

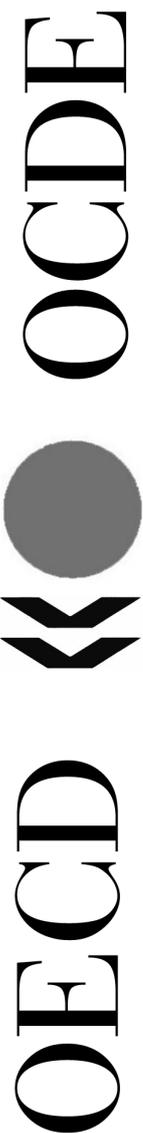


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OECD ENVIRONMENT DIRECTORATE
INTERNATIONAL ENERGY AGENCY

**INSTITUTIONAL CAPACITY
AND CLIMATE ACTIONS**

Stéphane Willems and Kevin Baumert



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FOREWORD

This document was prepared in November 2003 by the OECD Secretariat at the request of the Annex I Expert Group on the United Nations Framework Convention on Climate Change. The Annex I Expert Group oversees development of analytical papers for the purpose of providing useful and timely input to the climate change negotiations. These papers may also be useful to national policy makers and other decision-makers. In a collaborative effort, authors work with the Annex I Expert Group to develop these papers. However, the papers do not necessarily represent the views of the OECD or the IEA, nor are they intended to prejudge the views of countries participating in the Annex I Expert Group. Rather, they are Secretariat information papers intended to inform Member countries, as well as the UNFCCC audience.

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Executive Summary

This paper explores the concept and substance of country-level institutional capacity in the context of future climate-related actions. The main thrust of the paper is that an institutional approach, based on capacity assessments, could provide useful insights, both at national and international levels, on the appropriate next steps for climate actions. Thus, the paper proposes a generic assessment of institutional capacity, with the aim to help develop a common understanding across countries of what institutional capacity actually is and what institutional capacity would be required for various forms of future actions. However, the paper fully acknowledges that country-level institutional capacity assessments are essentially country-specific and need to be undertaken in a national context. Some national case studies have been prepared together with this paper (see OECD, *Institutional Capacity and Climate Actions*, 3 case studies, 2003) to emphasise the country-specific aspect of this debate.

To be sure, current capacities are not the only factor in deciding on future policy options. First, governments need not have all the capacity in place before taking steps to combat climate change. It may well be that, within the next decades, countries will be able to increase their capacity, either through their own means or with assistance from the international community. Second, to some degree, and in some instances, the adoption of a commitment—either domestic or international—may act as a driver for capacity building. This was the case for some industrialized and transitioning countries, whose commitments in Kyoto have provided an impetus for the development of the capacity needed to implement and adhere to them. Finally, institutional capacity needs are only *one* key consideration when assessing future climate policy options. Other considerations when evaluating different forms of future actions include environmental effectiveness, cost-effectiveness, the need to deal with economic and scientific uncertainties, and other domestic policy considerations.

However, a pragmatic model for the evolution of climate actions might include a step by step approach, whereby countries in each step assess their existing capacities and select future actions that are consistent with the capacity level it can reasonably reach within a given time frame. While each new step is likely to involve some capacity development, capacity requirements should not be too large at each of these steps. If the gap between *existing* capacity and capacity that is *required* is too large for a particular policy option, it could become virtually impossible for a country to abide by what it has committed to do, either domestically or internationally. In this framework, the level of existing capacities in a country is likely to define the kind of next step that the country can take. However, it is also hoped that with each step, capacity will grow, so as to allow for a progressive strengthening of actions over time.

Chapter 2 of this paper discusses the concept of institutional capacity and analyses the various dimensions of capacity that could be worth exploring when countries assess their own capacities. Chapter 3 analyses institutional requirements of a number of options for future actions, thereby giving some initial guidance as to how these options might differ according to their capacity requirements.

A coherent view of institutional capacity

In general terms, capacity can be defined as “the ability to perform functions, solve problems and set and achieve objectives” (Fukuda-Parr & al., 2002). What makes a country able to perform a function, solve a problem or achieve an objective? As already suggested, it is very country-specific, since a country’s approach to a particular problem, such as climate change, is embedded in its complex history, institutional setting and social fabric. However, it is possible to find some common characteristics of institutional capacity that are valid across countries.

All aspects of institutional capacity are important for the success of climate policy

Capacity is systemic, so, in some sense, all dimensions of institutional capacity deserve attention. Increasing the level of human resources or strengthening organisations, while it may be necessary, may not be sufficient to increase capacity. The way individuals and organisations interact both in the public sector and within society as a whole may be more relevant to the overall level of capacity. This is particularly true for climate policy. As a cross-cutting issue, it requires co-operation among a large number of individuals and organisations. Capacity is also required in all phases of the policy process: for instance, a strong monitoring, reporting and review system is needed to enhance the effectiveness of the climate strategy and individual policies and measures over time. Finally, climate change, as a cross-cutting issue, means that both “climate-specific” and “climate-relevant” capacities are needed. Climate-specific capacity is a capacity that is specifically devoted to climate change issues, while climate-relevant capacity supports the vast number of “non-climate” actions that may help to mitigate or adapt to climate change.

All countries need a minimum level of “climate-specific” capacity

A sufficient level of climate-specific capacity is needed to get climate policy off the ground: sufficient personnel dedicated to climate issues in the main organisation responsible for climate, in other relevant agencies/ministries, in key research centres (or consulting firms) and in businesses and non-governmental organisations; climate change recognition in the structure of organisations; institutional arrangements to develop a climate strategy with the co-operation with all relevant agencies and stakeholders; leadership of an institution; awareness among the general public. While this capacity is likely to be built first for the national assessment and strategy formulation (including possible participation in international negotiations), progressively this capacity needs to be extended to the design and implementation of policies and measures as well as to monitoring, reporting and review.

The most complex challenge: developing capacity in climate-relevant areas

Effective implementation of policies and measures will mostly require a strong capacity in a variety of policy areas with different sets of expertise and institutional arrangements, such as energy, transport, agriculture and forestry sectors, or general economic policies. Monitoring, reporting, review and enforcement will also require strong statistical and judiciary systems.

Influencing these policy areas so that they develop climate-relevant, or even climate-friendly, capacities is perhaps the biggest challenge of climate policy. Some specific institutional mechanisms may be built, such as strategic planning in sustainable development, to integrate climate concerns into other policy areas. More generally, however, there is no simple recipe for ensuring that climate change is taken seriously at the highest political level. Also, the “political economy” of decision-making may be quite unfavourable to broad policy reforms, such as those required for climate change. Many procedural and legislative hurdles may prevent a country to opt for an ambitious climate programme, in particular if it is to be embedded in an international agreement. Many special interests may also be able to influence the decision-making process. Developing such a climate-relevant capacity represents thus a very complex challenge and may need to be considered in the context of broad institutional reforms within a country.

Institutional capacity and future policy options

The second part of this paper proposes an assessment of the institutional needs of specific options for future mitigation actions. It identifies seven main mitigation options, five quantitative approaches, two non-quantitative approaches. Institutional requirements could be quite different between these different options.

