



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

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

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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

Go-Adapt 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 approaches 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 approaches (as far as they foresee inter-ministerial coordination, implementation, participation, and/or monitoring mechanisms).
- Sometimes, the distinction that governance approaches 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 approaches 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 approaches (to be completed for all governance approaches), and four parts exploring challenge-specific issues (to be completed only if an approach 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 approaches. The following items aim to characterise the surveyed governance approaches in basic ways as follows:

- Aim/purpose/mission: Basic questions answered here are: 'What is the governance approach aiming at?'; 'What does it want to achieve?'
- Overview & short description: This item addresses basic questions such as 'What is the governance approach 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 approach established?" Further it explores the type of the governance approach. In particular, we distinguish between:
 - i. Temporary or institutionalised: Temporary governance approaches may be formalised or institutionalised but they are operational only for a limited period (e.g. to formulate a particular policy). Institutionalised approaches are formalised (i.e. they follow clearly defined rules and they are operational for a longer (often indefinite) time period. Ad-hoc approaches 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 approach and they are not included in the survey.
 - ii. 'Old/new': 'Old' means that existing governance approaches (e.g. on climate change mitigation) are widened/refocused so that they also take adaptation into account; 'new' means that a governance approach is newly established to tackle adaptation.
- Phase: Governance approaches 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 approach 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 approach 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 approach. Governance approaches 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 approaches 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 approach.

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 approaches 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 approach 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 approach 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, mar-

kets 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 approach will be described. It is asked how the results of the coordination and integration processes are used within the context of the governance approach 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 approaches 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).

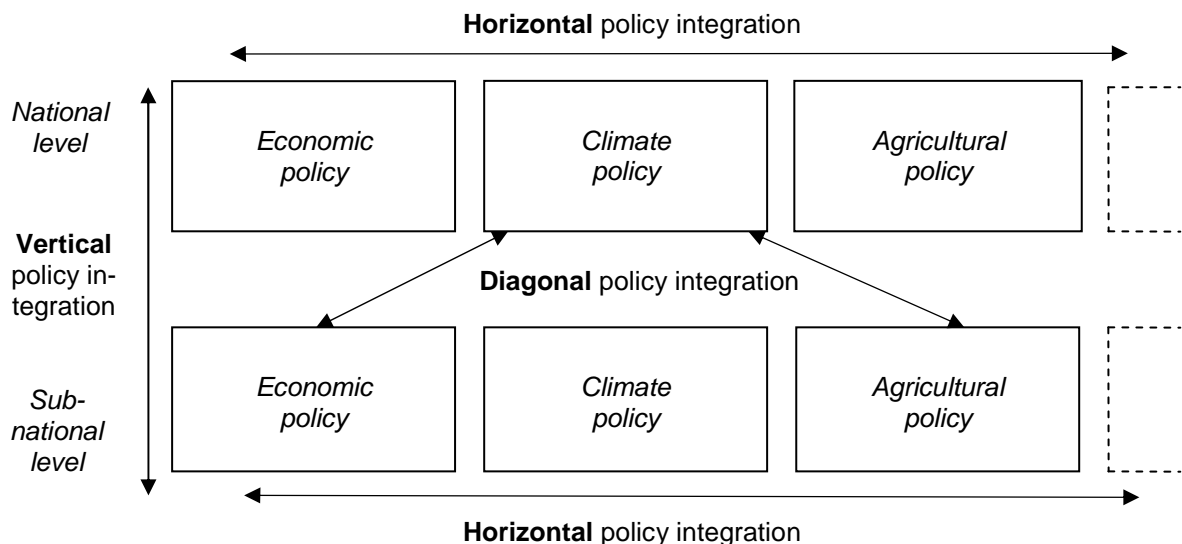
The following items aim to characterise governance approaches that cut across different levels of government (either exclusively or among other challenges):

- 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. Govern-

ance tools that facilitate vertical integration are guiding documents or federal strategies.

- Aim/purpose: This item addresses the overall aim of the governance approach 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 approach will be described. It is asked how the results of the coordination and integration processes are used within the context of the governance approach 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 approaches 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 approaches 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 approach 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 approaches 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 widespread 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 approach 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 approach. 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 approaches 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 approach 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 gov-

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.

ernance approach 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 resulting from 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 approaches 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 approach 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 approaches. The following items aim to characterise the surveyed governance approaches in basic ways as follows:

- Follow-up of the governance approach (implementation, monitoring and evaluation): Within this item the follow-up of the whole governance approach 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 approach or its output and effectiveness. Further, we will look at how evaluations are used (i.e. to adapt governance approaches or processes).
- Strengths: Strengths help to explain why a particular governance approach is successful in meeting its aims/objectives. The survey will list strengths as reported by those responsible for the governance approach in the telephone interviews without further investigating them.
- Challenges and barriers help to explain why a particular governance approach fails to fully meet its aims/objectives. The surveys will list challenges and barriers as reported by those responsible for the governance approach in the telephone interviews without further investigating them.
- Output (incl. documents, websites): In this item we will list outputs produced by the governance approach. 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 approaches) 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 approach 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)

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	Name/title of approach	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 approach		
	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		
	Sources (incl. survey interview details)		