



InFER | Institute of
Forest, Environmental, and Natural Resource Policy



*The **G**overnance of **A**daptation to Climate Change:
Taking Stock and Providing Guidance*

*Analytical framework
for the stock taking survey of governance arrangements
in 10 OECD countries*

Reinhard Steurer, Anja Bauer, Judith Feichtinger

InFER | Institute of
Forest, Environmental, and Natural Resource Policy

BOKU - University of Natural Resources and Life Sciences

Table of contents

1. PURPOSE OF THE ANALYTICAL FRAMEWORK	3
2. GOVERNANCE CHALLENGES AND ARRANGEMENTS ADDRESSED IN GO-ADAPT	3
3. THE SURVEY: PARTS, ITEMS AND ANALYTICAL CATEGORIES	5
4. CASE STUDIES: CASES, RESEARCH QUESTIONS AND ANALYTICAL DIMENSIONS	15
REFERENCES NOT USED IN THE PROPOSAL	20
REFERENCES USED IN THE PROPOSAL	20
ANNEX: SURVEY TEMPLATE.....	26

1. Purpose of the analytical framework

The analytical framework of *GO-ADAPT* guides and organises the empirical research of WPs 1 and 2. It helps to focus the research on important issues and analytical categories that (ought to) play a key role in both the survey and the case studies. It also defines them so that all involved researchers share a common understanding. It builds on the contents described in the project proposal and provides further details (in particular regarding the items and analytical categories used in the surveys).

2. Governance challenges and arrangements addressed in Go-Adapt

The proposed disciplinary political science research focuses on the ***governance of climate change adaptation, i.e. on the ways in which adaptation policies and instruments are developed and implemented by governments in selected developed countries at different levels***. Why is this governance perspective important? Adaptation to climate change is understood as “adjustment in natural or human systems in response to actual or expected climatic changes or their effects, which moderates harm or exploits beneficial opportunities” (IPCC 2001; IPCC 2007; see also OECD 2008, 1). Public policies on adaptation are supposed to either build adaptive capacities thereby increasing the ability of various actors to adapt to climate change, or to improve adaptation directly by putting capacities into action (Nelson et al. 2007; Adger et al. 2005). By focusing on interesting practices of ‘how to do it’, the proposed research helps to develop and implement adaptation policies that are concerned with the ‘what to do’. So far, however, “[t]he governance framework of adaptation is still largely in the making” (Paavola 2008, 652) and little is known about the governance of adaptation policies because this issue has largely been neglected (IPCC 2007, 19f; Schipper & Burton 2008). Consequently, there is a lot to learn through governance research as proposed here. Not paying attention to the challenge of how to deliver adaptation policies through adequate governance arrangements any longer would inevitably hamper adaptation efforts. In this sense, “institutional requirements for adaptation” are also acknowledged as important in facilitating adaptation to climate change in the latest IPCC report from 2007 (Adger et al. 2007, 731; Klein et al. 2007, 747).

The proposed governance research complements existing research on climate change adaptation that focuses mainly on climate scenarios, expected impacts, ecological, societal as well as economic vulnerabilities, and respective adaptation options to address them. Its relevance corresponds with the political salience of the governance challenges in the context of climate change adaptation. Policy makers as well as researchers acknowledge that these challenges are numerous and serious. ***To keep the research focused, Go-Adapt explores how selected governments deal with four governance challenges that are paramount in the context of climate change adaptation, i.e. (i) improving the horizontal and (ii) vertical integration of policies, (iii) cope with various types of uncertainty and (iv) facilitate stakeholder involvement in line with the challenge of procedural justice***. These four governance challenges and selected concepts from the governance literature are summarised in table 1 below and they are introduced in detail in the subsequent sections.

Table 1: The governance of climate change adaptation: challenges and arrangements

Governance challenges		Selected governance arrangements and tools to be analysed in Go-Adapt
(i) Climate change impacts and adaptation efforts cut across policy sectors	Better integrate sectoral policies horizontally (cross-sectoral)	Inter-ministerial coordination bodies; national strategy processes; coordination of different strategies; 'climate-proofed' assessments; tools such as guidelines & checklists
(ii) Climate change impacts and adaptation efforts cut across levels of government	Better integrate policies vertically (across levels of government)	Inter-governmental coordination bodies, multi-level governance instruments such as treaties, voluntary agreements, guidelines, strategies
(iii) Uncertainty of a) climate scenarios b) impacts and vulnerabilities c) the effectiveness of adaptation measures	Improve the knowledge-base of adaptation policies and facilitate participation	Knowledge brokerage structures such as 'boundary organisations'; risk assessment tools; 'uncertainty/ignorance audits'; adaptive strategies; formats that facilitate reflexivity in policy making; stakeholder forums; decision support tools
(iv) Those affected most by climate change are often not well organised and therefore excluded from policy making	Facilitate 'procedural justice' by involving those in policy making who are affected most by climate change	Institutionalised stakeholder forums; ad-hoc participation, such as stakeholder workshops/conferences, online consultations, public consultations, etc.

Governance arrangements are those mechanisms, institutions (in the sense of organisations and structures), or procedures/policy making processes that governments employ to cope with the challenges they face in the context of climate change adaptation (see table 1). **Governance tools** are smaller-scale, less institutionalised instruments (such as guidelines and checklists) that help governments to cope with a particular governance challenge (most often policy integration) on an ad-hoc basis when developing adaptation policies. Neither governance arrangements nor tools are ends in themselves. They are means that help to develop and implement policy instruments that aim to achieve adaptation policy objectives. While governance arrangements and tools are generally geared towards public institutions and actors such as ministries at different administrative levels, public agencies and communities, adaptation policy instruments aim to enact actual adaptation to climate change among non-state actors.

While most governance arrangements and tools are easy to distinguish from policies and policy instruments, there is a grey area in which the distinction is sometimes difficult. The following three examples illustrate this grey area:

- In some instances, policies and governance arrangements are closely related or even intertwined. National adaptation strategies, for example, represent a policy (as far as they formulate policy objectives and measures) and governance arrangements (as far as they foresee inter-ministerial coordination, implementation, participation, and/or monitoring mechanisms).
- Sometimes, the distinction that governance arrangements target state actors and policies non-state actors is inappropriate. If state actors provide public goods and services that have to be adapted to climate change (e.g. wastewater treatment and road building authorities), adaptation policies aim to change existing state policies in providing public goods and services. Respective policy changes that do not target non-state actors can nevertheless be facilitated with governance arrangements and tools as described above.
- Checklist or guidelines are small-scale governance tools if they aim to help state actors in formulating and implementing adaptation policies. They are (informational) policy instruments if they aim to change the behaviour of non-state actors.

3. The survey: parts, items and analytical categories

Little is known about the arrangements governments employ to cope with the difficulties of climate change adaptation. The stock taking survey aims to provide the first comparative account of how selected governments cope with major governance challenges in the context of adaptation. It will provide an overview of how governments in 10 OECD countries address these challenges, and it will result in a shortlist of potential policy case studies.

The survey consists of two general parts (introductory & concluding) that are relevant for all kinds of governance arrangements (to be completed for all governance arrangements), and four parts exploring challenge-specific issues (to be completed only if an arrangement addresses one or more of the four governance challenges). This section explains and defines the survey items and respective analytical categories that will be used to structure the survey and categorise/organise the survey findings. The analytical framework will guide the empirical research, and empirical research will help to develop it further if needed. The template for the survey can be found in the Annex.