Quantitative versus non-quantitative approaches

A major policy decision facing countries, particularly those that do not have yet a quantitative target, is whether they should opt for a quantitative approach, either a domestic policy decision or as position in international negotiations. Quantitative targets have many well-known advantages as they provide benchmarks for progressive emission reductions as well as a focus for policy-makers. However, they tend to require a high level of capacity, simply to make sure the target can be met. This calls for significant levels of resources needed to develop a climate-specific capacity, in particular for the assessment of the target level itself, the formulation of the national strategy, the development of climate-specific measures, such as emission trading, as well as for monitoring, reporting, review and enforcement. By contrast, non-quantitative approaches, such as “policies and measures” or “technology” approaches, can prioritise use of limited resources to strengthening capacity in the design and implementation of policies and measures in other areas, which are climate-relevant, but not climate-specific, hence more clearly reaping the benefits of possible synergies between climate policy and other policy areas.

Kyoto-style targets versus other targets

Fixed, legally-binding, comprehensive targets certainly put the strongest pressure on the domestic policy setting to create the institutional conditions to meet them. Dynamic targets or targets with price caps somewhat reduce these capacity needs by reducing a source of uncertainty inherent in achieving a fixed target. Yet, they have new features which may create additional institutional capacity requirements. Sectoral targets and non-binding targets unequivocally reduce some of the institutional needs, by, respectively, reducing the scope of the target and limiting capacities needed to make sure the target is met.

Using capacity assessments in policy making

Assessing capacities required for implementing different policy options does not provide by itself sufficient clues to select the most appropriate option. An assessment of *current* capacities is needed to determine the extent of the capacity gap between *current* capacity and the capacity *required* for specific policy options. Even if most Least Developing Countries are unlikely to have sufficient capacity to take on even the softer types of policy approaches, there is another set of countries in a “grey zone” (i.e., more economically advanced, rapidly developing countries) that may already have at least some of the capacity needed to take on certain climate actions, possibly even quantitative approaches. However, even more economically advanced countries, developed or developing, may have specific capacity barriers that prevent them from taking ambitious forms of action. For example, some countries with a federal structure or with a weak central government may have difficulties in reaching national consensus about quantified national targets, in particular if they are legally-binding.

Thus, more detailed capacity assessments could provide a clearer picture of the kind of future options a country can afford. This requires capacity assessment studies that can only be done in countries themselves. Self assessments could even mark the beginning of a process whereby countries would define the kind of next steps that are consistent with their capacity level, including the kind of capacity development that is needed for such next steps.

The capacity issue could also be part of *policy* discussions among governments. Countries, both developed and developing, could share information on the level of their current capacities and discuss how to identify the best policy options that are consistent with these capacities. True, there is a danger in international discussions that countries use capacity constraints as a reason not to act, while in fact, they may simply be unwilling to act. Though this danger may exist, capacity constraints *do* shape national positions in international negotiations. Honest discussions about what countries can and cannot do, considering their respective capacities and constraints, could promote understanding and provide a non-confrontational way to consider how to move forward on climate change policies.

1. Introduction

As many Annex I and non-Annex I Parties have now begun to implement the Kyoto Protocol, the international discussion is slowly moving to the sensitive issue of negotiating climate commitments for the medium term, i.e. beyond 2012. However, there is at this stage no agreement among countries on whether international negotiations should begin any time soon or on the kind of commitments that should be negotiated. Some even question whether international negotiations should drive climate policy, as it has been the case for more than two decades.

This paper explores the concept and substance of country-level institutional capacity in the context of future climate-related actions. The main thrust of the paper is that an institutional approach, based on capacity assessments, could provide useful insights, both at national and international levels, on the appropriate next steps for climate actions. Capacity assessments may provide an individual country with useful guidance in selecting the next steps that are most appropriate to its national circumstances. They might also provide the international community with an interesting way forward in the current debate on the future climate change regime. Rather than focusing directly on “end states”, e.g. quantitative commitments, international discussions about what countries can and cannot do, considering their respective capacities and constraints, could promote mutual understanding of national contexts. It might also help identify a variety of future actions - including actions to develop capacity-, recognising that differences in countries’ capacities are likely to lead to different next steps for each country or group of countries.

The paper proposes a generic assessment of institutional capacity, with the aim to help develop a common understanding across countries of what institutional capacity actually is and what institutional capacity would be required for various forms of future actions. However, the paper fully acknowledges that country-level institutional capacity assessments are essentially country-specific and need to be undertaken in a national context. Thus, the paper stops short of providing any recommendations to particular countries on their future actions, including on capacity building. Some national case studies have been prepared together with this paper (see OECD, *Institutional Capacity and Climate Actions*, 3 case studies, 2003) to emphasise the country-specific aspect of this debate.

Two other institutional issues are outside the scope of the paper. First, this paper mainly looks at the mitigation aspect of climate actions. It recognises, however, that other aspects, such as adaptation, are equally important as far as institutional capacity is concerned and may need at some point to be analysed in more depth together with mitigation. Second, the paper does not make any distinction, unless it is specifically needed, between actions or policies that could be undertaken within a domestic context only or actions that could become parts of international agreements. In most cases, domestic capacity requirements are the same whether they aim to support a national or internationally agreed goal¹. Thus, the paper does not address institutional issues that are specifically related to international agreements.

The paper has two main chapters. Chapter 2 discusses the concept of institutional capacity and analyses the various dimensions of capacity that could be worth exploring when countries assess their own capacities. Chapter 3 analyses institutional requirements of a number of options for future actions, thereby giving some initial guidance as to how these options might differ according to their capacity requirements.

¹ Of course, this doesn’t mean that there aren’t any specific advantages to negotiating commitments at international level from an institutional point of view. To some degree, and in some instances, the adoption of a commitment may act as a driver for capacity building. An international agreement may also include provisions for capacity assistance for certain countries, which will help increase these countries’ capacities.

An institutional approach to climate actions

A few general thoughts on the role that institutional capacity assessments might play in shaping up future actions may provide some background to the more specific analysis developed in this paper.

One approach to climate actions is for a country to determine the actions that it is willing to take, and then assess what capacity such actions require. This is the approach that was mostly taken in the framework of the Kyoto Protocol. Most Annex I Parties took on a number of quantitative and non-quantitative commitments without a thorough assessment of the institutional capacity that those commitments required. Creating a vision for the future and committing oneself to make it a reality are indeed basic ingredients in moving forward on an issue. It is not necessary to have all the capacity in place before taking action on climate change. Yet, lack of sufficient capacity may result in a failure to reach the stated goals.

Indeed, research suggests that most instances of non-compliance with international agreements are not wilful, but due to lack of state capacity (see Brown Weiss and Jacobson, 1998). In the ozone regime, Benedict (1998) states that it was understood early on that non-compliance would probably be the result of economic or political disruptions, technical challenges, or inability of governments to control private actors, rather than wilful breach. What is true for international agreements is also true for any domestic policy: whether governments achieve the goals they have set the country mostly depends on the level of that country's institutional capacity.

Another approach to moving forward on climate change would be for a country to assess its current capacity and only select those climate actions that it can undertake with its existing capacity. This might be a safer approach to "next steps", but it might lack this sense of vision and ambition that can make things happen. Also, countries might argue that they do not need to act because of their lack of capacity.

