions:

- Insurance companies and their century-scale actuarial tables (due to their interests in sustainability in their fields of interests);

44 Gee D. (2006: 155): *Late Lessons from Early Warnings: Towards Realism and Precaution with Endocrine-Disrupting Substances* // *Environmental Health Perspectives Volume 114, Number S-1*.

45 In 't Veld (2009): *Towards Knowledge Democracy: Consequences for Science, Politics and Media*.

- Pension funds (they are forced to have a long-term view to provide the next generations with pensions).
- Parents (as a particular part of civil society that cares for the future of their children: however, they have more individualistic view on long-term decision-making);
- Judges appointed for life; due to their status and non-dependence on political or other cycles, judges may be more long-term oriented than other governmental actors.

CASE 5: Equal value and the Severn barrage case

The Severn Estuary in western England and southern Wales is being considered for large tidal barrage. The intertidal habitats, the migratory fish runs, and the many coastal habitats are all designated under the EU Habitats Directive of 1992 as High Community Importance. If the barrage was to be constructed, there would be an irreplaceable loss of some 40% of these habitats of EU significance. The EU Sustainable Development Commission, in cooperation with government, is examining the scope for creating additional habitats, while protecting the core of the existing habitat, bearing in mind the possible need for species and habitats to be relocated in the face of the climate change. The project examines the scope for “equal value” replacement on the lines of adaptability, resilience, coherence and ecological integrity. This is long term exploration of a kind that includes all of the key sectors of decision making in a multi government and tiered format. See www.sd-commission.org.uk.

The involvement of all the actors in the process of long-term decision-making is important, or otherwise the balance of interests will be destroyed: involving the different actor groups in long-term decision making might lead to an earlier awareness of the long-term consequences of certain decisions. Nevertheless, the roles of stakeholders vary across countries because of different roles and development of civil society, of the political situation, and the cultural background, which will be discussed.

One of the problems of long-term policy-making is that, if the lead time is long, the people who will profit or suffer from the decisions, may not yet be born. This is why the Brundtland definition (1987) of sustainable development explicitly addresses the responsibility of current generations for later generations. However, some stakeholder groups will focus more on the interests of future people than others. Is the first category more representative, or not? Another problem is that the interest conflicts are doubled: they arise not only between actors, but also for each actor between short and long term interests.

These two problems should be tackled when the question of participation or co-decision is dealt with. A general recommendation with regard to the process design is the following.

Recommendation 13: During long-term decisions making processes, mapping the long- and short time interests of all stakeholders creates more complexity but also more opportunities for package deals; in addition, it may be useful to explicitly ‘emulate’ future (not-yet-born or -articulate) stakeholders’ interests.

4.5 Leadership

Leadership is of course an aspect of the ‘actor dimension’ of the governance system. We will discuss it here separately, because, as we will illustrate, the type of leadership and its match with what is found necessary or acceptable, may have an enormous impact on the success or failure of long-term decisions.

The first issue here is political leadership and rationality. This is basically about the tension between electoral considerations and taking long-term decisions. Leadership and a political rationality are tools that politicians can use. Here the following questions can be asked: How to find a rationale for political leaders which makes it more attractive to them to take the risky road of long-term decision-making? How does this relate to the rationality of looking at the electorate (which relates to the communication issue, see above)? How is the relation between the time horizons of voters and of politicians? Is it necessary for politicians who want to take long-term decisions, that this is broadly supported by society? And how can this be achieved better?

The formulation of consistent and widely shared visions seems to be one of the prerequisites for long-term decision-making. A vision sketches a picture of desired long-term developments. A shared vision can form the basis for formulating goals, and designating instruments to reach these goals. Shared (transdisciplinary) knowledge production forms one of the inputs for vision making. Questions can be: How should visions be produced, and translated into goals and measures? How should the vision be monitored and updated? How to communicate the vision? One of the trade-offs in this field relates to leadership. It is a dilemma that is often encountered when producing strategic visions for the future: it concerns the trade-off between the poles of leadership (as making tough decisions) on the one hand and participation and consensus-creation on the other. A Flemish case illustrates this dilemma:

The trade-off ranges between the poles of leadership as taking decisions on one end of the scale, and the necessity to allow for participation and the creation of consensus on the other end of the scale. The Flemish study shows that in some cases there was societal ‘resonance’ of the visions, although the strong political character of the strategic visions make such plans vulnerable to changing political circumstances. The same situation can be seen in

CASE 6: The Flemish Government's strategic plans for the future

In a recent study, the Minaraad analysed the most important strategic plans for the future that the Flemish Government presented in the last 20 years. Three socio-economic action plans (presented respectively in 1993, 2000 and 2006), the Environmental Action Plan 2003 – 2007 and the Flemish Sustainable Development Strategy of 2006 were compared and analysed. All plans for the future point out the importance and necessity of a forward-looking government policy. At regular intervals, among other things at the start of a new term of office, initiatives were set up to show that forward-looking action by the government was taken. Given the large variety in objectives and motivations behind the examined plans and the limited time frame of this study, it was impossible to draw up uniform and objective conclusions as to their effectiveness. Some of the broad socio-economic action plans received some resonance in society that went further than the traditional policy-maker circles. Therefore it can be carefully stated that these projects had some mobilising effect in society. An important conclusion is the strong identification that exists between some plans for the future and the political initiators. As a result of this, these plans are very sensitive to a changing political situation. That's why many plans are dropped when new policymakers take up office. It was also concluded that the participation of stakeholders in future scanning and future planning processes (from individual citizens to civil society organisations) largely takes place in the traditional manner. Priority is given to mobilising people and providing information and advice. Extending participatory processes to co-decision and implementation has not featured as much up till now. Finally, it is striking that the forward-looking policies are often drafted from a defensive point of view. The motivation of the plans is to protect the social achievements from the threats of globalisation. It would be a challenge to develop plans for the future that are more focused on future potentials and opportunities. This would lead to more proactive policies, using plans of the future (as process) to help create desired sustainable developments.

the case of the Finnish National Commission on Sustainable Development (FNCSD) that produced national strategies for sustainable development. These strategies were then integrated into the work of the new government in 2007. But this success was dependent on the support of the Prime Minister Matti Vanhanen. In the figure below we depict the dilemma between

(the strictly hierarchical form of) leadership⁴⁶ and participation in strategic decision-making.

TRADE-OFF: CENTRALISED LEADERSHIP AND PARTICIPATION IN STRATEGIC DECISION-MAKING	
Positive: Consistency of visions Ability to make tough decisions	Positive: Possibilities for consensus Widely shared visions
Leadership	Participation
Negative: Ownership problems at lower levels: only the leader is responsible	Negative: Avoiding decisions Never ending talks Which interests are served?

Figure 9 Trade-off: Leadership or participation?

CASE 7: Belgium’s decisions on the phase-out of nuclear power

The first three nuclear power plants in Belgium were in operation in 1975. The oil crisis was one of the reasons to use other resources than oil for energy production. In the 1980s 4 more nuclear power plants were opened, making a total of 7 for Belgium, which made it the most nuclear-dense country by that time. After the Chernobyl disaster a moratorium on nuclear power plants was established in 1988. The original decision was to keep the nuclear power plants in operation for 30 years, in 2003 this was prolonged to 40 years. But at the same time a law on nuclear phase-out was adopted. This means that all 7 nuclear power plants will be phased out between 2015 and 2025. The law on nuclear phase-out was studied in detail by parliament and was discussed intensely. Contrary to the creation of nuclear power, where no societal discussions were held, the nuclear phase-out has led to many debates. Over the last years the phase-out has been questioned by electricity companies (Electrabel), politicians and pressure groups. Scientists are also divided: some have asked in the commission 2030 to keep the nuclear power plants open, and also FRDO (www.frdo.be) has published a report on the matter. Since there is no unanimity, a new government might want to reconsider the nuclear phase-out, based on reasons of securing energy provision, reducing greenhouse gases and maintaining affordable energy prices.

46 There are many different styles of leadership. The form of leadership depicted in this dilemma focuses on the more ‘classical’ form of centralised hierarchical leadership. Besides this directive style there are other styles, such as delegating, coaching and enabling forms of leadership, where the ‘leader’ consequently lays more responsibility in the hands of the other person (Hersey and Blanchard, 1982)

Positive sides of leadership while making strategic decisions can be the consistency of the strategic plan, and the ability to make decisions; at some points tough decisions that balance between the various interests need to be made. A downside of leadership in producing strategic plans is that other actors do not feel responsible for the process of the strategic plan: there is an ownership problem. Extensive participatory processes in strategic planning processes provide possibilities for consensus and a possibility to receive broad societal support and impact in society, nevertheless such processes can also lead to avoiding tough decisions, a feeling among the participants that talking will never end (and implementation will never start), and the question which interests are served: some actors will feel that their interests were not represented, underrepresented or ignored, once decisions that have to balance between diverting interests have to be taken. The following Belgian example shows that visions can and will be changed over time.