3.1. General: Introductory

This general introductory part of the survey will be completed for all governance arrangements. The following items aim to characterise the surveyed governance arrangements in basic ways as follows:

- Aim/purpose/mission: Basic questions answered here are: 'What is the governance arrangement aiming at?'; 'What does it want to achieve?'
- Overview & short description: This item addresses basic questions such as 'What is the governance arrangement about?', 'How are the aims pursued?', 'Does it focus exclusively on climate change adaptation?', 'To what degree are the different governance challenges addressed?'
- Timing and type: This item addresses the question "when was the governance arrangement established?" Further it explores the type of the governance arrangement. In particular, we distinguish between:
 - i. Temporary or institutionalised: Temporary governance arrangements may be formalised or institutionalised but they are operational only for a limited period (e.g. to formulate a particular policy). Institutionalised arrangements are formalised (i.e. they follow clearly defined rules and they are operational for a longer (often indefinite) time period. Ad-hoc arrangements are hardly formalised or institutionalised, and they are applied whenever a policy maker sees fit (e.g. the actual application of assessments/audits on an ad-hoc basis). They do not represent a governance arrangement and they are not included in the survey.
 - ii. 'Old/new': 'Old' means that existing governance arrangements (e.g. on climate change mitigation) are widened/refocused so that they also take adaptation into account; 'new' means that a governance arrangement is newly established to tackle adaptation.
- Phase: Governance arrangements may be in different phases at the moment of the survey; they may have just started and be in their formation phase, they may be implemented or even evaluated. A governance arrangement may also be dormant, i.e. it still exists "on paper" but no current or envisaged activities could be identified.
- Why/motivation/trigger: Here the main motivations or drivers behind the governance arrangement are identified. The literature on adaptation suggests the following drivers for adaptation policies/governance:
 - i. International events (summits) and commitments (UNFCCC, EU)
 - ii. Climate/weather-related (extreme) events
 - iii. Perceived threats, pressure and expected vulnerabilities

- iv. Leadership/personal awareness
- v. Adaptation activities by other countries
- Sectoral/thematic focus and geographic/regional scope: This item asks for the issues, sectors and regional scope of the governance arrangement. Governance arrangements can be thematically open (i.e. they deal with adaptation issues in different sectors and policy fields), or they can focus on adaptation issues in a particular sector/policy theme (e.g. water management, biodiversity, spatial planning, infrastructure, tourism, etc.). Likewise governance arrangements can have different geographic or regional scopes; they can be targeted at the national state, at provinces or communities.
- Responsibility/coordinator: This item identifies the organisation/unit/person that is mainly responsible for the governance arrangement.

3.2. Horizontal integration

The first major challenge addressed by Go-Adapt is that ***adaptation pressures and policies cut horizontally across policy sectors***, such as housing, landscape planning, agriculture, forestry, tourism and water management (European Commission 2007; Burton et al. 2006, 6ff, 12; FAO 2007; Yohe et al. 2007; OECD 2008, 89-92), and that they are also relevant for other environmental policies such as climate change mitigation (Klein et al. 2007) and sustainable development policies and strategies (Yohe et al. 2007). This cross-sectoral governance challenge calls for a better horizontal integration of policies within and beyond the environmental domain, also referred to as 'climate mainstreaming' (Klein et al. 2007, 768). As the European Commission (2007, 13) puts it in its Green Paper (oversimplified), "Adaptation is largely a question of political coherence, forward planning and consistent and coordinated action". The governance literature on this challenge is rich, in particular in the environmental policy field. According to Lafferty (2002, 13), environmental policy integration (EPI) requires the integration of environmental policy objectives "in all stages of policy making in non-environmental policy sectors" (see also Nilsson & Persson 2003; European Environment Agency 2005a, b; Lenschow 2002; Volkery et al. 2006; Jordan & Lenschow 2008).

The following items aim to characterise governance arrangements which tackle the challenge of horizontal integration (either exclusively or among other challenges):

- Form and institutional context of horizontal integration: First we will explore whether the governance arrangement addresses the governance challenge of horizontal integration and coordination and, if it does, by which institutions and/or procedures. Horizontal coordination and integration can take different forms, it can be coordination between different ministries or departments in temporary or permanently institutionalised bodies or working groups or it can take the form of guiding documents, strategies, instruments and the like that are coordinated in their formation as well as implementation.
- Aim/purpose: This item addresses the overall aim of the governance arrangement with regard to horizontal integration (e.g. improve communication and coordination between actors in general, negotiate a particular adaptation policy between different state actors, mainstream climate change adaptation in other policy fields by raising awareness for the issue, etc.).
- Ministries/departments involved: Horizontal policy integration takes place at the national or sub-national level between different ministries/departments, or between different units within a ministry/department, and it can take place among public administrators (administrative level) or among politically appointed high-level administrators and/or politicians (political level) (Steurer & Martinuzzi 2005; Berger & Steurer 2009).
- Subject of integration: this item describes what kind of adaptation issue is (or ought to be) integrated into what policy. We distinguish between (i) the integration of adaptation and mitigation policies; (ii) the integration of adaptation issues into other environmental policy issues

(climate mitigation, biodiversity, environmental hazard management), and (iii) the mainstreaming of adaptation into other policy sectors/fields (such as economic, mobility, health policies and infrastructure projects).

- Form and type of integration and governance modes employed: According to Scharpf (1993, 143), negative co-ordination means that policy makers try to avoid that sectoral policies affect other policies negatively. Positive co-ordination implies that different policies are deliberately designed to complement each other in achieving (related) policy objectives. Since horizontal integration is a steering and/or coordination challenge within the public domain, one can also explore what governance mode is used to achieve steering/coordination. Traditional modes of governance are hierarchies, markets and networks. While hierarchical governance relies mainly on "command and control", network governance relies mainly on collaboration among actors with common interests and/or complementary resources, and the market mode of governance relies on financial incentives (Thompson et al 1991; Gamble 2000; European Commission 2001; Considine & Lewis 2003; Kooiman 2003; Donahue 2004). In order to identify governance modes we will analyse the form of coordination and integration (i.e. whether specific institutions such as commissions or working groups are established or whether procedures such as guidelines are used), the frequency of meetings, mandate, tasks, responsibilities and decision-making rules of the respective institutions.
- Follow-up (implementation, monitoring and evaluation): Within this item the follow-up of the horizontal integration and coordination processes within the governance arrangement will be described. It is asked how the results of the coordination and integration processes are used within the context of the governance arrangement and/or related adaptation policies. Further, it is of interest whether and how the use of the results is monitored and evaluated.

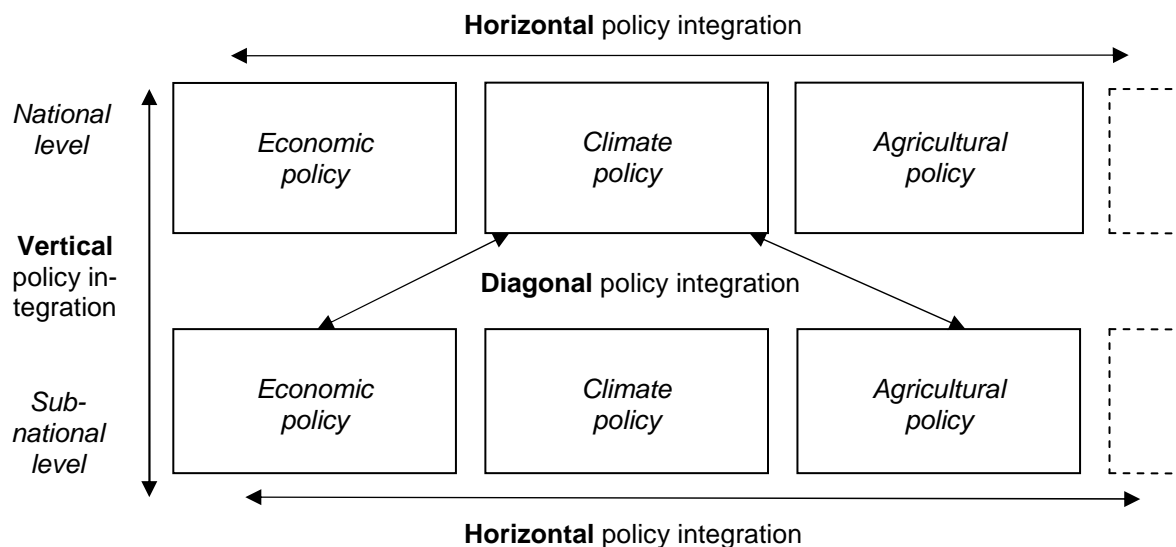
3.3. Vertical integration

The second challenge addressed by Go-Adapt is that adaptation pressures and responses also **transcend different levels of government**, from the EU via the national to the provincial and local levels of policy making (European Commission 2007, 11f; Klein et al. 2007, 747). Since policy-making at these different levels is not always joined-up and coordinated well, the climate change literature speaks of 'cross-scale interdependencies' that are not matched with adequate 'cross-scale linkages' (Adger et al. 2005, 79f). However, according to the EU's Green Paper on adaptation, "Multi-level governance is [...] emerging" to achieve a better vertical coordination and integration of policy making across levels of government (European Commission 2007, 11). According to the multi-level governance (MLG) literature that is concerned with interdependencies and interaction patterns between different tiers of policy making, decision-making in multi-level systems is typically confronted with three basic challenges: the dangers of blockades, of suboptimal compromises, and of implementation deficits due to non-binding decisions (Benz 1999, 2000, Hooghe & Marks 2003, Marks & Hooghe 2004). As the MLG literature suggests, coordination may be achieved by four basic ideal-type mechanisms of steering or combinations thereof, i.e. by hierarchy, mutual adaptation (e.g. by means of exchanging information, policy ideas and arguments that entail policy learning), competition, and/or negotiations (Benz 2004, Scharpf 2000, Schimank 2007). Although the analytical concept of MLG was pioneered in studies of the EU system (Marks 1993) it can be fruitfully applied to any multi-level policy system. Hence, the detailed analytical framework of Go-Adapt will also incorporate this body of literature. Governance arrangements addressing both the horizontal and the vertical governance challenge include inter-ministerial or inter-governmental coordination bodies, federal adaptation strategies, and the systematic application of 'climate-proofed' forms of assessments (for further examples, see table 1).