A pragmatic model for the evolution of climate actions is thus likely to include a step by step approach, whereby countries in each step assess their existing capacities and select future actions that are consistent with the capacity level it can reasonably reach within a given time frame. However, while each new step is likely to involve some capacity development, capacity requirements should not be too large at each of these steps. If the gap between *existing* capacity and capacity that is *required* is too large for a particular policy option, it could become virtually impossible for a country to abide by what it has committed to do, either domestically or internationally. In this framework, the level of existing capacities in a country is likely to define the kind of next step that the country can take. However, it is also hoped that with each step, capacity will grow, so as to allow for a progressive strengthening of actions over time.

Thus, each next step for climate actions is likely to include at the same time a set of mitigation (or adaptation) actions and a set of capacity development initiatives (see Tudela, 2003). To some extent, countries already do this, since their climate programmes also include some capacity building actions. However, there might be some advantages in making sure that future actions are fully consistent with the capacity building initiatives that are envisaged. Such an approach might help a country to focus on capacity development, by identifying the specific capacity building initiatives that are required to reach a certain capacity level within a given time frame. This might enhance a country's confidence that it can reach progressively more ambitious climate goals.

Institutional criteria are, however, not the only valid criteria to assess future actions. They are merely complementary to other –more traditional– assessment criteria, which focus on environmental effectiveness, equity or economic efficiency. Yet, while this institutional perspective is useful for both developed and developing countries, it might be particularly relevant for developing countries, which face more significant capacity constraints and for which the terms of the debate on future steps are quite different from those of developed countries.

2. Assessing capacity for climate actions

In general terms, capacity can be defined as “the ability to perform functions, solve problems and set and achieve objectives” (Fukuda-Parr & al., 2002). However, what makes a country able –or unable- to perform a function, solve a problem or achieve an objective? In many ways, it is very country-specific, since a country’s approach to a particular problem, such as climate change, is embedded in its complex history, institutional setting and social fabric.

This chapter aims to provide, however, some signposts that may help better understand the most important aspects of institutional capacity that tend to be valid across countries. In the first section, it aims to identify some general features of capacity. In the second section, it discusses some aspects of institutional capacity that seem to be particularly important for climate actions.

These first two sections emphasise the interdependent character of the different dimensions of institutional capacity. In this context, all dimensions of institutional capacity seem important. More concrete priorities for capacity development are likely to emerge only when assessing country-specific capacity. Assessing country-specific capacities is beyond the scope of the paper. However, the third section provides a brief discussion on the country-specific aspects of institutional capacity.

2.1 Institutional capacity: general characteristics

Institutional capacity is often considered as a vague, fuzzy concept. Actually, as we will see, this notion refers to quite specific features. However, it is indeed difficult to determine the most important aspects of capacity, because they all seem important. Why is it so? One way to explain this is to say that a country’s capacity stems more from the *interrelationships* within that country’s institutional system, rather than from particular elements of that system. As section 2.1.1. shows, there has been an increasing focus on this systemic aspect of capacity in recent years. This aspect can be further illustrated in the following subsections, which describe respectively the different levels of capacity, which are interdependent, and the different phases of the policy process, which are also interconnected.

2.1.1 *An evolving concept*

The concept of institutional capacity has evolved over the years: “the concept of institutional capacity is a moving target since the field has evolved over the years from an initial focus on building and strengthening individual organisations and providing technical and management training to support integrated planning and decision-making processes between institutions. (...) Today, institutional capacity often implies a broader focus of empowerment, social capital, and an enabling environment, as well as the culture, values and power relations that influence us” (Segnestam & al., 2002).

Such a broad notion of capacity seems to have emerged first in the development co-operation context. The reason was that, while technical assistance was usually successful in completing infrastructure projects, it was much less effective at strengthening local capacity to manage such infrastructure in the long term. This inevitably led to an increased dependence on foreign experts. Thus, development co-operation programmes also provided training for national professionals and helped strengthen organisations, mostly government agencies. However, it soon appeared that such capacity development also needed to be consistent with the broader political, economic and social setting of the country, so as to create an internal dynamic of transformation (OECD, 2000; Fukuda-Parr, 2002; GEF-UNDP, 2000). However, this concept of capacity is certainly valid for industrialised countries as well. Indeed, research on public management in OECD countries focuses increasingly on the issue of public governance, emphasising the broad institutional

context within which individual policies are pursued. The need for broad public sector and regulatory reforms is an issue that has moved to the centre stage in both developed and developing countries (OECD, 1997; World Bank, 2000).

The concept of *institutional* capacity actually sheds some light on this broader notion of capacity. ***Institutions are not only discrete organisations (e.g., government agencies), but also, more generally, sets of rules, processes or practices that prescribe behavioural roles for actors, constrain activity, and shape expectations*** (Keohane 1988). Institutions are durable; they are sources of authority (formal or informal) that structure repeated interactions of individuals, companies, civil society groups, governments and other entities. Thus, institutional capacity represents a broader “enabling environment” which forms the basis upon which individuals and organisations interact. In this context, training individuals and strengthening organisations can only succeed in the long term if it is consistent with existing institutions, or if it helps transform these institutions, so that actions are based on rules, processes and practices that can be sustained through time.

This institutional dimension can be illustrated with the case of national communications on climate change. Most countries can, through their own resources or foreign assistance, hire and/or train experts to prepare a national communication. However, a successful completion of this project does not guarantee that the country has the institutional capacity to prepare national communications -or inventories- on a regular basis. Meeting such regular, periodic responsibilities requires a well-established system with a network of stable institutions and a clear set of rules (see OECD, 1999).

2.1.2 Levels of institutional capacity

More recently, multilateral and bilateral co-operation development agencies have developed capacity assessment frameworks that take into account this broader notion of capacity (Lafontaine, 2002). These frameworks usually distinguish between three levels of institutional capacity (Forss & Venson, 2002): a micro level, i.e. the individual; a meso level, i.e. the organisation; a macro level, i.e. the broad institutional context. The broad institutional context itself includes three distinct levels. This means that there are five distinct levels of capacity, as shown in figure 1.

Figure 1: a holistic view of institutional capacity



Source: adapted from Segnestam & al., 2002

Each of these five levels of institutional capacity is analysed in more detail in the annex at the end of this paper. This section aims more specifically to emphasise the interdependence between each of these levels.

1) *The individual: skills and performance*

The performance of individuals in their functions is the basis for the success of any action or policy. Are these individuals motivated? Do individuals have a job with a clear mission? Do they have the skills that correspond to their jobs? Is training available? Do they have right incentives, either financial or non-financial, in terms of responsibility or career progression? To some extent, motivation is a very personal issue. In many cases, individuals want to perform well and take on new challenges, even in a difficult context, because it gives meaning to their lives. However, many aspects of individual performance are related to capacity issues at higher levels.

One obvious aspect is the insufficient number of personnel. “While [enabling reforms]² do not require much administrative capacity, affirmative reforms depend for their implementation on competent and motivated government personnel. Unfortunately, in country after country (...), good reform programs are formulated in all detail but one: who will implement them? The issue is well-known, but the obvious implication of the need for an efficient and professional civil service for policy implementation is rarely translated into action. It is easier to assume that, somehow, good policies will implement themselves. They never do.” (Schiavo-Campo, S & al., 1997).

If personnel is insufficient, the performance of each individual is likely to suffer, as she/he is likely to cover too many issues. For instance, in many developing or transition countries, government officials are often responsible for climate change, in addition to clean air policy, or even other environment issues (see Peeva, 2003). However, lack of personnel has deeper causes at the level of an organisation or the entire public sector: a lack of financial resources, but also the low priority given to climate policy (see also Peeva, 2003). This is true, not just for the public sector, but also for the private sector, which also needs to allocate sufficient personnel to follow up the development of public policies.