The situation described above can be compared to the history of subsidies for sustainable energy in the Netherlands. The Dutch policy of subsidies for solar energy was abolished in 2003⁴⁷.

CASE 8: Interrupted renewable energy policy: The end of solar energy stimulation in the Netherlands

The main reason for abolishing the solar energy subsidies, after the mechanism had become so successful that there were many more applications than the budget allowed, was that solar energy in the Netherlands is not very effective in terms of CO₂ reduction. The sudden stop of the subsidies contributed to a decrease of private investments in solar energy, in financial problems for SMEs involved in this innovative sector, and in a decrease of public support for solar energy as one of the elements of a sustainable energy policy. From a sustainable energy perspective, there are at least five other reasons why solar energy should be stimulated: diversification, dependency on energy import, innovation policy, employment, and consumers' environmental awareness. This example illustrates that one can always construct an argument against a policy, if the policy objective is framed in a specific way. The other way around: sound long-term policies should not be based on one, detailed objective alone.

The same probably goes for the Belgian case: based on some goals it might seem a good choice to post-pone the nuclear phase-out, although the persistent use of a sustainability perspective that focuses on the long-term

47 For a critical appraisal see RMNO (2005). Meanwhile, new subsidies have been introduced.

might lead to an eventual phase-out of nuclear energy. Here, the following trade-off can be observed (see figure below).

The American case below shows that weak leadership can lead to grievance failures: the short-term interests of certain parts of the private sector were not weighed against the long-term societal interests. In this case the inability to uphold public interests and public goods can even lead to decreased legitimacy of governmental actors.

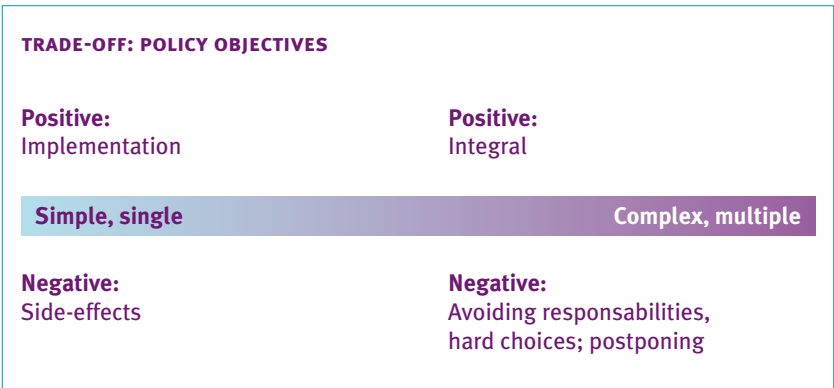


Figure 10 Trade-off: Simplicity or complexity?

Political leadership and rationality are related to the foundations of democracy. Democracy is often used in two different meanings: an instrumental vision (democracy is an efficient way of decision-making) and a substantive view (democracy is a societal ideal, a value in itself) (for example through representation). In this project a choice is made for the former meaning. Questions that can be asked in relationship to the foundations of democracy are: What are the perspectives for long-term decision-making in different types of (mixed) Western democracies? How to deal with the emerging ‘deliberative democracy’ in relation to the classical ‘Rechtsstaat’ (continental) and ‘public service’ (Anglo-Saxon countries) types of democracy? In this respect, the argument of Dahrendorf, Castells, and In ’t Veld ⁴⁸ can be considered: most institutions of democratic states were developed in the 19th century, and it can be questioned whether these institutions can still tackle the challenges for the coming centuries. Critical reflection on the functioning of contemporary democracies is needed.

⁴⁸ In his inaugural address at Hogeschool In Holland in the ‘House of Democracy’, Dordrecht (In ’t Veld 2007).

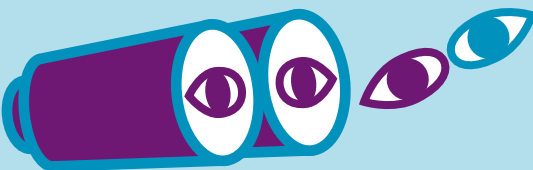
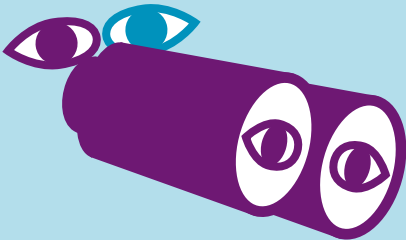
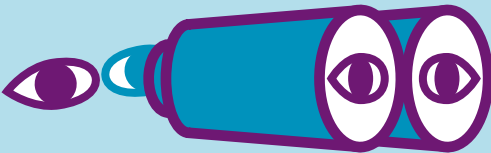
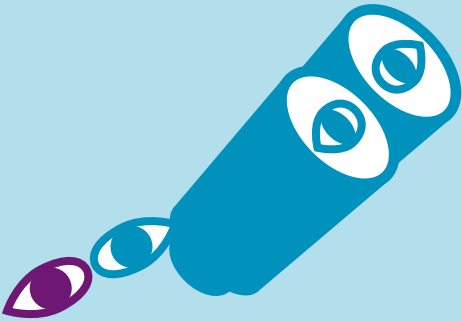
CASE 9: A case of weak leadership: Public transport in the US

Los Angeles (and many other US-American cities) once had one of the most extensive and efficient public transport systems in the world (streetcars, trolleys and rapid transit lines). In the 1930s the L.A. “Pacific-Electric” as well as streetcar transit systems in 44 other cities were bought up by a consortium, “National City Lines” composed of two car-, one tire- and one oil-company, and closed down. This was not a decision by the communities, but it was commercially driven, and in addition turned out as illegal, because it was in breach with anti-trust laws. This commercial decision ended the era of “transit cities” in the USA, i.e. those type of cities based on trams and trains, which can spread 20 to 30 kms with dense centres and corridors following the rail lines. In the US they were typical for the period of 1850 – 1950, with some of old inner cities still of this type, but most replaced by “automobile cities” thereafter.

Even without decisions or intended developments with such a malicious background a lot is at stake for the bigger and smaller cities of the developing countries. If the city councils of London and Paris more than 100 years ago had looked at cost-benefit-analysis it is likely that they would have not built metros. With the already existing automobility it is nowadays even more difficult to take decisions for investments in public transport. But if not, the consequences will be as long-lasting as the end of the “transit city era” in the USA.

Source: Newman, Peter & Kenworthy, Jeffrey (1999): *Sustainability and Cities: Overcoming Automobile Dependence*. Washington. p. 30-31.

See also the film “Taken for a Ride” (1986) <http://www.imdb.com/title/tt0236785/> Newman, Peter & Kenworthy, Jeffrey (2007): *Greening Urban Transportation* (article in preparation).



Attachment

The rehabilitation of Cassandra (excerpts)

A methodological discourse on future research for environmental and spatial policy

Prof. dr. Roeland J. in 't Veld (editor)

Report of the working group Methodology within the framework of the Future Research and Strategic Environment and Spatial policy project

WRR-RMNO-NRLO 2001 (Dutch language version)

This attachment contains excerpts from the English edition (2009). The complete text is available for download at www.knowlededemocracy.nl and www.rmno.nl

Characteristics of TO₃

To differentiate from the common concept of future research, in the following section, the term TO₃ is introduced. This stands for a triple approach to the future: orientation, design and research. We intend in this way to emphasize that it is more than simply a question of ‘scientific’ research.

TO₃ has particular characteristics which require greater attention to be paid to the process aspect. We make a distinction between:

- TO₃;
- Future-oriented research;
- Normal research.

The distinction between these types of research is not black and white, but graduated. In fact, the tripartite division represents a continuum.

In this chapter we address: the subject, the aims, the methodology, the methods and the assessment of TO₃. On the basis of these characteristics we formulate the knowledge and process requirements for TO₃. In the view below, therefore, a number of characteristics of TO₃ are identified, whereby our assumption is that as these characteristics manifest themselves more prominently, there is a case of TO₃.

Object: The future

The fact-finding exercise to trace the causes of the disaster in Enschede (fireworks factory explosion, 2000) makes it crystal clear how difficult it is even retrospectively using a thorough and large scale investigation to determine indisputably the facts in a given situation. In TO₃ such a determination of the facts is pertinently impossible - insofar as it concerns the future⁴⁹. The past is what it is and is a fact. It can be interpreted differently, but can no longer be changed. For the object of TO₃, the future, it is a different matter. Future research is concerned with a reality which does not yet exist (Van Latesteijn and Schoonenboom, 1997, p. 62) and which, like the object of general scientific research, cannot be tested at the preset time⁵⁰. A characteristic is that it is always research into a construction and not into representations of a reality which can be perceived. The future yet has to unfold.