The following items aim to characterise governance arrangements that cut across different levels of government (either exclusively or among other challenges):

- Form and institutional context of vertical integration: Vertical coordination and integration can take on different formats: relevant governance arrangements are coordination bodies that involve national ministries/departments and provincial authorities. Governance tools that facilitate vertical integration are guiding documents or federal strategies.
- Aim/purpose: This item addresses the overall aim of the governance arrangement with regard to vertical integration (for different aims, see horizontal integration).
- Levels of government involved and kind of involvement: Vertical integration can take place between two or more levels of government (international-national-regional -local). The need and nature of vertical policy integration depends on the political system of a country (federal/unitary countries). It can take place among public administrators (administrative level), or among politicians or politically appointed, high-level administrators (political level).
- Subject of integration: this item describes what kind of adaptation issue is (or ought to be) integrated into what policy at what level of government. If adaptation issues are integrated across different levels of government within the same policy field (e.g. environmental hazard management) we speak of vertical policy integration. If adaptation policies are integrated horizontally across sectors and vertically across levels of government at the same time (e.g. adaptation issues are integrated into building codes at different levels of government), we speak of diagonal policy integration (Berger & Steurer 2009; for an illustration see figure 1).

Figure 1: Horizontal, vertical and diagonal policy integration



- Form and type of integration and governance modes employed: As the multi-level governance literature suggests, coordination may be achieved by four basic ideal-type mechanisms of steering or combinations thereof, i.e. by hierarchy, mutual adaptation (e.g. by means of exchanging information, policy ideas and arguments that entail policy learning), competition, and/or negotiations (Benz 2004, Scharpf 2000, Schimank 2007). Most decisions in the modern state are reached by means of negotiation and mutual adaptation. Competition may be relevant as competition between communities, regions, and/or nations. Negotiation and competition imply that all persons involved follow the same rules and formulations even though they do not possess the same resources. Hierarchical structures, on the other hand, are characterised by unequally distributed rights, obligations and power. Lower levels have to obey instructions from upper levels. Hierarchy is primarily relevant when implementing specific decisions (Benz 2001, 169).

The four modes of coordination are ideal-types; in reality hybrids of more than one mode are mostly to be found. An important such hybrid is for example 'negotiation in the shadow of hierarchy', where negotiations are embedded in hierarchical structures and differ logically from negotiation in a 'free' negotiation system (Héritier & Eckert 2008). In order to identify governance modes we will analyse the form of coordination and integration (i.e. whether specific institutions such as commissions or working groups are established or whether procedures such as guidelines are used), the frequency of meetings, mandate, tasks, responsibilities and decision-making rules of the respective institutions.

- Follow-up (implementation, monitoring and evaluation): Within this item the follow-up of the vertical integration and coordination processes within the governance arrangement will be described. It is asked how the results of the coordination and integration processes are used within the context of the governance arrangement and/or related adaptation policies. Further, it is of interest whether and how the use of the results is monitored and evaluated.

3.4. Tackling uncertainties

Long-term policies such as climate change adaptation pose specific governance challenges regarding the integration of various (and possibly competing) knowledge claims and the dealing with high degrees of uncertainty. Uncertainties exist in particular concerning (a) climate scenarios in general, (b) the variations of impacts and vulnerabilities in particular, (c) resulting adaptation needs, options and priorities, and (d) the effectiveness of actual adaptation measures. These uncertainties arise from insufficient knowledge on impacts and vulnerabilities (Ford 2008; Tol 2005; Barnett 2001), the long time horizons associated with climate change and the lack of empirical experiences due to the unprecedented adaptation needs. Given that adaptation measures are often costly and controversial (e.g. regarding who pays and who benefits), adaptation governance is not only a matter of more research and functioning science-policy interfaces. It is also concerned with deliberate arrangements to deal with uncertainties (for examples see table 1) and related value decisions. In addition, knowledge and expertise is not only provided by scientific actors but also by stakeholders and local actors. The latter are expected to provide invaluable expertise on local particularities (Paavola 2008; Barnett 2001).

The following items aim to characterise governance arrangements that tackle the challenge of uncertainties (either exclusively or among other challenges):

- Form and institutional context of knowledge integration: Knowledge can be integrated in governance processes by different ways and actors: it can inform governance processes through studies, research programs or assessments or by decision-support tools. Further, experts of different kinds can be directly involved in governance processes in working groups, workshops and the like.
- Aim/purpose: This item addresses the overall aim of the governance arrangement with regard to tackling uncertainties. We distinguish between arrangements and tools that aim to reduce uncertainties regarding (i) climate scenarios in general, (ii) impacts and vulnerabilities in particular regions, and, (iii), the effectiveness of adaptation measures.
- Actors/experts involved & details on the selection process: To cope with uncertainties in the context of climate change adaptation, policy makers often rely on external expertise, i.e. on knowledge and experiences held by interest groups, scientists, professional groups (such as architects), or by affected stakeholders and communities. Thus, under the heading of 'uncertainty' we first explore what actors/experts are involved to tackle uncertainties, with what backgrounds (institutional and disciplinary) and based on what criteria these actors/experts are

identified and selected. The latter includes among others how expertise is defined and who is seen as a legitimate expert.

- Knowledge needs/type(s) of uncertainty addressed: As mentioned above, high degrees of uncertainty can be distinguished regarding (a) climate scenarios in general, (b) (local/regional) variations of impacts and vulnerabilities in particular, (c) resulting adaptation needs, options and priorities, and, (d), the effectiveness of adaptation measures (how can we know that an adaptation measure will be effective?) and related the development of criteria and indicators systems to monitor and evaluate adaptation policies , and other issues to be discovered in the survey.
- Modes of science-policy interaction: Depending on what counts as expertise or who counts as an expert, how the boundary between politics and science is understood and how knowledge and value claims are negotiated, science-policy interactions can be classified as technocratic, decisionistic, pragmatistic, participatory or co-productive. The survey aims to take stock of respective governance arrangements and to classify them along these lines. Both, the **technocratic and the decisionistic mode** rely on a clear separation between science and politics and a linear understanding of the knowledge transfer (Schützeichel 2008; Kevenhörster 2003). In an ideal model, knowledge is transferred linearly from science to politics, a position that is best reflected in the statement "truth speaking to power" (Price 1981). Both modes share the assumptions that knowledge is unambiguous, that it can be applied in a more or less direct way and that its results are useful or desirable for society (Grundmann 2009, 398). Importance is paid to the boundary between science and politics that should be kept in order to assure sound science and good decision-making. The modes differ, however, in the assumptions about the capability of scientific facts to solve political conflict and in the roles they allow for science and politics in decision-making. While in a decisionistic mode the ultimate decision and including its value judgements are left to the policy-makers, in a technocratic mode it is assumed that science can supersede democratic conflict and decision-making or at least limit their scope by delineating plausible and implausible courses of action (Keller 2009, 30). This version is apparent in the wide-spread belief that by reducing scientific uncertainties on a particular problem the probability of political cooperation and consensus will ultimately increase. The **pragmatistic mode**, going back to Habermas (1968) conceptualizes the interaction between science and policy as neither linear nor asymmetric but emphasizes the critical interaction between science and politics (Schützeichel 2008, 18; Kevenhörster 2003). The idea of a strict separation between the function of the expert and the politician is replaced by a model of reciprocal and iterative communication and deliberation processes (Schützeichel 2008, 18f). In a discursive dialogue both sides, experts and policy makers, disclose and discuss their preferences, values and interests and re-evaluate them in the light of each other's experience (Schützeichel 2008, 18f; Kevenhörster 2003). The **participative mode** of policy advice and deliberation introduces citizens as participants in scientific policy deliberations (Schützeichel 2008, 19). Citizens are not only seen as addressees of policies but as experts of their own matters (Schützeichel 2008, 19). The aim of such deliberation processes is to augment the quality and legitimacy of political decisions by involving those who will be concerned by the decisions (Schützeichel 2008, 19). Besides, the participatory mode reflects the demand for 'democratization of expertise' (Maasen and Weingart 2005) and therein converges with discussions about new modes of knowledge production (Gibbons et al. 1994; Nowotny et al. 2001; Funtowicz and Ravetz 1993). The focus of advice and deliberation now moves from science-policy interaction to science-policy-public interaction. In the concept of **co-production** the constant intertwining of the cognitive, the material, the social and the normative is stressed and the strict separation between facts and values; science, society and politics is rejected (Jasanoff 2004, 6) (Ezrahi 1980; Jasanoff 1990). Especially in complex problem settings such as climate change adaptation, knowledge relevant to policy decisions is a complex intermixture of "values" and "facts" that will resist being untangled. Consequently the focus is laid on the design of institutional practices or boundary organizations at the 'demarcation line' between science and politics that draw on both

spheres in terms of actors, principles and incentives and produce outputs of interest for both spheres by maintaining scientific credibility (by not politicizing the research), while assuring practical saliency (by producing information that is relevant and useful to decision-makers) and doing so in a manner that secures political legitimacy (by being seen as fair and open to multiple participants) (Cash and Clark 2001).