More generally, a poorly managed organisation or public sector can undermine the performance of its personnel, even when it is highly qualified. The availability of financial or non-financial incentives may also depend on rules and practices within organisations –public or private- or in the civil service as a whole. For instance, if salaries are low, significant investment in training may result in a flight to better paying jobs with international organisations. The UNDP-GEF Capacity Development Initiative speaks of the “perennial drain of ...human resources to other groups such as intergovernmental or private agencies” (Zakri et al, 2000: 39). Another critical issue is civil service independence, which is the exception rather than the rule in many countries, both developed and developing. Civil servants’ career progression may be severely hampered by political appointments, thereby dampening motivation. In some countries, there may not even be a permanent civil service (see Tudela, 2003).

Even personal interest in climate change, which can be an important factor of motivation, mostly depends on cultural and social values within a country. It may also depend on specific rules in the civil service. For instance, in the Netherlands, high personnel mobility within the civil service means that some civil servants that have worked on climate change may work later in other areas, where they can integrate climate concerns (see OECD, 2002c).

2) *The organisation: management capacity*

² Reforms that remove barriers to economic activity are called enabling reforms, while regulatory reforms or substantial public programmes are called affirmative reforms (Schiavo-Campo, S & al., 1997).

The performance of organisations is also a key measure of institutional capacity. Developing a greater understanding about what motivates both public and private organisations and what are their incentive structure is particularly important to ensure effective delivery of any policy, including climate policy. Do these organisations have clear, and mutually compatible, missions? Do they have appropriate resources and management practices for such missions? Have they been able to adapt to new missions, e.g. by hiring specific staff or adapting the management structure? Is the higher management well informed by the technical staff? In turn, is the technical staff supported by the higher management? These are some of the basic management issues that affect organisational performance.

The fact that there may be wide differences in organisational management within countries suggests that there are many possibilities of improvements that are available to organisations from within. Thus, capacity development at the level of an organisation is often crucial. However, the performance of organisations is also very much dependent on the broad institutional setting of the country, which is represented by the next three levels of institutional capacity.

3) *National systems³: networking capacity*

The fact that some well-managed organisations, on their own initiative, are willing to take on a new challenge is usually key to the success of any emerging policy, like climate change. In the development co-operation context, picking up the right organisations to work with is a critical step for the success of any project (OECD, 2000). However, in many cases, the overall result of isolated initiatives, however useful, may be quite modest, because country-wide actions usually require the co-operation of many different organisations. They require in particular the co-operation between ministries and agencies at the same institutional level, as well as co-operation between different institutional levels, e.g. between the federal or central government and the regional, provincial, or local governments. They also require the co-operation between the government and many private organisations, businesses or other non-governmental organisations.

The ability to network –or co-operate- between organisations requires, however, specific skills from those organisations. What makes a network of organisations efficient in fulfilling its tasks? Generally, it requires the ability to manage issues “horizontally” across organisations, and not just “vertically” within organisations. But there are many factors that seem to be critical for the performance of the network, such as: the ability to ensure the participation of key actors; the availability of rules of procedures and financial provisions for the network itself; appropriate allocation of responsibilities; sufficient authority of the organisation(s) in charge of co-ordinating actions; as well as the adaptability, but also the stability of the institutional arrangements that have been set up (see annex for a more detailed analysis). The experience of national GHG inventories is quite interesting in this regard. For instance, it shows that failure to allocate clear responsibilities is in fact one of the biggest source of problems in some countries to comply with inventory requirements (OECD, 2002a). Also, the stability of the institutional framework is important. Some EIT countries have been able to provide excellent inventories for some years, yet may no longer be able to do so because their monitoring system has suddenly collapsed, due to changes in procedures, or governments (OECD 2002b).

Again, the efficiency of such networks may depend on the skills of particular individuals or organisations, but these institutional arrangements will tend to be more efficient if the public sector as a whole has created a management culture focusing on policy integration and public participation and has developed specific processes to manage horizontal issues.

³ The term “national system” is used in the framework of the Kyoto Protocol to designate the system that is needed to provide national inventories under Art. 5.1. of the Kyoto Protocol (UNFCCC 2001). More generally, national systems may designate any network of organisations devoted to a particular policy (see OECD, 2002a and OECD, 2002b).

4) *The regulatory framework and public sector setting: public governance*

The actions of individuals, organisations, or networks of organisations are embedded in a wider institutional context, i.e., the public sector setting as well as the body of laws and regulations that exists in the country. Generally, the overall effectiveness of the public sector in fulfilling its main functions, in other words public governance, is key to the effectiveness of any specific policy. In fact, most of the capacity that is specifically developed for a particular policy, such as climate policy, is likely to draw on this “enabling environment” that exists to some extent before any specific policy is set up. There are different dimensions of public governance that are relevant for discussing institutional capacity.

First, the political economy, i.e. the way governments are selected, monitored and replaced, as well as the way political institutions take decisions on policy issues, has major implications on governance. Political instability or a weak government usually makes it very difficult for a country to implement sound policies, including climate change policies. Also, a legislative process may create many institutional hurdles for important decisions to pass or may give a voice to too many special interests, thus preventing the adoption of any ambitious and innovative policy framework. Even constitutional rules may present particular challenges, as is the case in the United States for the ratification of international agreement. In the case of Mexico, energy is a state monopoly embedded in the Constitution (Tudela, 2003)

Second, the ability of citizens, groups and associations to make their voice heard, monitor government’s actions and participate in the decision making process is increasingly seen as essential for good governance. In turn, this ability depends on the availability of political rights and civil liberties, including media independence, as well as on the ability of government to provide transparent information.

Third, the quality of the civil service and its overall ability to implement sound and coherent policies forms the background for the success of any policy, including climate policy. In turn, this ability will depend on other factors, such as the independence of the civil service from political pressure and special interest groups, the government’s ability to collect sufficient resources and reform the public sector to promote individual responsibility and innovation, as well as the stability/adaptability of public institutions.

Fourth, the rule of law refers to the respect of the citizens for the rules of society and, more specifically, to the effectiveness of the judiciary, the enforceability of contracts, the incidence of crime, as well as the control of corruption. This will in turn depend on many factors: political independence, a free press, transparent access to information, control of corruption.

If capacity is weak at this level, the challenge of developing capacity becomes a challenge of a completely different scale. It is no longer dependent on initiatives that arise from a particular policy context, such as climate policy. Here, wider initiatives, such as public sector reform, or initiatives to improve the effectiveness of the judiciary, are needed.

5) *Social norms, values and practices*

Social norms, values and practices point to an even broader cultural, economic and social environment, within which the public sector functions. Government’s actions by themselves will not be sufficient to achieve significant results to mitigate – or adapt to- climate change. The acceptance of government policies and regulations by citizens, businesses and non governmental organisations, as well as their own initiatives in this regard, are essential to the success of any policy.