It is very probable that the course of events will be influenced by human behaviour, or by unexpected developments. These interferences from events or from human behaviour make the future uncertain. People not only try to predict the future, they also try to interpret it, to influence it and to make it (Van Gunsteren, 1994, p. 31). This makes the future in many instances unknowable.

⁴⁹ Moreover, it should be stated here, to put things in perspective, that in the case of Enschede, the Netherlands, this was an investigation of a disaster, whereas in future research it is the structural trends and their impact, rather than the events themselves which are the main issue.

⁵⁰ There is a discussion about whether testable is the same as verifiable. In the case of verification, experiments are used to confirm the theory. Whether testable means that the theory can be falsified: in practical situations it is possible for the theory to be refuted. A compromise was formulated in the early seventies (J.D. Sneed) and the area of application of a theory became a criterion. This is a pragmatic approach.

But not in all cases. If it is possible to directly relate events or phenomena, it is possible to make predictions with a high degree of probability. This is in part dependent on the degree of to which researchers and policy-makers believe that the future can be known⁵¹, but it also depends on the degree of predictability of the field of research. The predictability is also related to the structure of the particular field, which, based on (scientific) knowledge can be brought into the reality. Future events, which depend purely on the working of natural laws, can be predicted. We know what happens if we drop something (it falls to the ground), or if we hold a lighted match to the gas (it flares up). In *Predicting the Future* (1998) Rescher gives an overview of the conditions which have to be met by the field in which the prediction takes place in order to be able to make a probable prediction (Figure 10):

THE SYMPTOMS OF A DOMAIN CAN BE PREDICTED WITH:	ON THE CONDITION THAT THIS DOMAIN HAS A STRUCTURE WHICH:
An expert assessment	Can be learned and known
Trend extrapolation	Demonstrates trend uniformity
Establishing a pattern	Demonstrates stable temporal patterns
Proportionality	Has actual proportionality
Indicators	Demonstrates stable correlations
Natural order	Is ordered (regular)
Modelling	Has a fixed structural modus operandi

Figure 10 Conditions for predictability

General scientific research and future-oriented research provide the type of predictions about the future which are as precise as possible. In the scientific arena this is even an assessment criterion: if a precise prediction can be made on the basis of a theory or empiric finding, then this constitutes research which is universally tenable and is, therefore, good scientific work. This kind of accurate prediction can be used in (scientific) sub-sectors and is reasonably successful. Anything which can be precisely calculated in advance cannot be influenced, which is an interesting fact for the players who want to intervene in the area. It sets limitations on the sphere of activity of those players. These advance calculations about sub-systems on the basis of normal research and future-oriented research can be used as an element of TO₃.

One difference between normal research and future-oriented research is that TO₃ aims to describe and evaluate the future as a whole. TO₃ establishes a cohesive picture of the future, taking into account the interconnection between different realities, or interacting systems. The problematique moreover is characterised by overwhelming uncertainty and complexity. Normal

51 This affects the scientific-philosophical discussion about the possibility of knowing reality. Constructivists, for example, assume that all statements about reality are constructs.

research and future-oriented research therefore are not enough. With social-scientific research experience is gained with the complex material which this approach generates⁵². In order to be able to understand and research the social environment as a whole, social scientists take into account the interactions between the players and reality, for example policy practices and the institutional environment. It is more difficult in this field than in natural sciences to discern direct relationships. Ester, Geurts and Vermeulen talk here about uncertainty, chaos and coincidence in their publication *The Makers of the Future* (1997). Because the social environment is relatively unstructured, they believe that only limited comments can be made about the future.

There is even greater complexity and uncertainty in the field of future research than with social scientific research, because the subject is the future and, as we have seen, the interference from the researchers themselves or from other players is greater and because statements about the future cannot be directly verified.

TO₃ offers opportunities to sketch a cohesive picture or pictures of the future. It is an area of research in which the cohesion of systems and their future interactions will be investigated. Normal research and future-oriented research can be applied here, but these are in themselves not sufficiently well equipped to sketch cohesive future images. Research which is used to make precise statements or predictions is referred to as normal research or future-oriented research. Much of the research which is carried out in the Netherlands by the WRR (Scientific Council for Government Policy) or by the CPB (Central Planning Bureau) is future-oriented research.

In short, the object of TO₃ is a future which can be regarded as far as possible as a whole. Characteristics of TO₃ are:

- making statements about developments which have not yet occurred,
- statements made are about interactive systems (certainly in the semi-integrated field of strategic environment policy),
- the complexity of the interacting systems increases because they do not only interact in the present time, but players also try to influence the developments of those systems in the future. There is, then, a double complexity because the uncertain future has to be understood as a whole.

On the basis of normal research and future-oriented research alone, it appears impossible to make connections between different developments

⁵² According to some scientific-philosophical approaches, all scientific statements are concerned with complexity and uncertainty (in part through the interests of scientists and users of research). See, for example, Knorr-Cetina (1981) or Latour and Woolgar (1979 and 1986). In addition, some scientific philosophers differentiate between the exact sciences and social sciences in terms of the laws of natural order which can be formulated in these fields. Refer also to Laeyendecker (1984) who gives a summary of which theories give explanatory factors for changes, and which also indicate the paradigms with which one can look at these changes, for example, atomistic or holistic paradigms. TO₃ could probably be placed in a holistic paradigm.

which may be likely to occur and their consequences. It is for this reason one of the knowledge requirements of TO₃ that different types of knowledge are related so that more cohesive future scenarios can be sketched. Predictions about sector areas and knowledge about the current state of affairs has to be combined with the wishes, desires and knowledge of the players.

TO₃ methodology

A particular characteristic of TO₃ is that dissimilar types of knowledge about the future are linked with one another to form cohesive images which have to be relevant for the principals, the researchers and other players. Normative and empiric certainties and uncertainties of interacting systems in the future have to be explored and linked with one another. This means that the wishes and interests of the parties have to be linked with the facts and that the uncertainties (caused by the interferences and lack of knowledge) also have to be made explicit.

With TO₃, the emphasis shifts from striving for validity and probability⁵³ to other methodological aspects. Probable knowledge is still an element of TO₃ but the plausibility of knowledge, in view of the link with perspectives for action, is of real concern.

Probability and validity are important criteria for normal research and future-oriented research which can be used in TO₃, but they are not methodological requirements for TO₃ itself. It must meet the following requirements:

- plausibility: likelihood of a development;
- possibility or feasibility: tries explicitly to pay attention to the different technical-scientific matters which can be assessed objectively, and the subjective evaluations (Van Latesteijn and Schoonenboom, 1997, p. 69 and 70).

To comply with this, knowledge from normal research and future-oriented research is linked to knowledge from transdisciplinary research. This knowledge also has to be related to the interests and wishes of the players about the future. Moreover, intuition, creativity and reflectiveness (empathy) are necessary to make the connections between the different possible developments in the future. This requires more attention to be paid to organizing the involvement of and productive participation by experts, interested parties and others concerned (In 't Veld et al., 2000). We then recommend that for every TO₃ it should be established what types of knowledge have to be linked with one another and which players have to be involved.

⁵³ Probability: *this is a scientific term from mathematical calculation of probability (in our view above all characteristic of future-oriented research).*

Transdisciplinary research and the art of linking dissimilar types of knowledge

Conducting transdisciplinary research is probably sufficient to link knowledge. This type of research, like TO₃, tries to do justice to the complexity of reality by not reducing this reality to sub-systems. Transdisciplinary research is generally about the process of knowledge production and about the interpretation of the results and the way problems are defined. Transdisciplinarity means that in implementing, organizing and justifying science, boundaries which apply in normal and future-oriented research will be exceeded. In transdisciplinary research it is essential that:⁵⁴

- scientific disciplines are truly integrated (cooperation between different existing disciplines is not sufficient);
- knowledge is generated in the context in which the knowledge acquired will eventually be used;
- the research team consists of participants with different experiences and skills, and should be subject to modification according to the skills required;
- knowledge production takes place in different types of organizations, not only in the universities (Gibbons, 1994, see Van de Kerkhof, 1998).

We establish here that TO₃ in any event benefits from transdisciplinary research, because it can use the links which are made between different types of knowledge. It more fully recognizes the complexity of reality. But the object of TO₃, futures, is subject to a double complexity (see paragraph 4.2.1). To be able to relate knowledge from normal research, future-oriented research and transdisciplinary research to the players' wishes and desires and to their perspectives for action, research into these wishes and desires alone will not suffice. Besides scientific experts, in our view, players and interested parties must be involved in the linking of dissimilar knowledge.