- Follow-up (implementation, monitoring and evaluation): Within this item the follow-up of the governance arrangements/tools to address knowledge needs and uncertainties will be described. It is asked how the results of the processes to address knowledge needs and uncertainties are used within the context of the governance arrangement and/or related adaptation policies. Further, it is of interest whether and how the use of the results is monitored and evaluated.

3.5. Participation

The fourth challenge addressed by Go-Adapt is that those affected most by climate change are often not well organised and therefore excluded from policy making. Also in this context, participation is regarded as adequate governance arrangement. This implies ***the challenge to involve those in policy making that are most vulnerable to climate change and therefore strongly affected by (the lack of) adaptation policies*** (Nelson 2007 409ff; Paavola 2008, 650f).¹ Overall, the scholarly literature recognises participation as important governance principle not only because it has the potential to improve procedural justice and meet ideals of democracy (normative argument). Instrumental arguments stress that effective participation also legitimises policy decisions, improve ownership and commitment; and substantive arguments emphasise that participation may provide additional expertise (e.g. on local particularities of climate change) that help to improve policy decisions (EU 2003; Fiorino 1990; Yohe et al. 2007, 832; OECD 2008, 66f;).

The following items aim to characterise governance arrangements that tackle the challenge of participation (either exclusively or among other challenges):

- Form and institutional context of participation: Participation processes can involve a few selected stakeholders in small workshops and discussion groups, or they can involve the public in broad surveys. They may be one-shot events or permanently institutionalised.
- Aim/purpose: This item addresses the overall aim of the governance arrangement with regard to participation (e.g. raise awareness among those affected by climate change, secure commitment, make use of expertise, etc.).
- Types of stakeholders involved: Regarding types of stakeholders we distinguish between organised interest groups, not organised individuals affected by climate impacts and adaptation policies, scientific experts, and the general public. A key concern of the survey is to find out whether affected individuals are involved adequately. If the governance arrangement is constituted or dominated by scientific experts, it is related to tackling uncertainties rather than to facilitating participation.
- Selection process and openness of/access to participation: Under this item the survey captures how the selection of involved actor-groups takes/took place, and how open and accessible participation bodies are. Participation can be open to all interested stakeholders or only to selected groups. In addition, participation can take place behind closed doors, or the process may be transparent and provide plenty of information about the process itself and the decisions result-

¹ The related challenge of 'distributive justice' asks whether those affected most by climate change are also the ones who benefit the most from adaptation policies. Since the proposed research focuses on procedural governance issues rather than on policy outcomes this challenge is omitted here.

ing form it. These aspects of participation allow conclusions about the purpose of the participation process and the political culture regarding participation.

- Type of participation: Participation can take place temporarily or institutionalised. Meetings can take place on a regular basis or ad-hoc when needed. In addition, three types of participation can be distinguished: informative, consultative and decisional participation (Green & Hunton-Clarke 2003). As the term indicates, **informative participation** involves information being passed from one actor-group to another. This mostly includes the distribution of information from the responsible institution(s) to the participants (via websites, reports, or (public) meetings with speeches). Informative participation might also include two-way information exchange, e.g. during information events, campaigns, etc. This mode of participation complies with the principle of transparency; it increases awareness and knowledge of participants. Within the second mode of participation, the **consultative participation**, specific actor-groups are asked to contribute their views, knowledge and experiences at various stages of the policy process. Examples are consultation processes, round tables, dialogue forums, workshops, partnerships, etc. This form of participation not only comprises a stronger involvement of stakeholders, but also refers to issues such as commitment in the process, resources applied, capacity-building, etc. The second mode enables mutual conversation with the participants but the dialogue is usually asymmetric, as the authorities get input but are in no way obliged to take that input into consideration. **Decisional participation** describes a mode in which participants are involved in actual political decision-making or in the preparation of political decisions. An example would be a council for developing a national adaptation strategy, where decisions on specific adaptation measures are elaborated and selected. Within the analytical category examples for decisions taken or policy outputs produced or shaped by means of participation are to be listed (Rowe & Frewer 2000, Beierle & Cayford 2002). Within the survey we will include only those governance arrangements that go beyond information and aim at higher forms of participation (i.e. consultation or joint decision-making).
- Follow-up (implementation, monitoring and evaluation): Within this item the follow-up of the participation processes will be described. It is asked how the results of the participation processes are used within the context of the governance arrangement and/or related adaptation policies. Further, it is of interest whether and how the use of the results is monitored and evaluated.

3.6. General: Concluding

This general concluding part of the survey will be completed for all governance arrangements. The following items aim to characterise the surveyed governance arrangements in basic ways as follows:

- Follow-up of the governance arrangement (implementation, monitoring and evaluation): Within this item the follow-up of the whole governance arrangement will be described. It is asked how its results are used and implemented for adaptation policies. Further, it is of interest whether and how the use of the results is monitored and evaluated. Evaluation can have different foci, it may address the process design and quality of a governance arrangement or its output and effectiveness. Further, we will look at how evaluations are used (i.e. to adapt governance arrangements or processes).
- Strengths: Strengths help to explain why a particular governance arrangement is successful in meeting its aims/objectives. The survey will list strengths as reported by those responsible for the governance arrangement in the telephone interviews without further investigating them.
- Challenges and barriers help to explain why a particular governance arrangement fails to fully meet its aims/objectives. The surveys will list challenges and barriers as reported by those re-

sponsible for the governance arrangement in the telephone interviews without further investigating them.

- Output (incl. documents, websites): In this item we will list outputs produced by the governance arrangement. Output subsumes documents (studies, brochures, websites, etc.) and actual policies (including political strategies and action plans) that have been formulated.
- Related policies (instrument type, levels, timing) and degree of influence on policy (strong, medium, weak): According to Howlett and Ramesh (1993, 4), "Policy instruments are tools of governance. They represent the relatively limited number of means or methods by which governments effect their policies". Although "There is no single agreed characterization of government resources or instruments in the literature on public administration" (Hood 1983, 201), one can distinguish a widely acknowledged standard set consisting of informational, economic and legal policy instruments (Howlett & Ramesh 1993; Bemelmans-Videc et al. 1997; Jordan et al. 2003):
 - i. Informational instruments (or "sermons", metaphorically speaking) are based on the resource of knowledge. Their rationale is (moral) persuasion. As they are usually restricted to highlighting options and the possible consequences, they imply thereby no constraints. Examples are campaigns, trainings, or websites.
 - ii. Economic/fiscal instruments (or "carrots") are based on the resources of the taxing authority and money. Their rationale is to influence behaviour with financial incentives and market forces. Examples are taxes, tax abatements, redistributive measures and subsidies.
 - iii. Legal instruments (or "sticks") prescribe the desired choices and actions by making use of the state's legislative, executive, and judicial powers. The underlying rationales are hierarchy and authority. Examples are laws, directives, and regulations.

In addition, the following types of policy instruments can be distinguished (Steurer 2009):

- iv. Partnering instruments (or "ties") build on a co-regulatory networking rationale, assuming that different actors are interested in working together towards shared objectives, e.g. in the form of public-private partnerships.
- v. Hybrid instruments (or "adhesives") either combine or orchestrate two or several other instruments as mentioned above (for a similar use of this instrument type, see Rittberger & Richardson 2003). Among the most significant hybrid policy instruments (which often represent governance arrangements) are adaptation strategies and action plans.