Here, there is no universal set of norms, values and practices that are most conducive to effective action on climate change. However, it is likely that norms, values and practices will help public policies, like climate policies, when they foster co-operation among individuals and institutions, participation in public policy and a sense of individual or collective responsibility towards the environment, acceptance of the Rule of

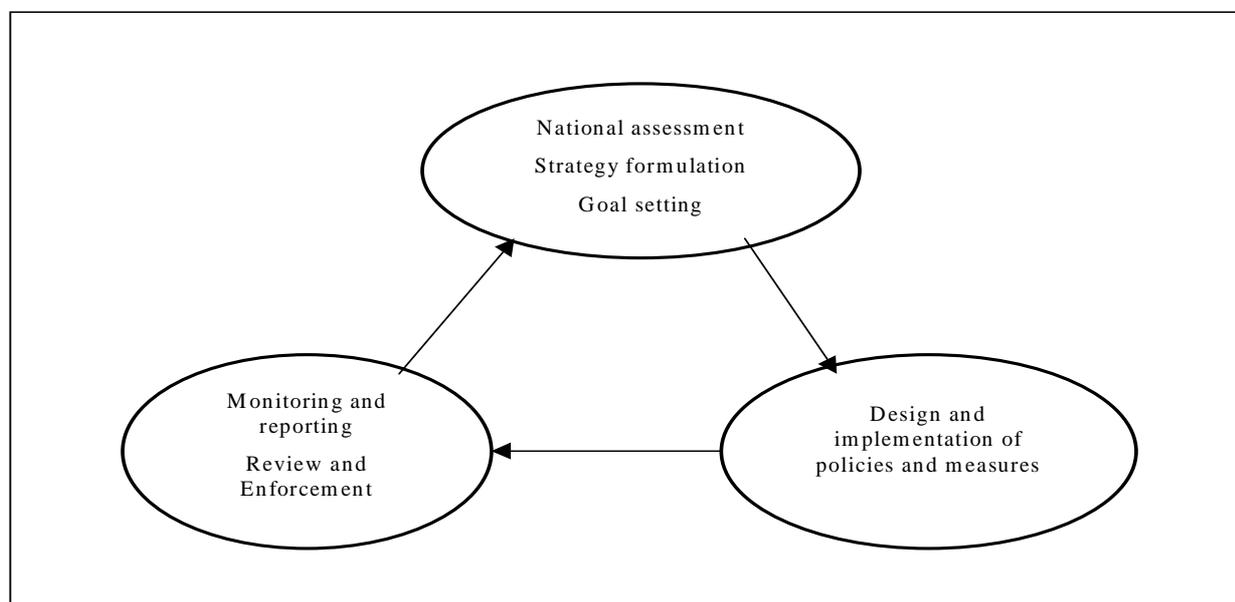
Law. Some cultural settings also tend to be more sensitive to long term threats to the environment and society. If capacity at this level is low, improving public participation, raising public awareness and promoting environmentally friendly education will be critical in the policy process.

Such a broad definition of institutional capacity, which includes social norms, values and practices, could be viewed as blurring any distinction between *ability* and *willingness* to implement a particular policy or international commitment. For instance, a Party could argue that it has *in a narrow sense* the ability of taking on a particular commitment, because it has sufficient human and financial resources to do so, but that its own civil society is not ready to accept this particular policy, because of its own values or way of life. Is this national government not *willing*, or not *able*, to implement a particular policy or commitment? Answering this question may not be possible, nor is it necessary. Simply, this would point to clear priorities in terms of capacity building, which would need to focus on public awareness and education to stimulate the development of values and norms as they relate to the problem issue.

2.1.3 Capacities and functions

Another way to approach the inherently systemic nature of institutional capacity is to analyse the functions that need to be performed to achieve a policy objective. Any policy process includes different functions in order to be successful. These functions can be regrouped into three distinct phases of the policy process. These phases may overlap in time, but essentially follow a logical order. The challenge of any policy process is the ability to perform all such functions in an efficient manner, as they are interdependent. Thus, capacity is needed for each of these functions if the policy process is to be sustained over the years.

Figure 2: The climate policy process cycle



In most countries, there is often some imbalance in the capacities that are devoted to each of these clusters of functions. In some cases, most capacity development is devoted to the actual implementation of policies, with little capacity left for strategic assessment. This may result in a lack of long term view and in badly designed policies. Lack of capacity in the monitoring and reporting may lead to a difficulty to sustain

policy efforts, as information is lacking to improve policies over time. In other cases, it may be that a sophisticated strategy has been elaborated, yet there are no means of implementation.

1) National assessment, strategies and goals

The first stage of any new policy usually takes the form of a primary assessment of a country's national circumstances and of its strategic interests, with regard to the issue at stake. This leads to the formulation of strategies or main orientations, and, hopefully, specific goals and timetables that the national government or parliament sets –in a legally or non-legally binding way. If the issue at stake has an international dimension, this stage of the policy process may also include international negotiations. In this case, countries will need to have completed their own national assessment and define a national position before they can formally take a position in international negotiations. Then, countries must be part of the negotiations. Finally, an international agreement may be adopted, which in turn will influence the national strategy, and, possibly, set national goals that are part of fulfilling international commitments (as is the case for the Kyoto Protocol).

2) Policy design and implementation

No matter how elaborate and well-thought through the national strategy is, if it is not implemented through policies and measures, it will not deliver emission reductions. Thus, while the formulation of national strategies and goals –possibly embedded in an international agreement- is an important milestone, it marks only the beginning of the domestic processes necessary to design and implement a set of policies and measures to reach the goals that have been set.

In some countries, a fair amount of policy design will have already taken place in the first stage of the policy process, i.e. the elaboration of a national strategy. This would include an assessment of the different policy options that are available for domestic implementation. This would also include an assessment of which sector(s) should be targeted as a priority and, more generally, which approach -or combination or approaches- is best suited to the national circumstances. In fact, the political and legal processes within some countries may require such a detailed policy framework to be in place prior to government ratification of international commitments.

Once some policies and measures have been selected as part of the national strategy, a process is needed whereby government agencies or ministries will design the details of each measure and implement them. In the end, this is the most crucial phase in the policy process, which requires the bulk of institutional capacity needs.

3) Monitoring, reporting, review and enforcement

Monitoring and reporting systems are needed to gather –and report on- key country data that are relevant for the policy at stake. These systems may also develop regular quantitative modelling exercises on emission scenarios or gather qualitative information on policies and measures. Efficient monitoring, reporting systems provide the information that is needed to regularly review -and enforce- the current strategy.

Review –or evaluation- refers to the ability of governments to assess at regular intervals whether their existing policy is likely to be sufficient to meet its stated goals. The review phase also refers to the ability of governments to evaluate individual policies and measures, or even their existing monitoring systems. This (ex-post) evaluation of policies and measures is not very often done within national governments, yet it is needed to fine tune existing policies and improve their effectiveness over time.

Finally, *enforcement* is a key function in case some policies and measures –or even the national goals– have a mandatory character. Enforcement requires the ability to exercise regulatory control over private and/or public entities, by assessing if they comply with existing laws and regulations and applying sanctions in case of non-compliance.

2.2 Capacity for climate actions

Which capacity needs are specific to climate actions? Broadly speaking, climate actions tend to have capacity needs that are similar to those of any complex horizontal issue that public policy is to address. This is a particular challenge for traditional forms of public governance in developing, but also in industrialised, countries. “Public sector institutions in OECD countries have proved to function in a certain context, for example to deliver efficient and effective services to citizens. But they may not be automatically suited to address new challenges with a high level of complexity (OECD, 2002c)”. Climate change is typically one of such complex horizontal issues, which resemble other sustainable development issues. These issues require new capacities, such as the ability to set long-term and sustained commitments, to create strong policy coherence and integration, as well as to enter into partnerships between governments and civil society (OECD, 2002c).