The use of experts, players and interested parties for linking dissimilar types of knowledge

Scientific rationality is to a certain extent useful for TO₃, but other approaches are needed in order to be able to formulate cohesive future images. Transdisciplinary knowledge is useful and already pays much more attention to the process of linking knowledge, but also the knowledge about which a group of the parties involved is in agreement must be used. This way of thinking is strongly influenced by the German philosopher Habermas. It is his opinion that: "We should not renounce reason as an informing principle in present day society, but we should shift our perspective from an individualistic subject-object assumption of reason, to an assumption in which inter-subjective communication forms the reason."

For TO₃ carried out for strategic environmental and spatial policy, it is important to use inter-subjective communication as an informing principle. That is,

54 There are people who argue that transdisciplinarity is necessary in modern science.

that the future images which have been sketched are the *result* of a process which includes communication. This communication is used to establish what possible (conceivable) developments in the future may be. The content is not at this moment important, but attention should be paid primarily to how it is arrived at. The process (HOW) of knowledge gathering has become more important and also determines the content of the knowledge (WHAT). It is not only the contribution of scientific experts or of normal research or future-oriented research which determines what the likely future images are, but other relevant players, too, can contribute their knowledge and wishes (see also De Roo). For TO₃, this is, in our opinion, particularly relevant because other players also try to influence the environment in a (normative) direction which is desirable for them. They in this way exercise influence on the course of a number of developments and to a certain degree know what their plans are for the future. The basic principle is that the knowledge contributed by all players is important and informative, as is the knowledge from normal research and future-oriented research. One requirement of the process of TO₃ is therefore that the contribution of the players involved should be taken seriously.

There is a tradition of thought about the relationship between science and policy in which the degree of structure of a problem, the scientific certainty and the social interests which play a role determine the way in which knowledge about the issue can be gathered. (see also Hisschemöller and Hoppe). The term ‘expert science’⁵⁵ comes from this tradition and was introduced by Funtowicz and Ravetz (1991). They mean by this the field in which there is considerable mutual inter-dependence of the policy-makers and scientists. The interests of the policy-makers are not simply left to the scientific elite; this is why we have experts. An expert is a person who has demonstrated particular qualities within the scientific arena and that he is a person to whom policy issues can be entrusted. On the basis of the acceptance in both these arenas, the expert can bridge the gap between the knowledge and policy arenas. Many researchers use the concept of a “boundary worker” for this bundle of competencies.

The expert can use his specific skills in a scientific field to evaluate whether statements made about the future are plausible. A model in which possible future economic developments can be charted is for example based on a number of assumptions about the relationships between variables. These assumptions have to be plausible (not per se scientifically demonstrated). For example, in the case of the statement: ‘If the American economy continues to

⁵⁵ Funtowicz, S.O. and J.R. Ravetz (1991), quoted in Van Latesteijn (1999, p. 41-43), distinguishes normal science and post-normal science. In normal science there is a high degree of scientific certainty and there are few social interests/concerns. Expert science is the domain of scientific experts, who are working in the area of policy-makers and who weigh up the different interests on the basis of specific expertise. In post-normal science the scientific uncertainty and social interests are relatively greater and according to the authors, other scientific rules should be applied.

grow, then the same will happen in the Netherlands', the assumption that the American economy will grow has to be plausible in order to make acceptable predictions about Dutch economic growth. Experts can also evaluate whether a particular future is possible. On the basis of a convincing argument, an expert can substantiate the selection of relevant conditions for a particular development.

Experts can fulfil an important function in the process of linking dissimilar types of knowledge, as is done with TO₃. They can also establish whether the future is plausible. TO₃ is in fact in the domain of post normal science on the grounds of double complexity because the future has to be brought together as much as possible in cohesion, and because the course of the future can be subject to interference. Social interests play a very great role and there is a high degree of scientific uncertainty.

Interested parties, players in the policy field, skilled experts and/or other eminent persons therefore have to be involved in the process. They possess (normative) knowledge and wishes which are relevant to gain insight into the possibility, plausibility and usefulness of future scenarios. The players can give unexpected insights and forge possible links between developments in the future which are excluded in normal research, future-oriented research and transdisciplinary research because they are probably not considered valid.

In summary, attempts are made in TO₃ to establish normative and empirical certainties and uncertainties. This takes place on the basis of communication between all the players involved. Knowledge from normal research, future-oriented research and transdisciplinary research can be used, but also the contribution of other players has to be taken seriously and be included. The findings of future research can only be plausible and useful if all the players involved contribute to the research. These are also the people who can test the images of the future on this aspect. One of the process requirements of TO₃ is that the contribution of all players has to be taken seriously. The communication between the players establishes what is regarded as possible future scenarios.

The process of gathering knowledge and information about the future and the policy-making process may coincide or may be interwoven while the communication process is in progress. There are also instances when normal research and future-oriented research are separated from the communication process with the players. Normal research and future-oriented research have to continue to meet the demands of their own methodological requirements. It is useful in every TO₃ process to determine at what points normal research and future-oriented research have to be interwoven with the communication with the other players. Moreover, it is important to determine who takes part in the discussion. The degree of interconnection and the participation by players is in part dependent on the objectives and the content of TO₃.

Discussion of TO₃

Methodological innovations relating to TO₃ should in our opinion certainly also be focused on better attainment of process ambitions. If the Ministry of VROM decides within the framework of Nederland 2000 to consult with housing corporations, project developers and residents' associations, and enters into internet discussions nationwide with individual farmers, citizens and others involved there is more at stake than just the technical quality and scientific underpinning of the resulting future scenarios⁵⁶.

It can be made clear that a process perspective on the added value of TO₃ in the methodological sense means a real about turn in thinking by relating this to the contribution made to the discussion by Staal and Van Vught in the late eighties about the overdue methodological reflection which could be deduced from fifteen years of future research by the WRR⁵⁷. Staal and Van Vught write in their survey literally: 'With all due respect which one (WRR (ed.)) should have for attempts to explore the future, it has to be realized that the actual influence on policy practice has been minimal.' They seek the explanation for this partly in the methodological quality of WRR future research. From the explorations which have been conducted within WRR a preference can be seen for subjective (rather than objective) methods; methods of which the disadvantages are sufficiently well known from relevant literature: in the last instance it appears that the statements about the future are based on non-verifiable, individual processes of choice and there is a lack of a foundation to underpin statements about the future using scientific argumentation. Staal and Van Vught expect that the relevance and legitimacy of future research can be increased by providing a scientifically anchored methodological (viz. objective and causal instead of subjective and naïve) basis for future research (Staal and Van Vught, 1989, p. 307-311).

It may meanwhile be clear that this is not our opinion. In order to increase the relevance and legitimacy of future orientation, development and research (TO₃), more attention has to be paid to the scientifically anchored methodological basis of future-oriented research. But strengthening the basis of TO₃ should not be focused so much on the development of objective and causal research methods as on the reinforcement and renewal of methodologies at the point of process development.

Points of connection for these innovations can be found with existing participative or interactive methods of TO₃. The scenario methodology is a well known example of participative forms of future research. Scenarios come

⁵⁶ *It is a matter of more than an unfortunate choice of concept if one qualifies such a method of future research as naïve (Staal and Van Vught, 1989): this includes an assumption about methodology of future research which is no longer current.*

⁵⁷ *We discuss this specific contribution to the discussion by WRR more extensively because this in our opinion touches on the core of the T&O working group: the methodological dimension of future research.*

in many different shapes and sizes⁵⁸. They are also used in future research to make visible the margins in long term predictions. With participative methods, the uncertainties in the future are determined by the players. These form the basis for the scenarios (see also Schwartz and Van der Heijden). In TO₃ where design are key, predictions are not made based on the existing situation, but possible future images as a whole are developed (see also Frieling, 2000 and De Jong, 1992). Here the emphasis is placed on creative input from other players, such as architects.

Other participative methods of TO₃ in which the process plays a central role, are future wheels, gaming and simulation (see also appendix 2). Whether the future images are plausible or attainable is generally not relevant in terms of their usefulness. They are instruments in a learning process. This form of TO₃ does not generate any knowledge about the future as such, the learning process of the participants is key. This is often referred to as future search (Fuller, Griffin, Ludema, 2000). These techniques are often applied in participative decision-making and can be compared with instruments used here which do not deal with the future, for example the Group Decision Room. These are primarily methods of arriving at more creative statements about the future, which at the end of the course have a particular rationality in terms of communication.