While the five types of policy instruments listed above aim to change behaviour and steer society, Cimato and Mullan (2009) distinguish two additional government activities that are important in the context of climate change adaptation but have no direct steering intention:

- vi. Governments often finance and/or organise research and monitoring activities. Financing studies can be regarded as a policy that provides the basis for formulating and implementing other policies as listed above, in particular for informational policies. Research and monitoring programmes can assume the characteristics of a governance arrangement if they fulfil a clearly defined role in the adaptation policy making process (e.g. if they monitor the progress of a national adaptation strategy and help to develop its implementation further).
 - vii. "Adaptive actions include investing in new infrastructure for adaptation, or enhancing the resilience of the existing stock." (Cimato and Mullan 2009, 64). These include, e.g., improving roads, bridges and railroads, building coastal defences or flood barriers, and relocating infrastructure (such as waste water treatments).
- Key activities and actors: Finally we will summarize the three most important political activities on climate change adaptation in the respective country and identify the most important actors in the area of climate change adaptation. Further, we ask for major activities at the regional and/or provincial level in the concerned country.

- Sources (incl. survey interview details)

4. Case studies: Cases, research questions and analytical dimensions

WP 1 of Go-Adapt identified and described a variety of governance approaches for the adaptation to climate change. WP 2 will analyse in more detail the functioning and role of two important governance approaches - national adaptation strategies and partnerships - in facilitating adaptation governance (and policy). Governance here especially refers to the institutional and process dimension, i.e. involved institutions and actors, coordination and decision-making processes. The WP will have a particular focus on how the approaches accomplish governance functions with regard to (horizontal and) vertical coordination and integration.

4.1 Adaptation governance through partnerships: Regional adaptation partnerships in Canada and the UK

The case study focuses on four regional partnerships for climate change adaptation, i.e. two selected Regional Adaptation Collaboratives (RAC) in Canada and two Regional Climate Change Partnerships (RCCP) in the UK. Partnerships can be grouped under new modes of governance or steering mechanisms. In the Go-Adapt survey they have been identified as innovative governance approaches, but the survey was not able to analyse what role they actually play in facilitating coordination and integration, participation and concrete adaptation policies.

The case studies will provide insights

- On partnerships as collaborative mechanisms for the cooperation between different levels of government, and between state and non-state actors at a regional level,
- On the role partnerships play in the formulation and implementation of adaptation policies and measures.

Research questions

What is the role and function of regional partnerships in the regional governance of climate change adaptation (in water management)?

Description:

1. What are the overall aim, purpose and structure of the partnership and in how far does it address water management?

Process (or coordination) perspective:

2. In which way and to which extent do regional partnerships serve as a coordination mechanism for the cooperation at a regional level and between different levels (local, regional, national) as well as with non-state actors (in water management)?

Policy (or effectiveness) perspective:

3. In what way and to what extent do partnerships contribute to or facilitate adaptation policies and measures at the regional and local levels (in water management)?

Steering by national policy:

4. In which way and to which extent are partnerships regulated/steered by national institutions and policies?

Success factors and challenges:

5. What are the critical determinants of the performance (success factors and challenges, strengths and weaknesses) of partnerships as new governance mechanisms (both perspectives) in the adaptation to climate change in water management?

Descriptive and analytical dimensions

1. Partnership background
 - a. Aims /goals
 - b. Focus and Activities/tasks
 - c. Initiative
 - d. Duration
 - e. Phase
 - f. Regional scope
 - g. Financing
 - h. Participants
2. Modes of governing
 - a. Organizational structure
 - b. Openness
 - c. Responsibilities
 - d. Decision-making rules

Partnerships as coordination mechanisms

3. Horizontal coordination
 - a. Sectors
 - b. Institutions/Actors [water authorities]
 - c. Coordination bodies
 - d. Forms and modes of coordination
4. Vertical coordination
 - a. Levels
 - b. Institutions/actors [water authorities]
 - c. Coordination bodies
 - d. Forms and modes of coordination
5. Participation
 - a. Institutions/actors
 - b. Coordination bodies
 - c. Forms and modes of coordination
6. Knowledge
 - a. Institutions/actors
 - b. Coordination bodies
 - c. Forms and modes of coordination

Effects on regional adaptation in water management

7. Content WM
8. Adaptation outputs: activities, policies, projects, etc.
9. Networking effects

10. Learning effects
11. Education and outreach (awareness)
12. Function as a steering mechanism (cognitive, regulatory, normative)
 - a. Legal bindingness versus soft guidelines
 - b. sanctions

Partnerships in the national adaptation governance

13. Partnerships in the overall context of adaptation governance in Canada/UK
14. Linkage to and support by national governance approaches, policies, administration
15. Coordination and steering mechanisms: national -> partnerships

SWOT

16. Relevance in adaptation governance
17. Strengths
18. Challenges /Barriers

Comparison

19. Similarities and differences of the selected partnerships
20. Transferability to other countries/contexts?

4.2 Governance through adaptation strategies: The implementation of national adaptation strategies in water management in Germany and the Netherlands

The case studies analyse the implementation of National Adaptation Strategies in Germany and the Netherlands, with a particular focus on water management. In the Go-Adapt survey NAS have been identified as the most common and important governance approach in climate change adaptation. Strategies can be grouped under new institutional arrangements or steering mechanisms facilitating in particular the horizontal and vertical integration of adaptation policies. Thus, the case studies examine how two selected NAS processes are operationalised and implemented (e.g. with national Action Plans, sub-programmes, or regional adaptation strategies).

The case studies will show how selected NAS and subsequent implementation efforts facilitate the integration of adaptation issues horizontally and vertically in water management at different levels of government.

Research questions

What is the role and function of National Adaptation Strategies in the governance of climate change adaptation?

Description:

1. What are the aims, purposes and structures of national adaptation strategies and related implementation efforts, and in how far does it address water management?

Process (or coordination) perspective:

2. In which way and to which extent do national adaptation strategies serve as a coordination mechanism for the cooperation between different levels (local, regional, national) and between different sectors?
3. What is the role of NAS processes in the governance of water management, in particular at regional levels? How are national and sub-national water authorities integrated in the implementation process of the National Adaptation Strategies (i.e. in Action Programme, sub-programme, and/or Länder strategy)?

Effectiveness perspective:

4. Do NAS implementation efforts (i.e. Action Programme, sub-programme, and or Länder strategy) trigger governance innovations or policy changes in water management? How do strategy processes affect sub-national adaptation activities (strategies, programmes)?
5. How relevant are NAS and subsequent implementation programmes for the governance of water management in selected regions?

Success factors and challenges:

6. What are the critical determinants of the performance (success factors and challenges) of NAS as new governance mechanisms (both perspectives) in the adaptation to climate change in water management?

Descriptive and analytical dimensions

1. NAS background:
 - a. Aims /goals
 - b. Process/Milestones
 - c. Actors
 - d. Time frame
 - e. Phase
 - f. Regional/geographic scope
 - g. Contents (general)
 - h. Follow-up procedures (intended)
2. Background Action Plan/Sub-programme /Länder - NAS
 - a. Aims /goals
 - b. Process
 - c. Actors
 - d. Time frame
 - e. Phase
 - f. Regional/geographic scope
 - g. Contents (general)
 - h. Follow-up procedures (intended)
3. Modes of governing
 - a. Organizational structure
 - b. Openness

- c. Responsibilities
- d. Decision-making rules

Coordination

- 4. Horizontal coordination
 - a. Sectors
 - b. Institutions/Actors
 - c. Coordination bodies
 - d. Forms and modes of coordination
- 5. Vertical coordination
 - a. Levels
 - b. Institutions/actors
 - c. Coordination bodies
 - d. Forms and modes of coordination
- 6. Participation
 - a. Institutions/actors
 - b. Coordination bodies
 - c. Forms and modes of coordination
- 7. Knowledge
 - a. Institutions/actors
 - b. Coordination bodies
 - c. Forms and modes of coordination

Effects on regional adaptation in water management

- 8. Content WM
- 9. Adaptation outputs: activities, policies, projects, etc.
- 10. Networking
- 11. Learning
- 12. Education and outreach
- 13. Function as a steering mechanism (cognitive, regulatory, normative)
 - a. Legal bindingness versus soft guidelines
 - b. sanctions
- 14. Linkage to and support by NAS
- 15. Coherence (NAS- Action Plan/Sub-programme, Länder NAS)
- 16. NAS' function as a steering mechanism (cognitive, regulatory, normative)

SWOT

- 17. Relevance in adaptation governance
- 18. Strengths
- 19. Challenges /Barriers

Comparison

- 20. Similarities and differences of the selected partnerships
- 21. Transferability to other countries/contexts?