Climate change, as an horizontal issue, tends, in particular, to require two types of capacities: *climate-specific* capacities and *climate-relevant*⁴ capacities. Like any other policy issue, climate policy needs to develop a specific capacity, i.e. a capacity that is specifically devoted to develop climate actions. However, since climate change is a cross-cutting issue, most institutional capacity that is likely to be needed for climate actions is not climate-specific, but rather climate-relevant. This means that it will have been developed for other reasons than climate change, in many different sectors, like energy, transport, agriculture and forestry, yet it may have the most significant impact on the success of climate actions or policies.

Again, these two types of capacities are needed, because they are interdependent. Compared to most other policies, climate change is still an emerging issue. Developing a climate-specific capacity is therefore needed to get climate policy off the ground. It is also needed to influence other policy areas, so that these other policy areas develop the ability to integrate climate objectives with their other own sectoral objectives. Conversely, climate-specific capacity may not be able to develop adequately, if it is not backed by climate-relevant capacities. For instance, sufficient climate expertise may not be able to emerge within the public sector, if the civil service as a whole is inefficient.

In an ideal form of public governance, a distinction between climate-specific capacity and climate-relevant may not even be needed. If all policy areas fully integrate climate objectives into their own and if there are strong networking abilities within the public sector and society as a whole, the need for a climate-specific capacity, e.g. in the form of human resources or climate-specific networks, may be very limited. However, as long as traditional forms of governance, based on sectoral policies, exist, there is a need for fully developed climate-specific and climate-relevant capacities.

The following table summarises the most important climate-specific and climate-relevant capacity needs. In the text that follows, the most relevant capacity needs are highlighted.

⁴ These two types of capacity are sometimes referred to as climate capacity and non-climate capacity

Table 1: Climate-specific and climate-relevant capacity needs

	Climate-specific capacity	Climate-relevant capacity
Individuals	Sufficient government staff, experts, business and NGO representatives for the national assessment, the formulation of the national strategy, the design and implementation of climate-specific policies and measures, as well as for monitoring, reporting and review. Reasonable level of climate-specific skills and training Interest in climate change issues	Sufficient government and non-government experts developing climate-relevant policies in: energy, transport, agriculture, forestry, industry, R&D, economy, finances, education. General training opportunities Financial/non-financial incentives
Organisations	Specific mandate on climate change Climate “unit” within an organization Higher management “championing” climate change	Compatibility of other mandates of the organization with climate objectives, overall management structure and processes, level of human and financial resources, overall ability to fulfil missions
Network of organisations	Procedures and financial provisions, level of co-operation on climate issues, leadership of an organization, allocation of responsibilities, stability/adaptability of the institutional framework	Underlying public sector practices and procedures for policy integration
Public governance	Ability to influence mainstream policy-making in taking into account the climate change issue	Political stability, voice and accountability; ability to implement sound climate-relevant policies and to provide a sound business environment, civil service independence, ability to collect sufficient resources; rule of law and control of corruption
Social norms, values, practices	Knowledge about climate change and positive attitude towards climate mitigation measures	Acceptance of laws; positive attitude toward environmental protection, attitude of co-operation among citizens

2.2.1 Climate-specific capacity needs

Climate change, as a complex horizontal issue, requires in particular sufficient human resources with the appropriate level of skills, as well as the capacity to network and co-operate on climate issues. These challenges may be significant, in particular in the first phase of the policy process, namely the national assessment, the strategy formulation and the goal setting.

1) Human resources and skills

Climate change is an issue for which there is still limited experience in many countries, hence the need for a careful assessment phase, with its round of studies and analytical exercises. A strong analytical capacity needs to be built to address uncertainties in the science of climate change, to assess national circumstances with regard to climate change as well as to formulate appropriate long term strategies. The national assessment itself requires sufficient human resources in many areas of technical expertise, environmental science, economics, political science, modelling, to name but a few. Skills in strategic planning –the ability

to set objectives and develop action plans- are particularly useful, considering the need to distribute mitigation (and adaptation) efforts over a long period of time. All this expertise is quite similar to the one currently needed to produce national communications. However, the national communication process is usually a one-shot exercise. In this case, national expert teams need to be working over a few years or more to advise their governments.

Since climate change is a cross-cutting issue, this requires that such an expertise and knowledge on climate issues is distributed among a sufficient number of individuals in many different organisations. This is true for government agencies, but also for other stakeholders, businesses and other organisations, which also need to devote specific human resources to climate change, so as to participating in the national debate over the climate strategy.

Climate change is also a global problem and domestic strategies are thus likely to be influenced by what is negotiated internationally. This is likely to require additional skills and human resources. Such staff must be able to study the proposals tabled by others and what they would mean environmentally, economically, and socially in their country. They must also be ready to prepare specific proposals on behalf of their governments and effectively negotiate, this time with other Parties. Currently, there exist well-known disparities in the capabilities of national delegations. While some large Annex I countries have sizeable delegations with substantial scientific, legal, economic, and policy expertise, many developing country delegations, or small developed country delegations, are small, lacking analytical support and, with the exception of a few senior negotiators, inexperienced. This prevents these delegations from participating in the different negotiating groups⁵. On the positive side, international negotiations also provide training opportunities for delegations, since most of the climate research is presented at these meetings⁶.

Climate-specific knowledge and skills are also needed for the design and implementation of policies and measures. Setting up a domestic framework for project-based mechanisms, for instance, require sufficient personnel in the civil service and in private organisations with the skills to define and/or understand the rules for participating in these mechanisms, including for baseline determination, assess and accept possible projects, as well as, if needed, negotiate credit-sharing arrangements. This is particularly true for joint implementation under Article 6 of the Kyoto Protocol, but also, to a lesser extent, for the Clean Development Mechanism. Other climate-specific measures may include domestic emission trading, or measures related to the F-gases.

⁵ Regional co-operation and task sharing between delegations may in some ways alleviate this problem. However, coordinating positions with other countries also requires additional resources.

⁶ Participation in the negotiations suggests that sufficient institutional capacity of both Annex I and non-Annex I will be needed *prior to* the beginning of the negotiations. To some extent, such an institutional capacity might even be considered a pre-requisite for a procedurally fair negotiation process; one that establishes a relatively level playing field where parties can understand and assess proposals under discussion. It can also be considered as a prerequisite to reach an outcome that is likely to be ratified and implemented by a majority of countries. It is true that some countries agreed to emission limitation commitments in Kyoto with a relatively coarse understanding of the domestic costs and benefits associated with that target. However, this may have contributed to the protracted ratification processes (or lack of ratification in some instances) that subsequently took place in Annex I countries.