Naturally, this form of TO₃ is only relevant as an instrument in the decision-making processes in the arena of policy and management. It is an instrument for the learning process or a communication instrument. It is not only the method, but also the content which then becomes relevant for the decision-making process. The future images are not optional. In ‘Looking back at Future Explorations’ by the T&O Steering Group, it appears that the longer the process continues or the more relevant it becomes in the strategic decision-making process, the more important, relevant and plausible – as well as more likely - the content becomes. Even if the researchers indicate that these are only images, which are used as an instrument to free the ‘spirits’, the images are often interpreted by the users as either not desirable or not possible.

In a TO₃ set up from a process perspective, there is a significant role for technical experts. Experts can start by bringing structure to the process and can indicate what from a scientific viewpoint is impossible and no longer tenable. They can also make clear what uncertainties there are relating to assumptions about the future. The actions of experts can sometimes have a depoliticizing effect in a process, for example when they can use their specialist knowledge to mediate in differences of opinion held by the parties involved or concerned. A further not insignificant consideration is also that technical

⁵⁸ Scenario building is also used in future research which strives for statements which are as precise as possible, but where there is some reticence about the ability to predict. In these cases it is not the building process which is key, but the knowledge which is included in the scenarios. We are now talking about the scenario methods in which the building process is constructed with players other than only the scientific expert.

experts can act as informants for the participants in a process, including when it is necessary to reveal what on the one hand is really firm and undisputed and on the other hand that which can still be negotiated. Finally, in the process that should lead to the production of TO₃ there is a role for experts in monitoring the technical quality which may be attributed to the findings. Nobody benefits if what comes out of the process only leads to negotiated nonsense (De Bruijn e.a., 1998). Examples of methods which attempt to do justice to the content and to the process include: future explorations, the Integrated Assessment Methods and some forms of scenario methodology.

The difference in approach of future research does not then lie in the question whether the content matters or not, but in the question of how this content is generated: separate from the policy process, by scientific experts to whom the exploration of the future is mandated as a separate activity, or in a process of direct interaction with the parties involved and concerned, where the contribution of scientific experts is included. If it is, for example, a matter of establishing what the consequences of technology development are for future spatial requirements, it is, of course, not the case that there is no place for the contribution of experts in determining an increasing or decreasing need for space. Experts can help clarify processes of substitution and indicate where technology can offer an alternative for space requirements on an aesthetic, ethical or erotic level, for example by virtualising. In this way they enrich the quality of the substance of future research.

The quality of the substance and contribution of technical experts in enriching the results are not the only essential knowledge requirements in the organization of TO₃. What is particularly important is the conclusion that future research set up from a process approach, can serve substantial aims as well as process ambitions. Maybe precisely as a result of the contribution of those concerned and involved, policy-makers will be enabled to develop more precise knowledge – because it is self-fulfilling - about the future which contributes to early warning for risks and early detection of windows of opportunity (see Rademaker, 1994).

In short, we saw that for the methodology of TO₃ more attention must be paid to the process. Probability and validity are no longer the methodological requirements for TO₃ but plausibility, possibility and usefulness.

We advocate that in the discussion about the future, use should be made not only of scientific experts, but also of other interested and concerned parties. This is in order to be able to do more justice to the subject of research, the future, and to be able to devise strategies which are relevant for the players involved. In addition, one requirement of many variants of TO₃ appears to be that the technical quality is maintained. With TO₃, knowledge from normal research, future-oriented research, transdisciplinary research and the knowledge, wishes and interests of actors are linked. There are a number of methods whereby this is attempted, but the contribution of players is often not guaranteed or taken seriously. Points of application for a more process-

oriented approach can be found with participative forms of TO₃. The degree to which the process requirements and/or the knowledge requirements must be adhered is dependent on the particular objectives of TO₃. That this can differ per objective is apparent from the following paragraph.

Objectives of TO₃

There is a dominant stream in the literature about future research which assumes that with (policy-focused) research the final goal is to make statements in a scientifically responsible way about future events (Becker and Dewulf, 1989, p.2). With more precise predictions, it will become clear and understandable where it is possible for policy-makers and politicians to steer and where not. In this tradition, the goal is to provide information to policy-makers about developments which are expected in sector areas of reality (see also Staal, 1988, p. I and ii). The sphere of activity of the players in this tradition is determined by the knowledge (knowing) generated by science. The idea behind this is that by separating the sub-arena of future research and the policy arena, the researchers can give good information to the policy-maker.

In the previous paragraphs it has been established that the characteristics of TO₃ in relation to the methodology and the methods, engenders considerations and complications about the degree of predictability of the future. A considerable area remains which cannot be calculated so precisely in advance and which therefore cannot be defined with this future-oriented research. The considerations and complications particularly apply if one has ambitions for TO₃ in the field of substantial knowledge increase. The same considerations and complications are far less insistent if the ambitions for TO₃ are to bind the players, encourage learning processes and increase the insight of those involved into the uncertainties which surround future policy. Then there is not only the question of how the future will look, but the question also arises of how the uncertainty about this and all resulting dilemmas can be discussed, recognized and shared with others. In other words, the aims of TO₃ in part determine the requirements which are made of research.

From the Quick Scan, ‘Looking back at Future Explorations’ and also from the interim report of the studies into the four cases which have been mentioned in the framework of the T&O project (see ‘Sidelight on Future Research’) it appears that TO₃ often has diverse aims:

- putting issues on the agenda and generating policy options
- forming of coalitions
- formulating views
- instigating awareness processes (learning how to learn and changing role concepts)
- creating sensitivity to possibilities and impossibilities which may lie hidden in the future (learning to adapt).

The possibility should not be excluded that future-oriented research, with the primary aim of making probable and maximally objective predictions, might also have these secondary aims. Moreover, for most of these aims, it is the case that in the course of the process the content of the future images created does matter significantly. On the basis of the statements in chapter 4, based on the results of the research for ‘Looking back at future research’ and from the research for the four cases (see also ‘Sidelight on future explorations’), we can carefully formulate the following knowledge requirements per sector:

TO₃ aimed at putting issues on the agenda and generating options, has the knowledge requirement that use should be made of normal research, future-oriented research and transdisciplinary research, whereby these creative and intuitive ideas have to be linked and other viewpoints are needed to be able to arrive at new options;

For the formulation of visions, the ideals and creative viewpoints of the players are important to be able to bring cohesion to the developments and to add the perspectives of the players. Here, too, knowledge is needed about future developments which can be provided by experts.

Forming coalitions requires knowledge about the political context. For instigating awareness processes and for creating sensitivity to possible and impossible developments, the process requirements are stronger than the knowledge requirements. The future images must for both aims be extremely surprising, but plausible and useful (conceivable and in some cases possible).

Process and knowledge requirements for TO₃

TO₃ must result in plausible, useful and possible future images. The future images must moreover contain the conceivable interactions and the possible consequences of these between developing systems. This is dissimilar to future-oriented research which can be evaluated on the basis of technical and scientific precision. TO₃ must be assessed on its process significance in the process of strategic policy formulation (compare Dammers, 2000, p. 54-55).

The knowledge which is generated within TO₃ itself (with the help of results from normal and future-oriented research) can only be evaluated on the basis of the plausibility, usefulness and possibility of those images, as established by the participating players.⁵⁹ It should be emphasized that this evaluation does not only rest in the hands of the principals.

Process requirements

One of the most important benchmarks for the process which should lead to the production of TO₃ is consensus or agreement to disagree about the result.

⁵⁹ This does not mean that the participants have to consider all future images desirable, there may also be agreement about the possible diversity of these images. What is important is the plausibility of the different images.

The process which future researchers want to enter into with the different parties concerned and involved on assignment from policy-makers, must lead to a range of future images which are supported as broadly as possible by all parties (including the policy-makers themselves). This may also mean that players accept the existence of these different images. They do not even need to agree about the desirability of this.

The players have to be encouraged to actually make a contribution to the process. The contribution of the players is needed because well-supported future images which are related to the perspectives for action have the greatest chance of finding their way into policy. Also, because the parties involved and concerned have knowledge relating to the policy situation and also have specific practical expertise, the players' contributions are indispensable.

Careful consideration should be given by the principals and researchers in the process design to which players should participate. Players can apply to take part. It is necessary to continuously bear in mind and reassess the goal that is being worked towards. In principle, all interested and involved parties can take part. For some goals it is necessary to look for a more creative and refreshing contribution, in other instances experts should in any event participate. It is essential to discuss explicitly the participation of players in the process design.

Moreover, the status of the contribution of the participating players should be made clear. The process must be transparent in the relationship between the establishment of TO_3 and the setting of policy. A good process design will make clear what the decision space is and what the possibilities are for TO_3 to be implemented in the decision-making. Such transparency is also beneficial for the confidence of the parties in the development of the future vision and thereby eventually also in the policies themselves.