References not used in the proposal

- Benz, A., 2001. Der moderne Staat. Grundlagen der politologischen Analyse, Oldenbourg Wissenschaftsverlag GmbH, München.
- Burton, I., E. Diringer, et al., 2006. Adaptation to Climate Change: International Policy Options. University of Toronto, Toronto, 36.
- Cash, D. W. and W. C. Clark, 2001. From Science to Policy: Assessing the Assessment Process, Kennedy School of Government, Harvard University, Cambridge, MA.
- EU, 2003. DIRECTIVE 2003/35/EC providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC.
- Ezrahi, Y., 1980. Utopian and pragmatic rationalism: The political context of scientific advice. *Minerva* 18 (1), 111-131.
- Fiorino, D. J., 1990. Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms. *Science, Technology & Human Values* 15 (2), 226-243.
- Funtowicz, S. O. and J. R. Ravetz, 1993. Science for the post-normal age. *Futures* 25 (7), 739-755.
- Gibbons, M., C. Limoges, et al., 1994. The new production of knowledge. The dynamics of science and research in contemporary societies, Sage Publ., London [et al.].
- Grundmann, R., 2009. The role of expertise in governance processes. *Forest Policy and Economics* 11 (5-6), 398-403.
- Héritier, A. & Eckert, S. (2008) New Modes of Governance in the Shadow of Hierarchy: Selfregulation by Industry in Europe. *Journal of Public Policy* 28/1: 113-138.
- Hulme, M., H. Neufeld, et al., 2009. Adaptation and Mitigation Strategies: Supporting European Climate Policy. The Final Report from the ADAM Project. Revised June 2009. Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK.
- Jasanoff, S., 1990. The fifth branch. Science advisers as policymakers, Harvard University Press, Cambridge, Mass. [et al.].
- Jasanoff, S., 2004. The idiom of co-production. In: S. Jasanoff, States of knowledge. The co-production of science and the social order, Routledge, London, pp. 1-12.
- Keller, A. C., 2009. Science in Environmental Policy. The politics of objective advice, The MIT Press, Cambridge [et al.].
- Kevenhörster, P., 2003. Politikberatung. In: U. Andersen and W. Woyke, Handwörterbuch des politischen Systems der Bundesrepublik Deutschland, Leske*Budrich, Opladen, pp.
- Maasen, S. and P. Weingart, Eds, 2005. Democratization of expertise? Exploring novel forms of scientific advice in political decision-making, Springer, Dordrecht.
- Nowotny, H., P. Scott, et al., 2001. Re-thinking science. Knowledge and the public in an age of uncertainty, Polity Press, Cambridge.
- Price, D. K., 1981. The spectrum for truth to power. In: T. J. Kuehn and A. L. Oortter, Science, technology, and national policy, Cornell University Press, Ithaca [et al.], pp.
- Schützeichel, R., 2008. Beratung, Politikberatung, wissenschaftliche Politikberatung. In: S. Bröchler and R. Schützeichel, Politikberatung, Lucius & Lucius, Stuttgart, pp. 5-32.
- Steurer, R. (2010): The Role of Governments in Corporate Social Responsibility: Characterising Public Policies on CSR in Europe; in: *Policy Sciences*, 43/1, 49-72.
- Tabara, D., X. Dai, et al., 2010. The Climate Learning Ladder. A Pragmatic Procedure to Support Climate Adaptation. *Environmental Policy and Governance* 20 (I-II), 1-11.

References used in the proposal

- Adger, W. N., Arnell, N. W. and Tompkins, E. (2005): "Successful adaptation to climate change across scales", *Global Environmental Change* 15(2), 77-86.
- Adger, W.N., S. Agrawala, M.M.Q. Mirza, C. Conde, K. O'Brien, J. Pulhin, R. Pulwarty, B. Smit and K. Takahashi. 2007. Assessment of adaptation practices, options, constraints and capacity. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 717-743.
- Barnett, Jon (2001): "Adapting to Climate Change in Pacific Island Countries. The Problem of Uncertainty", *World Development* Vol 29 (6) 977-993.
- Beierle, Th. C.; Cayford, J. (2002): *Democracy in Practice: Public Participation in Environmental Decisions*. Washington, D.C.: Resources for the Future.
- Benz, Arthur (2000), Politische Steuerung in lose gekoppelten Mehrebenensystemen, in Raymund Werle and Uwe Schimank (eds.) (2000), *Gesellschaftliche Komplexität und kollektive Handlungsfähigkeit*, Frankfurt; New York: Campus, pp. 98-124.
- Benz, Arthur (1999): Multi-level governance. In: Peter Glück, Gerhard Oesten, Heiner Schanz, Karl-Reinhard Volz (eds.): *Formulation and Implementation of national forest Programmes. Volume I: Theoretical Aspects*.
- Benz, Arthur (2004): Multi-level governance – Governance in Mehrebenensystemen. in Arthur Benz (ed.): *Governance – Regieren in komplexen Regelsystemen*. Wiesbaden: VS-Verlag für Sozialwissenschaften.
- Berger, G.; Hametner, M. & Steurer, R. (2007): Strategic Approaches to Climate Change in Europe: EU policies and strategies, provisions in SD strategies and overview of national climate change strategies; ESDN Quarterly Report September 2007; http://www.sd-network.eu/?k=quarterly%20reports&report_id=6.
- Börzel, T. (1998): "Organizing Babylon – On the Different Conceptions of Policy Networks", *Public Administration*, 76, 253-273.
- Burton, Ian, Elliot Diringer, and Joel Smith (2006): *Adaptation to Climate Change: International Policy Options*, paper, prepared for the Pew Center on Global Climate Change, http://www.pewclimate.org/global-warming-in-depth/all_reports/adaptation_to_climate_change
- Cash, David W. & Clark, William C. (2001): *From Science to Policy: Assessing the Assessment Process*. Cambridge, MA: Kennedy School of Government, Harvard University.
- Considine, M. & Lewis, J.M. (2003): "Bureaucracy, Network, or Enterprise? Comparing Models of Governance in Australia, Britain, the Netherlands, and New Zealand", *Public Administration Review*, 63/2, 131-140
- Donahue, J.D. (2004): *On Collaborative Governance; Working Paper of the Corporate Social Responsibility Initiative*; http://www.ksg.harvard.edu/cbg/CSRI/publications/donahue_collaborative_governance.pdf.
- EEA/ACC (2009): Grothmann, T., Prutsch, A., Nenz, D., Schauer, I., McCallum, S., Zebisch, M., Schaller, M., Hain, B., Holsten, A., Zimmermann, P., Hohenwallner, D., Lexer, W., Nemetz, S., Kralik, M., Pütz, M., Jong, C., Cegnar, T.: *Climate Change Impacts and Adaptation in the European Alps: Focus Water Resources, Technical Paper* (publication in preparation).
- Eisenhardt, K. M. (1989): Building theories from case study research. In: *Academy of management review*. Vol. 14, 532-50.
- European Commission (2007): *Green Paper from the Commission to the Council, The European Parliament, the European Economic and Social Committee and the Committee of the Regions, Adapting to climate change in Europe – options for EU action*, COM(2007) 0345 final, Brussels.
- European Environment Agency (2005a): *Environmental Policy Integration in Europe: Administrative Culture and Practices*. Copenhagen: European Environment Agency.
- European Environment Agency (2005b): *Environmental policy Integration in Europe: State of play and an evaluation framework*. Copenhagen: European Environment Agency.
- European Commission (2001): *European Governance. A White Paper*. http://europa.eu.int/eur-lex/en/com/cne/2001/com2001_0428en01.pdf.
- FAO (2007): *Adaptation to climate change in agriculture, forestry and fisheries: Perspective, framework and priorities*, Interdepartmental working group on climate change, Food and Agriculture Organization of the United Nations, Rome.
- Farrell, Alexander E. & Jäger, Jill (eds.) (2006): *Assessments of Regional and Global Environmental Risks: Designing Processes for the Effective Use of Science in Decisionmaking*. Washington, DC: RFF Press.