According to Bouille and Girardin, “[d]eveloping countries considering target taking should ensure they have adequate and proven methods, methodologies, and modelling capacity to ensure proper analysis.” In establishing their national target, Argentina, for instance, formed a technical team in 1999 that carried out baseline studies, re-calculated national and sectoral inventories, elaborated socio-economic scenarios, and investigated mitigation options (Bouille and Girardin, 2002: 139). Still, Bouille and Girardin point out that relatively few studies were done on Argentina’s competitive position in an international emissions market, and that more technical and economic studies were necessary to support the decision to make an international climate commitment

Finally, monitoring, reporting and review tasks require staff specifically dedicated to them. These are usually resource-intensive and time-consuming tasks, which require specific technical skills, as well as regular on-the-job-training, to adapt, for instance, to new monitoring methodologies. To a certain extent, these tasks can be integrated into more general air pollution monitoring activities (e.g. through the European Corinair system). However, greenhouse gas monitoring and reporting is a rapidly evolving function, which requires the use of more and more sophisticated tools and methodologies, as well as its own reporting process (see IPCC, 2000a).

Knowledge and expertise on climate issues cannot be restricted to government officials. The ability to implement sound policies depends on a minimum level of public awareness on the climate issue in individuals and organisations throughout society. Indeed, climate change is not well understood and is not a major political issue in many countries. In developing countries in particular, governments and publics are undoubtedly focused primarily on domestic priorities, including poverty alleviation and associated issues like economic growth, trade, and investment. Thus, raising awareness of climate change impacts, as well as mitigation and adaptation measures, is an obvious priority for capacity development.

2) *Policy integration and participation*

Perhaps the most critical capacity need for climate policy, as a cross-cutting issue, is to ensure that all individuals and organisations participate in the efforts to address climate change and that there is sufficient policy coherence between initiatives and actions.

Thus, institutional arrangements are needed to develop a climate strategy –as well as define a national position in international negotiations- that has the backing of various national interests in finance, trade, energy, national security, represented by powerful national institutions. Synergies –or trade-offs- between different policy objectives need to be found. Climate policy must also garner support and participation from key constituencies, including industry, provincial governments, NGOs, the public. Without the support and participation of these constituencies at an early stage, subsequent domestic implementation of a national strategy and/or an international commitment may be difficult or impossible.

Many countries already have some experience in setting up institutional arrangements –or national systems- for climate change. Inter-ministerial working groups, stakeholder groups or special round tables are examples of co-ordination mechanisms in the context of climate policy. However, there are large differences in the degree of co-operation between organisations. This may range from a meeting once a year to the development of joint task forces on a specific issue, on which staff from different organisations work together on a daily basis. The capacity to network with many different kinds of organisations, including businesses, NGOs and research institutions, is also critical.

2.2.2 *Climate-relevant capacity needs*

An effective climate strategy requires that sound actions and policies be pursued in many different sectors, such as energy, transport, agriculture and forestry, as well as research and education. Designing and implementing such policies requires a high level of expertise and sufficient human resources. Even climate-specific policy instruments rely on a broader set of –climate-relevant- policies and regulations. For example, policy instruments, such as taxes and tradable permits, presuppose that behaviours will change based on economic incentives. Emissions trading systems, in particular, presuppose that a market will “form” and participants will dynamically seek out the lowest cost abatement opportunities. If there is no underlying competitive market for everyday goods and services, these approaches may not live up to their theoretical potential (See Greenspan Bell, 2002). The emergence of competitive markets depends on the government’s ability to develop sound economic policies, such as macro-economic policies, trade and

competition laws, regulation of financial markets and effective rules for enforcing contracts. Another example may be that of technology programmes, which may also need to rely on adequate protection of intellectual property rights.

Climate monitoring systems also rely on an efficient data collection and management system within the public administration, which needs to exist regardless of climate change. Again, problems with statistical agencies may point to human resource problems, management issues within statistical agencies, but also to an overall lack of capacity of the public sector to develop an efficient information policy. The experience of countries with economies in transition suggests that these agencies may also lack the legal authority for collecting data from GHG emitting sources (OECD, 2002b; Buchman & al, 2002). This also points to an even larger issue of evolving values regarding the role of the state. In countries with economies in transition, the role of the state in gathering information has become controversial, due to their experience of communist regimes.

Finally, the ability to network and co-operate on climate change, although essential, may depend on a wider ability to network and co-operate within the public sector and society as a whole. In particular, the ability to define clear priorities and develop policies that are consistent with each other refer more generally to a sound public governance. This more general ability may in the end be the most relevant for effective climate policies and actions.

Influencing these policy areas so that they develop climate-relevant, or even climate-friendly, capacities is perhaps the biggest challenge of climate policy. Some specific institutional mechanisms may be built, such as strategic planning in sustainable development, to integrate climate concerns into other policy areas. More generally, however, there is no simple recipe for ensuring that climate change is taken seriously at the highest political level. Also, the “political economy” of decision-making may be quite unfavourable to broad policy reforms, such as those required for climate change. Many procedural and legislative hurdles may prevent a country to opt for an ambitious climate programme, in particular if it is to be embedded in an international agreement. Many special interests may also be able to influence the decision-making process. Developing such a climate-relevant capacity represents thus a very complex challenge and may need to be considered in the context of broad institutional reforms within a country.

2.3 Country-specific capacity needs

Thus far, the discussion of institutional capacity has mostly highlighted the interdependence of different dimensions of institutional capacity. Thus, all such dimensions seem to be important. Concrete priorities for capacity development are likely to emerge only when country-specific capacity assessments are made. Indeed, despite general lessons that can be drawn as regards capacity needs for climate actions, most capacity needs are country-specific. Thus, only country-specific assessments can identify strengths or weaknesses of institutional capacity within a country. More importantly, country-specific assessment processes allow countries to *own* such needs assessments and the related policies that such capacities are meant to realise (see GEF, 2001). Capacity development is inherently a home-grown process.

Many countries have undertaken capacity assessments for climate change policy, either as a domestic process, or as part of an international process, such as the Capacity Development Initiative (GEF/UNDP, 2000). Reviewing all such assessments is beyond the scope of this paper. In this section, we only make a few general remarks about national differences in institutional capacity.

In general, the level of economic development could be considered as an indicator of a country’s capacity to take on a new policy challenge, such as climate change. This is particularly true of what we have called climate-specific capacity. Economic development will usually make it possible to allocate new private and

public resources to preparing scientific studies and hiring/training personnel in ministries/agencies for climate work. Some specific resources can also be earmarked for developing the necessary institutional arrangements for climate policy. Here the gap between rich and poor countries is obviously very large. In particular, least developed countries are usually unable even to create a minimal “climate-specific” capacity to address basic needs for the national assessment or the formulation of strategies. However, there are a number of developing countries that have been able, often with the help of development assistance, to create some capacity in climate policy.

However, the link between economic development and institutional capacity is not so simple. In fact, recent research suggests that it is not economic development that drives institutional capacity, but that in the long run, it is institutional capacity that drives economic development (Kaufmann & Kraay, 2003). The institutional capacity that is considered here is the so-called climate-relevant capacity, which is mostly related to different aspects of the broad institutional setting of the country: political economy, accountability, public participation, government effectiveness and the rule of law (see section 2.1.2). Governance studies show that, at a very general level, differences in institutional capacities seem to match differences in economic development. Although margins of errors can be quite substantial in these measurements of institutional capacity, there are indeed quite large gaps between developed and developing countries (Kaufmann & al., 2003). However, there are also large differences between countries with the same level of economic development. This might explain that countries with the same level of economic development may have very different records in, for example, the effectiveness of their climate policy.