Knowledge requirements

The intention is that the process leads to a result which is both recognizable and can be put into practice, a result which can in terms of its content also withstand the test of scrutiny. It should therefore not be negotiated nonsense. In order to avoid this and to be useful, TO_3 also has a number of knowledge requirements. We would mention here that for each objective of TO_3 there is a different emphasis on the knowledge requirement.

The future scenarios have to be rich in terms of scientific substance and of good quality. The findings of normal research and future-oriented research can be used to meet this knowledge requirement. These types of research can make statements about aspects of the reality and of the future, which continue to be valid for a long time. These statements may well be evaluated on probability and validity.

The importance of this knowledge requirement differs per objective of TO₃. Future research aimed at putting issues on the agenda and generating options must certainly produce statements from normal research, future-oriented research and transdisciplinary research, but should link these statements on the basis of creative and intuitive ideas. In the development of visions, the ideals and creative viewpoints of the players are important in order to bring cohesion to the developments and to introduce their individual perspectives into these visions. But here, too, knowledge is needed about future developments, which can be provided by experts.

It is strongly recommended to research which of the knowledge requirements formulated here stand up in practice and which ones have yet to be formulated.

The quality of TO₃ can in any event be evaluated on the basis of the following criteria:

- convergence and divergence in terms of the range of future images;
- the contribution of the various parties;
- the transparency of the process;
- future images which are both qualitatively good and rich in content: which are not negotiated nonsense.

Utilization of TO₃

The foregoing paragraph advocates that more attention should be paid to the process aspect of future research. This approach is motivated by the complexity of the object of TO₃, that is futures. Greater attention needs to be paid to the process aspect because it is necessary to involve players in the research. In the past, this took place on a too non-committal basis. TO₃ is more than a pleasant means of communication; it must generate cohesive future images, which include and are related to the players' perspectives for action. The content of these images in most cases continue to be relevant. It is for this reason that we have formulated knowledge and process requirements for future research.

In this chapter we address the utilization of TO₃. We will consider in particular the policy context and the degree of receptiveness of the players in this context to the findings of future research. The aim here is also to formulate requirements for TO₃, such that the results can be put to good (or better) use. With the utilization of the results, little is said about the relationship between TO₃ and the effects of the policies. In other words, better utilization of TO₃ does not necessarily lead to more effective policies. The assessment of the utilization is, moreover, dependent on the aims of the research and the (type of) outlook of the assessor. The upshot of this is that anybody who wants TO₃ to be included in policy documents formally and directly often ends up by being misled. A principal or player who expects more process results (for example, new coalitions) will be more likely to evaluate the future research

as successful. We assume that the players, principals and researchers will be less frustrated if – in their opinion – better use is made of TO₃.

Utilization of the findings of TO₃: The receptiveness of the players

Findings, conclusions and recommendations about environmental and spatial developments following on from TO₃ are seldom or never adopted by the principals and other players involved directly and without personal interpretation. What is in our opinion important is the realization that the relationship between on the one hand the utilization (and the quality) of TO₃ and on the other hand the learning experience of the principals and other players is by definition indirect. Whether the research findings of TO₃ are endorsed and adopted by the principals or other players is in fact irrelevant. The reasoned rejection of the findings can contribute to the underpinning of strategic environmental policy and thereby expresses a form of learning.

One point of action for a more advanced assessment about the (method of) utilization of the results of TO₃ by principals and other players, such as policy-makers or social organizations, can be found in the development of a theory about autopoiesis⁶⁰ and policy (Willke, 1983 and 1987). Willke regards policy and management in our modern, differentiated and fragmented society primarily as a question of consciously stimulating self-management. His distinction of this into three types whereby environmental impulses are transformed into policy initiatives is very illuminating.

- Reflex: Players who formulate policy on the basis of a stimulus response model react on impulse and without reflection to signals from the environment (as in the case of TO₃) by applying instruments to modify changes in the desired development of the environment.
- Representation: Players who formulate policy on the basis of a reference model, react to signals from the environment (as in the case of future research) by forming a view of this environment and making an assessment of (the interests, dependencies and sources of power of the other players. The application of instruments is based on this.
- Reflection: Players who formulate policy on the basis of a reflective model not only develop a view of the environment (including by means of the above mentioned TO₃); they understand this picture as one among others. Players who steer reflectively are self-aware and can therefore also understand that other players (like themselves) have to apply different ranges of endogenous rules to impart meaning to the instruments and steering signals applied.

With the interaction between players, in this case the principals, researchers and players involved, it is a question of the reflective capacity of the players to understand what the other person sees, in order on the basis of this to

⁶⁰ Autopoiesis is a biological concept which means that a unit can be autonomous, self-managing, self-referential and self-producing in relation to a system, and therefore can maintain its own identity. Using own values and norms, an organization or individual can formulate rules of interpretation and on the basis of these pass judgements and make evaluations.

determine what the other party is (therefore) going to do. If this element is missing, at individual or institutional level, then it will go wrong. This applies not only to the findings of TO₃, but also to those of normal or future-oriented research.

The fact that on this point with TO₃ for strategic integrated environmental and spatial policy sometimes things go wrong, can be deduced from the realization of the Van den Ban Commission that this may be a case of a ‘gulf’ between two worlds. Although it is possible to comment on the absolute-ness which the image of the gulf depicts, it cannot be denied that in practice the parties will at times have totally different perspectives (Dammers, 2000, p. 48-52):

- Producers of TO₃ to a large extent develop analytical knowledge, whilst policy-makers primarily rely on practical experience.
- TO₃ and explorations in most cases lead to general statements about the course of variables and relations, while policy-makers are mainly interested in specific knowledge about the policy issue.
- Producers of TO₃ aim to explore uncertainty, while policy-makers look for certainty in the short term.
- Producers of TO₃ are trained to develop a broad view, while the view of policy-makers is generally much narrower.

Ambitions, orientations and activities of future researchers as policy-makers are in our opinion in terms of Willke (1983, 1987) still too far based on reactive or solely representative mental models. There is therefore insufficient room for reflection on the rationality which forms the basis of the other person’s thinking and actions, and moreover there is too little self-reflective regarding one’s own rationality and rules of interpretation which give significance and meaning to the environment.

Improvement is possible if a player learns to see himself as a part of an environment with other players, each with his own rationality and set of rules of interpretation. Through such reflection it is possible to understand that one’s own rationality is just one among many others (Luhmann, 1984). And on this basis it will be possible to achieve more reflected efforts at exercising influence (compare Willke, 1987, p. 306), by very explicitly trying to seek connection with (and therefore to make use of the insight into) the rationality of other players and the rules they apply.

The openness of principals and other players to TO₃ can vary considerably. It is at times as if TO₃ means nothing to them, and sometimes we see that TO₃ does have meaning but for example a completely different meaning from that which those implementing the assignment (future researchers or policy-makers) originally intended.

Just consider here the opposition party or the interest group who uses the findings of TO₃ in a strategic game to undermine the authority and position of

a minister and his policies. There are other examples of ways in which players can make use of TO_3 in a way which was not foreseen or intended by the researchers (compare Pröpper, 1989, p. 109; Van Twist, 1995).

Researchers of TO_3 therefore tend to retain the feeling that too little is done with the results of their research or that it is used completely wrongly. The explanations given for this lie in the operating rationale of the principals and users of TO_3 . A requirement of TO_3 is that the results have to take into account this logic and must be related if TO_3 is to be used. One (un)intended effect of this can be that the status quo is simply reproduced, in other words, the outcome of TO_3 simply represents the wishes and concerns of the principal. To avoid this, the requirement must be made of the principals, those carrying out the assignments and other players that they ensure that the research will not one-sidedly serve the interests of the principals.

The operating rationale of the principals and other players is in part determined by:

- their internal fragmentation
- the mutual inter-dependence of the players
- the limitations in their observational abilities
- their own institutional rules and routines
- the dynamic context in which they take place.

These explanations offer guidelines for better use TO_3 in policy-making. These are dealt with below, with an indication of what the likelihood is of stimulating the use of TO_3 .

Players are divided internally

One explanation for the limited and at times - in terms of its effect - unexpected implementation of TO_3 can in the first instance be found in the internal fragmentation of the players for whom TO_3 is prescribed. The players do not form a monolith, but are internally very varied. A ministry such as VROM or LNV consists of diverse elements (directorates, divisions, departments) which each have their own viewpoint and policy interests and which are each populated by employees with specific skills and expertise. The ideas and opinions between and within the parts of both ministries differ strongly.

A consequence of this is that a (part of) the future research which may be interesting for one department, is completely irrelevant to another department, and is therefore cast aside, and vice versa.