- Feichtinger, J., Pregernig, M. (2005b): Participation And/Or/Versus Sustainability? Tensions Between Procedural and Substantive Goals in Two Local Agenda 21 Processes in Sweden and Austria. *European Environment*, 15/4, 212-227.
- Fiorino, D.J. (1990): Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms. *Science, Technology & Human Values*, Vol. 15, No. 2, 226-243, Sage.
- Ford, J. (2008): Emerging Trends in Climate Change Policy: The Role of Adaptation, in: *International Public Policy Review*, 3, 5-16
- Formayer H., Clementschitsch L., Hofstätter M., Kromp-Kolb H., (2008): Vor Sicht Klima! Klimawandel in Österreich, regional betrachtet. Schwerpunkt Niederösterreich.
- Gamble, A. (2000): Economic Governance, in: Pierre, J. (ed.), *Debating Governance: Authority, Steering and Democracy*. Oxford: Oxford University Press, 110-137.
- Gingrich S., Balas M., Drack A., Erb K. Formayer H., Haberl H., Hackl J., Kromp-Kolb H., Mayer S., Pazdernik K., Radunsky K., Schwarzl I. (2008): Ist-Stand-Erhebung zur Anpassung an den Klimawandel in Österreich. Kurzbericht im Auftrag des BMLFUW, Wien
- Green, A.O. & Hunton-Clarke, L. (2003): A Typology of Stakeholder Participation for Company Environmental Decision-Making, in: *Business Strategy and the Environment*, 12, 292-299.
- Haas, W., Weisz, U., Balas, M., McCallum, S., Lexer, W., Pazdernik, K., Prutsch, A., Radunsky, K., Formayer, H., Kromp-Kolb, H. and Schwarzl, I. (2008): [Study on the identification of necessary first actions and measures for climate change adaptation in Austria]. Identifikation von Handlungsempfehlungen zur Anpassung an den Klimawandel in Österreich: 1. Phase, 2008, Vienna.
- Habersack H., Petraschek A. und Bürgel J. (2004), Analysis of the flood events in August 2002 – FloodRisk, Synthesis report, Federal Ministry of Agriculture and Forestry, Environment and Water Management, 181S.
- Harrison, J.S. & Freeman, R.E. (1999): Stakeholders, social responsibility, and performance: Empirical evidence and theoretical perspectives, in: *Academy of Management Journal*, 42/5, 479-485.
- Hogl, K. (2002): Patterns of multi-level co-ordination for NFP-processes: learning from problems and success stories of European policy-making.. *Forest Policy and Economics*, 4, 301-312.
- Hogl, K. (2004): National Forest Programmes: Opportunities and Limits of Co-ordination in Policy Networks. In: Glück, P., Voitleithner, J., NFP Research: Its Retrospect and Outlook. Publication Series of the Institute of Forest Sector Policy and Economics, 52, 83-96; Institute for Forest Sector Policy and Economics, Vienna.
- Hogl, K. (2004): Policy Co-ordination in National Forest Programme processes: challenge, options and limits. In: Jansky, L., Nevenic, R., Tikkanen, I., Pajari, B. (Eds.), *Challenges in Strengthening of Capacities for Forest Policy Development in Countries with Economies in Transition*, 51-64; United Nations University, Tokyo, New York.
- Hogl, K., Nordbeck, R., Kvarda, E. (2008): When international impulses hit home: The role of domestic policy subsystem configurations in explaining different types of sustainability strategies. *FOREST POLICY ECON*.
- Hogl, K., Nordbeck, R., Nussbaumer, E., Pregernig, M. (2008): New Modes of Governance for Sustainable Forestry in Europe (GoFOR): Synthesis Report. EU Commission (EU FP6 Project 6447GoFOR, 279
- Hogl, K.; Nordbeck, R. & Pregernig, M. (2008): New Modes of Governance: Programmatic Rhetoric and Actual Practices. *GAIA. Ökologische Perspektiven für Wissenschaft und Gesellschaft. Ecological Perspectives for Science and Society*, 4, 399-400.
- Hooghe, L. and Marks, G. (2003): Multi-Level Governance in the European Union. In: Nelsen, Brent F. and Stubb, Alexander C-G. (eds.): *The European Union*. Basingstoke: Palgrave Macmillan, 281-311.
- IPCC (2007): Summary for Policymakers. In: *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 7-22.
- IPCC, 2001: *Climate Change 2001: Synthesis Report. A Contribution of Working Groups I, II, and III to the Third Assessment Report of the Intergovernmental Panel on Climate Change* [Watson, R.T. and the Core Writing Team (eds.)]. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA, 398 pp.
- Jasanoff, Sheila & Long Martello, Marybeth (eds) (2004): *Earthly Politics: Local and Global in Environmental Governance*. Cambridge; London: MIT Press.
- Jordan, A. and Lenschow, A. (eds.) (2008): *Innovation in Environmental Policy? Integrating the Environment for Sustainability*. London: Edward Elgar.

- Klein, R.J.T., S. Huq, F. Denton, T.E. Downing, R.G. Richels, J.B. Robinson, F.L. Toth (2007): Interrelationships between adaptation and mitigation. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment*
- Kok, F. & Steurer, R. (1998): Klimaschutzpolitik in Österreich: Ziele, Maßnahmen, Umsetzungsstand, Hemmnisse und Empfehlungen („Climate Policy in Austria: Objectives, Measures, Implementation Status, Obstacles and Recommendations“). Wien: Bundeskammer für Arbeiter und Angestellte.
- Kooiman, J. (2003): *Governing as Governance*. London: Sage.
- Lafferty, WM. (2002): *Adapting Government Practice to the Goals of Sustainable Development*, <http://www.oecd.org/dataoecd/30/54/1939762.pdf>.
- Lars-Otto Naess, Johanna Wolf, Anita Wreford (2007): *Limits and barriers to adaptation: four propositions*, Tyndall Briefing Note No. 20, Tyndall Centre for Climate Change Research.
- Lenschow, A. (2002): *Environmental Policy Integration: Greening Sectoral Policies in Europe*. London: Earthscan.
- Lorenzoni, I.; Jones, M. & Turnpenny, J.R. (2006): Climate change, human genetics, and post-normality in the UK; in: *Futures*, 39, 65-82.
- Marks, G. (1993): *Structural Policy and Multilevel Governance in the EC*. In: Cafruny, A. W.; Rosenthal, G. (eds): *The State of the European Community, the Maastricht Debates and Beyond*. Boulder: Longman. pp. 391-410.
- Marks, Gary and Lisbet Hooghe (2004), *Contrasting Visions of Multi-level Governance*, in Ian Bache and Matthew Flinders (2004), pp. 15-30.
- Martinuzzi, A. & Steurer, R. (2003): *The Austrian Strategy for Sustainable Development: Process Review and Policy Analysis*, in: *European Environment*, 13/4, 269-287.
- Mayer S., Pazdernik K., Radunsky K. (2008) :Klimaverträglichkeitsprüfung von Gesetzesvorhaben - Methodische Grundlage für die Durchführung einer Klimaverträglichkeitsprüfung (KVP). *Grundlagenstudie im Auftrag des BMLFUW, Wien*.
- Mayer, S. (2005): *Actor`s teamwork developing a National Strategy for waste prevention and recycling for Austria – a proactive step towards bridging the gap between experts work and political decision-making*; IAIA SEA Conference, Prague`05, CZ.
- Mayer, S. et al (2005): *Projects subject to EIA, WP report under the Sixth Framework Programme IM-Proving the IMpLementation of Environmental IMPact Assessment (IMP³)*; Vienna, A.
- Miller, Clark, Jasanoff, Sheila, Long, Marybeth, Clark, William C., Dickson, Nancy & Iles, Alastair (1997): *Shaping knowledge, defining uncertainty: The dynamic role of assessments*. In: Clark, William C., McCarthy, James J. & Shea, Eileen (eds) *A critical evaluation of global environmental assessments*. Cambridge, MA: Harvard University. 79–113.
- Mitchell, Ronald B., Clark, William C., Cash, David W. & Dickson, Nancy (eds) (2006): *Global Environmental Assessments: Information and Influence*. Cambridge, MA: MIT Press.
- Nelson, DR, WN Adger, and K Brown (2007): “Adaptation to environmental change: Contributions of a resilience framework”, *Annual Review of Environmental and Resources* 2007. 32:395–419.
- Nelson, J. (2004): *The Public Role of Private Enterprise: Risks, Opportunities and New Models of Engagement*. Working Paper of the Corporate Social Responsibility Initiative; http://www.ksg.harvard.edu/cbg/CSRI/publications/nelson_public_role_of_private_enterprise.pdf
- Nilsson, M. and Persson, Å. (2003): *Environmental Policy Integration – Towards an Analytical Framework*. In *Journal of Environmental Policy & Planning*. Vol. 5; Issue 4, 333-360.
- OECD (2008) *Economic Aspects of Adaptation to Climate Change: Costs, Benefits and Policy Instruments - Executive Summary*. Edited by Agrawala, S. and S. FankhauserOECD, Paris, May 2008.
- O’Brien, G.; O’Keefe, P.; Rose, J. & Wisner, B. (2006): *Disasters*, 30/1, 64-80.
- Paavola, Jouni (2008): “Science and social justice in the governance of adaptation to climate change”, *Environmental Politics*,17:4,644 – 659.
- Paavola, Jouni, Neil W. Adger (2006): “Fair adaptation to climate change”, *Ecological Economics* 56 (2006) 594– 609.
- Pregernig, M. (2006): *Transdisciplinarity viewed from afar: science–policy assessments as forums for the creation of transdisciplinary knowledge*. *Science & Public Policy*, 33/6, 445–455.
- Pregernig, M. (2007): *Science-Policy Consultation as Boundary Spanning: the Interaction of Science and Politics in Two US Bioregional Assessments*, In: Reynolds, Keith M., Thomson, Alan J., Köhl, Michael, Shannon, Margaret A., Rae, Duncan & Rennolls, Keith (eds) *Sustainable Forestry: From Monitoring and Modelling to Knowledge Management and Policy Science*. Wallingford: CABI. 129-144.