The fragmentation of players is on the one hand regarded as an important restriction or barrier to the implementation of TO_3 . On the other hand, the same internal fragmentation can be considered as a characteristic which will promote implementation (compare De Bruijn and Ten Heuvelhof, 1991, 1999). It is possible to demonstrate that because of this very internal variety, there is an increased likelihood that (parts of) TO_3 will find their way into (parts

of) organizations which can benefit from this. There will always be a department or directorate which picks up some aspect of TO_3 . Other sections of the organization may well follow this example. It is possible that the specific significance which the department or directorate assigns to TO_3 , as a result of its being recognized elsewhere in the organization, may also contribute to the utilization of TO_3 .

Players are mutually interdependent

Players who have to make use of TO_3 are to a greater or lesser degree interdependent on other players. They are constantly faced with the question: 'What consequences will the choice of a particular strategy have for the relationship with other parties?' This mutual dependence has consequences for the implementation of TO_3 . A player (or any part of his organization) who is in principle receptive to the technical and scientific findings of TO_3 can consciously ignore this or interpret it completely differently because it conflicts with the good relationships and the balance of interests in the relationship with other parties. It may then have benefits if the utilization of TO_3 is restricted by the mutual dependences between the players. It is possible to clarify this by using a concrete example. If from TO_3 it becomes clearly obvious that introducing tolls and 'pay as you drive' is an effective way of improving the accessibility of inner cities, then the Minister of Transport and Public Works, in his policy deliberations, will quite rightly also consider the consequences of such a scheme in terms of hindrance and obstruction which concern an organization such as the Automobile Association. It would be too one-sided to consider interdependence simply in terms of a barrier or restriction (De Bruijn and Ten Heuvelhof, 1991, 1999). Interdependence can also be seen as a characteristic which promotes the use of TO_3 . Inter-dependence also offers possibilities for exchanging interests. This exchange can contribute to greater utilization, if the research facilitates any initiatives to do so. TO_3 can then help identify opportunities for exchanges of views and can create opportunities by demonstrating new options for use.

Players are limited in their observational abilities

Players perceive certain issues and not others. They have blind spots in their perception. They regard and understand that which they are concerned with in the light of the distinctions and concepts which they acquire during their upbringing, study, work and other contexts. Experiences which cannot be defined and categorized remain vague and are quickly forgotten (Van Gunsteren, 1994, p. 16).

The world which a player observes is a reality coloured by his own specific reference framework (Rein and Schön, 1986). Each player interprets the observations which are included in TO_3 in a way which fits with his reference framework and in so doing interprets the findings of TO_3 . TO_3 in the domain of environmental policy is read differently by the provincial environmental department than in the cultural sector of the same organization. Information in itself has no meaning. It acquires meaning by organizing it in a particular

way. The organization of information is influenced or even determined by the values which we consciously or unconsciously apply (In 't Veld, 2000, p. 112).

The existence of specific reference frameworks and value patterns offers an explanation for the relative reticence felt by players in a confrontation of different views try to reach agreement using 'conclusive' argumentation and on the basis of 'the' facts. This can also to an extent explain why players do something or nothing with the results of TO₃. The filtering effect of reference frameworks and value patterns in part determines the receptiveness of a player to new developments, as does the interpretation made by a player. Information from other players is not experienced as it is meant but as it is interpreted by a player under the influence of the filtering effect of the reference framework.

Self-reference and alignment with one's own values can be seen as a barrier or restriction to use, but they can just as well be regarded as a characteristic which will promote utilization. (De Bruijn and Ten Heuvelhof, 1991, 1999). By consciously seeking connection with the values and reference framework of players, the likelihood of utilization becomes greater.⁶¹

Players have their own institutional rules and routines

An explanation for the limited filtering through of TO₃ into policies can be sought in the specific institutional rules and routines. Broadly defined, institutional rules and routines are time and place-related social constructions which structure the way parties handle things and consequently also the progress and the outcomes of the interaction between parties. They are collections of tacit agreements which are accepted by the players as more or less obvious social facts.

When we talk about institutional rules and routines we do not mean here the external conditions which affect players, but the roles which players experience from within as an obvious social obligation. We are referring here to the logic which has insinuated itself into the players about what should be experienced as suitable in a given situation: the logic of appropriateness (March and Olsen, 1989).

Institutional rules and routines offer parties the opportunity to interact, but at the same time they restrict this: they create conditions and limitations for players. Routines very quickly result in certain matters which in themselves are relevant, being excluded from the discussion: "We have no experience with Private Public Cooperation (PPS) constructions as an option for stimulating multiple use of space, so let's not talk about this. Just doing the things we have to do is complicated enough."

61 The reference framework of the players not only determines the receptiveness, but also the evaluation of the utilization of TO₃.

Institutional rules and routines are formed through interaction, but at the same time they form a framework for further interaction. The interaction can then be focused on confirming or strengthening the existing institutional rules and routines, but also on modifying or even completely denying them. This can in time lead to changes in existing rules and routines and the development of new ones.

Players who are confronted with uncertain situations fall back on working methods which were tried in the past – and then proved successful. Routines are ways of thinking and acting which have become acquired through habit. The weakness in this lies in the fact that this restricts mental abilities and creativity. A complex issue which is addressed in line with a routine approach can be typified in terms of a separation of the elements, and relating these to existing ways of thinking and acting, for no other reason than that the rules and routines represent the essence of one's knowledge and abilities. On the other hand, the power of rules and routines is that they bring clarity to complexity and that (unnecessary) uncertainty on some points can be avoided. In this sense rules and routines can restrict the utilization of TO_3 but can also work in its favour.

Players operate in a dynamic context

Players who are expected to make use of the results of TO_3 do not remain the same over time. On the contrary, they constantly change and develop, for a number of reasons. Closing or reorganizing a department, a change of management or the formulation of new policy are all changes which can have consequences for the receptiveness of a player to TO_3 . In the light of this, the filtering through of findings into policies is also subject to change.

Moreover, TO_3 is not an isolated issue, for principals and other players in the context of policy it is part of a continuous, uncompromising discussion carried out, in which TO_3 is placed alongside countless other sources of information and signals following one another in quick succession. TO_3 continues to gain significance in the light of this stream of information. Players who are involved with the strategic environmental policy do not only deal with TO_3 , but are also continuously confronted with a multitude of other publications: policy memoranda, evaluation studies, advisory reports, research findings, departmental plans, activity programmes, party political views, pamphlets from special interest groups, promotional material, articles in specialist journals or newspaper reports.

TO_3 is also subject to influence from changes in the political agenda. Developments in the policy area by no means run parallel with those in politics. The significance of TO_3 may receive considerable publicity, for example, in politics without the policy makers responding to it. TO_3 is located in the field of various different forces where neither politics nor the policy-makers, nor social players or researchers have the sole right to influence the process.

It is therefore probable that the reasoning of players can certainly not be definitively directed, but at most can at a given point in time be disturbed or influenced. The durability of knowledge derived from TO_3 , but also from normal or future-oriented research, is in general limited by the dynamics surrounding policy. The dynamics can restrict the utilization of TO_3 , but also in fact promote it, for example because barriers for working through in the future will be removed or may even turn into new possibilities for utilization.

The varied fields of influence of TO_3 means there is significant room for manoeuvre for the players. In view of the fact that TO_3 is always related to ‘an action’, it is recommended to ensure that the research ties in with the operating rationale of the principal, or general principals or other players, such as policy-makers or social organizations.

Opportunities to improve the utilization of TO_3 : in line with the operating rationale of the players

Characteristics of players which at first sight help explain why the filtering through of TO_3 is problematical are on closer investigation not so easy to classify as restrictions; sometimes they have the opposite effect and can help promote the utilization of TO_3 .

Rules of the following contra-intuitive type in our experience do not work:

- End the internal fragmentation
- Interpret in a non-judgmental manner
- Work in line with one’s own internal logic
- Ignore the obvious self-interest
- Deny the dependence of other players
- Operate in a politically opportune way
- Allow future studies to take preference above other policy-relevant signals.

In the following sub-paragraphs, we give an indication of what in our opinion does work.