- Price, Don K. (1981): The spectrum from truth to power, In: Kuehn, Thomas J., Alan L Porter (eds): Science, technology, and national policy, Ithaca, NY; London: Cornell University Press. pp. 95-131
- Prutsch, A. (2007): Adapting Tourism Optimisation Management Model for managing a European Winter Sport Destination considering Climate Change. In: International Association for Society and Natural Resources, Social Science Perspectives and Interdisciplinary Contributions, ISSRM 2007 Park City, Utha.
- Rhodes, R.A.W. (2000): Governance and Public Administration, in: Pierre, J. (ed.), Debating Governance: Authority, Steering and Democracy. Oxford: Oxford University Press, 54-90.
- Rowe, G.; Frewer, L. J. (2000): Public Participation Methods: A Framework for Evaluation. Science, Technology, and Human Values (Vol. 25 - No. 1). pp. 3-29.
- Scharpf, F. W. (2000): Notes Towards a Theory of Multilevel Governing in Europe. MPIfG Discussion Paper 00/5, Köln: Max-Planck-Institut für Gesellschaftsforschung.
- Scharpf, F.W. (1993): Coordination in Hierarchies and Networks, in: Scharpf, F.W. (ed), Games in Hierarchies and Networks: Analytical and Empirical Approaches to the Study of Governance Institutions. Frankfurt: Campus, 125-166.
- Scharpf, F.W. (ed.) (1993): Games in Hierarchies and Networks: Analytical and Empirical Approaches to the Study of Governance institutions. Frankfurt: Campus.
- Schimank, Uwe (2007), Elementare Mechanismen, in Benz, Arthur; Susanne Lütz, Uwe Schimank, and Georg Simonis (eds.): Handbuch Governance, Wiesbaden: VS Verlag für Sozialwissenschaften, pp.29-45.
- Schipper, E.L.F. & Burton, I. (eds.) (2008): The Earthscan Reader on Adaptation to Climate Change Earthscan Reader Series. London: Earthscan.
- Steurer, R. & Martinuzzi, A. (2005): Towards a New Pattern of Strategy Formation in the Public Sector: First Experiences with National Strategies for Sustainable Development in Europe, in: Environment and Planning C: Government and Policy, 23/3, 455-472.
- Steurer, R. & Martinuzzi, A. (eds.) (2007): Sustainable Development Strategies in Europe: Taking Stock 20 Years after the Brundtland Report; European Environment Special Issue, 17/3, 147-214.
- Steurer, R. (1999): Klimaschutzpolitik in Österreich: Bilanz der 1990er Jahre und Ausblick („Climate Policy in Austria: Review of the 1990s and Outlook“), in: SWS-Rundschau, 3/99, 197-219.
- Steurer, R. (1999): Schwierigkeiten der Klimaschutzpolitik. Eine österreichische Fallstudie zur Psychologie der Umweltpolitik („Difficulties of Climate Policy: An Austrian Case Study on the Psychology of Environmental Policy“), in: Internationale Politik und Gesellschaft, 4/99, 414-429.
- Steurer, R. (2003): The US's Retreat from the Kyoto Protocol: An Account of a Policy Change and its Implications for Future Climate Policy, in: European Environment, 13/6, 344-360.
- Steurer, R. (2007): From Government Strategies to Strategic Public Management: An Exploratory Outlook on the Pursuit of Cross-Sectoral Policy Integration, in: European Environment, 17/3, 201-214.
- Steurer, R. (2009): Public Policies on CSR and Network Governance: How partnering are government initiatives on CSR in the EU-27?, in: Wieland, J. (ed.), Studien zur Governance-Ethik („Studies on Governance Ethics“), Band 5. Marburg: Metropolis.
- The Heinz Centre (2007): A Survey of Climate Change Adaptation Planning. Washington D.C.; http://www.heinzcenter.org/publications/PDF/Adaptation_Report_October_10_2007.pdf
- Thompson, G.; Frances, J.; Levacic, R. & Mitchell, J. (eds.) (1991): Markets, hierarchies & networks: The coordination of social life. London: Sage.
- Tol, R. S. J. (2005): "Adaptation and mitigation: trade-offs in substance and methods", Environmental Science & Policy 8 (2005) 572-578
- Tompkins, E.L.; Lemos, M.C. & Boyd, E. (2008): A less disastrous disaster: Managing response to climate-driven hazards in the Cayman Islands and NE Brazil, in: Global Environmental Change, 18, 736-745.
- Umweltbundesamt (2005) Mayer, S. & Reisinger, H.: Konsensfindungsprozess zur Entwicklung einer Abfallvermeidungs- und -verwertungsstrategie für den Bundes-Abfallwirtschaftsplan 2006. Report REP-0008, Wien. <http://www.umweltbundesamt.at/fileadmin/site/publikationen/REP0008.pdf>
- Volkery, A.; Swanson, D.; Jacob, K.; Bregha, F. and Pintér L. (2006): Coordination, Challenges, and Innovations in 19 National Sustainable Development Strategies. In: World Development Vol. 34; Issue 12, 2047-2063.
- Yin, Robert (2003): Case Study Research, Sage Publications, Thousand Oaks, CA.

Yohe, G.W., R.D. Lasco, Q.K. Ahmad, N.W. Arnell, S.J. Cohen, C. Hope, A.C. Janetos and R.T. Perez (2007): Perspectives on climate change and sustainability. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 811-841.

Annex: Survey template

[Country]

National

	Name/title of arrangement	1	2
General: Introductory	Aim/purpose/mission		
	Short description/characterisation		
	Timing & Type: temporary/institutionalised, 'old/new', etc.		
	Pase		
	Why (motivation/trigger: international, event, etc.)		
	Sectoral/thematic focus		
	Responsibility (coordinator)		
Horizontal integration	Form and institutional context of horizontal integration		
	Aim/purpose		
	Ministries/departments involved and kind of involvement (political and/or administrative level)		
	Subject of integration (what is integrated into what, within environmental domain, mainstreaming in non-environmental policies)		
	Form and type of integration (positive/negative) and governance modes employed: hierarchy, network, market, hybrid		
	Follow-up (implementation, monitoring and evaluation)		
Vertical integration	Form and institutional context of vertical I integration		
	Aim/purpose		
	Levels of government involved and kind of involvement (political and/or administrative level)		
	Subject of integration (what is integrated into what; vertical or diagonal integration)		
	Form and type of integration (governance modes employed: hierarchy, network/mutual adaptation, competition/market, negotiation)		
	Follow-up (implementation, monitoring and evaluation)		
Tackling uncertainties	Form and institutional context of which knowledge integration and dealing with uncertainties		
	Aim/purpose		
	Actors/experts involved & details on the selection process		
	Knowledge needs/type(s) of uncertainty addressed (climate scenarios generally, impacts/vulnerabilities, adaptation needs, adaptation capacities, effectiveness of adaptation)		
	Form of knowledge integration and modes of science-policy interaction (e.g. technocratic, decisionistic, co-productive, participatory)		
	Follow-up (implementation, monitoring and evaluation)		
Participation	Form and institutional context of participation		
	Aim/purpose		
	Types of stakeholders involved		
	Selection process and openness of/access to participation		
	Type of participation: informative, consultative, decisional (examples for decisions taken); temporarily or institutionalised		

	Follow-up (implementation, monitoring and evaluation)		
General: Concluding	Implementation and evaluation of the overall governance arrangement		
	Strengths		
	Challenges and barriers		
	Output (incl. documents, websites)		
	Related policies (instrument type, levels, timing) and degree of influence on policy (strong, medium, weak)		
	Key activities and actors (national and sub-national)		
	Sources (incl. survey interview details)		