Increasing the reflectiveness of future researchers

It is more appropriate to look for the possibilities of increasing the working through of TO_3 in the strengthening of the reflectiveness of those carrying out the assignment. These are often the future researchers, sometimes they are policy-makers. TO_3 which is linked to the world as experienced by the intended users will be considered of value for formulating environmental policy. Increasing the empathy of principals seems to offer good opportunities for improving utilization, but also has risks. A person carrying out the assignment who identifies too much with the world of the principal or other possible users and allows himself to be influenced by their thought processes, can lose sight of certain elements. Players often have the tendency of using TO_3 for their own policy ambitions. These ambitions are changeable and are for example dependent on changing and changeable political-

administrative relationships. Those carrying out future research assignments can only join in with this to a limited degree. The opportunity for utilization may, it is true to say, be considerable if the researcher allows himself to be strongly influenced by the knowledge requirements and value patterns of policy makers, but the risk that in this way other knowledge requirements and legitimate values disappear from view is not wholly imaginary. There is a task here for those carrying out the assignments and the other players: in their knowledge and process requirements for TO₃ they have to look for variety in terms of the contribution of knowledge and in the players participating, but at the same time continue to adhere closely to the operating rationale of the principals and users.

Intensifying interaction

The Van den Ban Commission already noted that there is generally insufficient interaction between the makers of TO₃ and the makers of strategic policy. The assumption is that TO₃ will permeate more strongly if principals and other players are involved in the development process than if these are formulated only through the interaction by the principals themselves. The reason for this is that the principals regard TO₃ as their own product, which includes in part their own ideas. Moreover, such an approach is also valuable and productive because the knowledge and the insight which the research generates not only become available at the end of the project, but during the development progress.

Intensifying the interaction also has a reverse side. An interactive situation is not easy to structure, and requires considerable commitment and investment from the parties involved. It places high demands on the researcher who has to strike a balance between independence and support.

Because researchers are required to monitor the usefulness of research, they have to place the contribution of the principals within the policy context and have to ensure that this contribution does not dominate the process. It is typical of principals that they often have difficulty in distancing themselves from the daily practice and political preferences of the moment, while it is in fact the long term perspective which is important for TO₃. Intensifying the interaction between the parties concerned will also have to meet the process requirements agreed by the researchers and players, if this dilemma is not to frustrate the process.

Improving communication skills

Empathy and intensifying the interaction may increase the further implementation of TO₃ but only if that the message from the research is really able to penetrate. It is then necessary for the principals and other players to understand the message of TO₃ and that this is put so that they can do something with it.

The consequence which is linked to this in a normative sense is the following: communication can increase implementation in a number of ways. For successful implementation, it is important that the message is not only understandable but is also attractive, i.e. is motivating and readable, rather than being dry and boring. In many cases, providing a report alone is not sufficient because knowledge in the form of written text does not stay in the memory long. Images and game simulations, on the other hand, increase the likelihood that knowledge will continue to live on. Moreover, the implementation is improved if there is continuing attention to TO₃ in the policy process. This means that the ‘after care’ of TO₃ requires attention. The main question here relates to the organization of the transfer.

Although improving communication skills is important for the implementation of TO₃, it can also be a trap. There are risks attached to making TO₃ more attractive. In the final event it is about the content and not the form of the research. Posters, building blocks and stimulating essays may support the discussion about TO₃ as was shown by the future research project Brabant 2050. At the same time, it is possible that it deflects the attention from where it is really needed: making policy choices which can support adequate exploration of the future.

One particular difficulty which has to be weighed up in the knowledge and process requirements of TO₃, is whether to increase the capacity for communication to a greater or lesser degree. This dilemma cannot be solved using a few simple rules of thumb, but may well be solved by the process and knowledge requirements set by researchers and players.

Taking account of the momentum

Momentum is a condition for success in policy, studied by only very few. Many policy-makers are involved in creating momentum⁶², rolling out a development to implementation, cultivating decisive movements, making policy processes irreversible. Crisis awareness – whether or not caused by the findings and conclusions of TO₃ – may be the means of creating of support, momentum. The assumption is that, in addition to strengthening empathy, intensifying interaction and improving communications skills, enhancing the feeling for timing also plays an important role in implementing TO₃. A TO₃ project must appear at the right time; not too early and not too late. TO₃ which does not affect current policy processes, will soon lose attention and significance, for example because at the point when it appears, nobody is yet (or still) looking for this research.

TO₃ therefore should not only affect the world of experience of the principals, but also the dynamics of the policy process so that strategies which arise from TO₃ can be directly linked to current discussions and the progress in the policy process. Poor timing, for example in the light of elections or a new

⁶² Momentum is the foundation for a decision. It is not a moment in time, but a process.

government cabinet, can mean that TO_3 which is good in terms of content may completely lose its value for the process. The consequence of this is that the interest in the findings of TO_3 is greatest at the point when decisions have to be taken, or when the particular issue is on the political agenda. To make sure that TO_3 is in the picture, principals have to be sensitive to political processes, more precisely: they have to sense that one moment when the results of TO_3 will be fully appreciated.

The danger in a more strongly developed feeling for timing is that principals of TO_3 allow themselves to too great an extent to be led by the policy processes which run parallel to the course of the research. This means that they can become rushed or delayed, which may in turn lead to lack of attention to detail; research projects could, for example, be wound up because the subject is the focus of public attention. Principals, those carrying out the research and players may well enter a discussion before and during the process in which they reflect on the consequences of momentum for the process, and how they can time the results of TO_3 .

Utilization and effectiveness of TO_3

In order to transfer the findings of TO_3 effectively, researchers have to take into account the operating rationale of the principals and players. Possible requests to take receptiveness into account have been addressed in the previous paragraph, and these are:

- increasing the reflectiveness of the principals of TO_3 ;
- intensifying the interactions between the principals, those carrying out the assignments and other players;
- increasing the communicative capability of the principals;
- taking into account the momentum of the principals and players.

How valuable are the requirements of TO_3 on further investigation? Although each of the new requirements is aimed at strengthening the implementation of TO_3 in policy, it appears that acquiring these qualities also leads to risks which can destroy the advantages or even affect the integrity of the exploration and the professionalism of the researchers. The utilization paradox is then a fact: striving for better utilization of TO_3 appears at first sight to require new qualities of those carrying out the research, which on further investigation seems to inhibit utilization in some ways rather than improving it.

The utilization paradox results in a number of (un)intended effects of TO_3 . These effects may at times be intended because they can actively be pursued by the principals, but they are often unintended and undesirable because they restrict the utilization of the research. Obviously, not all (un)intended effects are discussed here, because it is often not possible to consider in advance which these will be.

Because principals take a more reflective stance, an (un)intended effect may be that the wishes and interests of the principle are reproduced in TO_3 . There is then no innovation, and the contribution of players has been of no benefit. In order to prevent this, agreements have to be made between the principals, those who carry out the assignments and the players.

Intensifying the interaction between principals and those carrying out the assignment can also result in the latter becoming too involved in the short term issues of the principals. This makes it difficult to maintain the long term view, which has detrimental effects for TO_3 . The principals, those carrying out the assignments and the players must ensure that TO_3 meets the knowledge requirements and process requirements if this dilemma is not to frustrate the process.

Making TO_3 more attractive in order to facilitate and increase the communication about it has risks. In the final event, it is about the content and the process of TO_3 and not the structure. This should be taken into account in the requirements for TO_3 .

To get TO_3 into the public eye, those carrying out the assignments must be able to sense that one moment when the results of TO_3 best come into their own. There is a danger here that those carrying out TO_3 allow themselves to be too influenced by the policy processes.

These four (un)intended effects illustrate the utilization paradox. This includes recognition of the complications, but in our opinion it would be wrong to draw from this the conclusion that a categorical rejection of the requirements will in practice help us further. These dilemmas will more likely serve as an element of the dialogue between principals and those carrying out the tasks if they develop a process for TO_3 . The most important consideration is to find a balance.

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Sustainable Development and the Governance of Long-term Decisions

We tend to neglect long term futures. Humans seem to be “hard wired” to ignoring long term threats but are very sensitive to immediate dangers. This study analyses what is necessary in order to tackle the challenges of long-term decision making, in particular but not solely in the context of sustainable development, taking a broad ‘governance’ perspective. The central question is: What can be learned from ‘good practices’ and ‘worst cases’ about the conditions under which governments and other societal actors may take wise decisions with a long-term perspective? The aim is to support government decision makers and societal stakeholders on regional, national and EU levels who are involved in long-term policy making.

RMNO The Advisory Council for Research on Spatial Planning, Nature and the Environment (RMNO) was established in 1981 to produce advice and background studies for the government of the Netherlands, either on its own initiative or in response to requests from ministries, on the content and organisation of research concerning spatial planning, the environment, nature and landscape. RMNO works as a knowledge broker between science, politics and society, with a focus on mid- and long-term planning.

EEAC The network of European network of Environmental and Sustainable Development Advisory Councils (EEAC) links around 30 advisory councils for environmental policy and sustainable development from 15 countries in the European Union. The councils collaborate in this network for a number of reasons, in particular to enrich the quality of policy advice on national and regional level by exchanging information with colleagues from other countries and to exert, where appropriate, an influence on policy developments at EU level by acting cooperatively.