Thus, it may be quite useful to identify which dimension of this climate-relevant capacity may raise particular difficulty in a country. For instance, in some countries, the decision-making process can be quite effective, but it is the rule of law that is lacking: these countries may have an impressive array of legislation in place, though little is enforced; non-compliance is rife (See, e.g. Victor & al, 1998; Buchman & al, 2002; Greenspan Bell and Russell, 2002). In some other countries, government services are highly-skilled, but it is the decision-making process that makes it very difficult to pass legislation. Yet, in some other countries, it is the civil service that performs poorly, because of lack of resources.

More detailed country-specific analysis and inter-country comparisons would provide a much more accurate picture of such capacity. Some specific indicators of public service performance are actually collected internationally. For instance, government administration employment in developing regions, at 1,8% of population, was in the mid-nineties less than half the relative size in OECD countries (Schiavo-Campo & al., 1997). This is only one, very partial, indicator of the ability of governments to design and implement policies. However, it already tells much about the difficulty of tackling new policy challenges, such as climate change.

Yet, an analysis of institutional capacity is not just meant to emphasise developing countries’ institutional difficulties. While it is clear that, on the whole, developing countries have less institutional capacity than developed ones, each developed country has its own set of institutional problems, which are likely to influence the kind of future policies it can afford. As already suggested earlier in the paper, developed countries may have particular institutional difficulties in addressing long term, cross-cutting issues, such as climate change. Sharing results of national capacity assessments among both developed and developing countries might be a way to give a better picture of the kind of future actions that are achievable in the next decades.

3. Institutional capacity and future policy options

The purpose of this chapter is to assess various mitigation options with respect to their institutional capacity needs. This chapter identifies seven main mitigation options, five quantitative approaches, two non-quantitative approaches.

This analysis is not meant to assess what are the best options for any particular country. As already suggested in the introduction, country-specific assessments would be needed for this purpose. However, a better understanding of various institutional needs of specific policy options might inform countries on what could be the best option depending on the level of its existing institutional capacity. As was pointed out in the introduction, it is unlikely that countries would be able to opt for policy options for next steps, which would require too much capacity development within a limited time frame. Yet, countries might still be able to choose some next steps that are sufficiently challenging, provided that they also invest in capacity development.

3.1 Defining next steps: possible options

All Parties to the Climate Convention have already committed to formulate and implement climate actions (Article 4.1.). Within this common framework, there are already major differences in policy choices. For instance, while developed country Parties emphasise mitigation efforts, developing countries rather prioritise adaptation to climate change. Some developed country Parties have also adopted the Kyoto Protocol, which prescribes specific quantitative commitments. Others have adopted domestic targets.

Moving beyond Kyoto, all governments are expected to strengthen their climate policy, in terms of mitigation and/or adaptation. However, if governments want to develop a coherent policy framework in the future, they need to make primary policy choices, which will shape the commitments that governments will make to their citizens and/or to the international community. As far as mitigation is concerned, these choices mostly focus on the *form*, *legal nature* and *scope* of the national mitigation strategy⁷:

- **Form:** a strategy may be based on a quantitative target, or not. Quantitative targets may be fixed (i.e. define an absolute cap on emissions), dynamic (i.e. be function of other variables, in addition to GHG emissions) or include other elements, such as price caps. Conversely, a “policies and measures” or a “technology” approach may function without a quantitative GHG target.
- **Legal nature:** if the strategy is based on a quantitative target, this target may be a soft, voluntary target, or rather have a legally-binding nature. Such a target is considered legally-binding, because it is time-bound, codified in legal language and enforceable with penalties for non-compliance.
- **Scope and coverage:** approaches may be limited in scope, covering only some of the greenhouse gases or a few sectors. Climate strategies may also aim to cover all GHG gases and all sectors within a national territory.

As shown in table 2, the seven options presented below are specific combinations of the characteristics described above. These seven options do not cover all possible approaches. In particular, they only represent certain combinations of the characteristics described above. For instance, it might well be possible to envisage a “policies and measures” or “technology” approach with some quantitative aspect

⁷ The stringency of future actions is also a basic issue that needs to be addressed in future national strategies. This is, however, not discussed in this paper.

and legally-binding features. However, this is seen as less likely. For simplification purposes, only those seven options are discussed.

Table 2: Options for next steps

OPTION/APPROACH	FORM	LEGAL NATURE	SCOPE
Kyoto-style targets	Quantitative, fixed	Legally-binding	All or most sources/sinks
Dynamic targets	Quantitative, dynamic	Legally-binding	All or most sources/sinks
Targets with price caps	Quantitative, fixed or dynamic	Legally-binding	All or most sources/sinks
Non-binding targets	Quantitative, fixed or dynamic	Non-legally binding	All or most sources/sinks
Sectoral targets	Quantitative, fixed or dynamic	Legally-binding or non-legally-binding	Some or many sources/sinks
Policies and measures	Non quantitative	Non legally binding	Some or many sources/sinks
Technology	Non quantitative	Non legally binding	Some or many sources/sinks

As countries design their climate strategy for the medium term, they have the choice to either adopt such a strategy at domestic level only, or to negotiate it as part of an international commitment⁸.

3.2 Quantitative approaches to climate policy

Any quantitative target puts an upper limit to GHG emissions at a future point in time. To meet this target, at least if it has not been set above projected emissions, a country's government needs to develop a package of policies and measures, which needs to be consistent with the level of the target. However, there is always some uncertainty as to whether the programme of policies and measures will be sufficient to meet the target, due to the uncertainty in baseline emissions and the effectiveness of measures.

The institutional challenge of quantitative approaches is that managing uncertainty requires by itself capacity. Such requirements are the most significant in case of so-called Kyoto-style targets. Other quantitative approaches, as described below, limit to some extent this uncertainty inherent in target setting. They may thus reduce institutional capacity needs related to uncertainty management. Yet, in some cases, they may also create other capacity needs.

3.2.1 Kyoto-style national targets

Fixed, legally binding targets that are comprehensive in scope can be called Kyoto-style targets, since this type of target was adopted for Annex I Parties as part of the Kyoto Protocol. This type of target could be adopted by any country either within a domestic strategy only, or through international agreements.

Kyoto-style targets are convenient tools to address climate change: as fixed targets, they create intermediate steps –or signposts- to facilitate a progressive strengthening of emission reduction efforts over the long term; as legally-binding commitments, -either in national or international law-, they create some certainty in this stepwise emission reduction effort; as broad-based targets, they cover all economic sectors

⁸ This paper actually uses to a large extent the terminology developed in an earlier OECD/IEA paper on mitigation commitments (Philibert et al., 2003).

and all major GHG emissions and removals occurring in the national territory, thereby avoiding possible leakages. Finally, if these targets are adopted within an international framework and if all countries participate, this ensures that all GHG emissions and removals are covered by the international system.

Each of these features of Kyoto-style targets, however, tend to require additional institutional capacity for managing uncertainty, which is likely to be needed at all phases of the policy process⁹.

1) National assessment, strategy formulation and goal setting

A Kyoto-style target has some advantages with respect to the other forms of targets. Namely, these targets are already familiar to most countries, since they have been adopted under the Kyoto Protocol and many governments have adopted similar domestic targets. In addition, they are relatively easy to understand.

This may have important consequences since, as Depledge (2002) explains, “introducing new ideas tends to be a laborious process, due to the cultural, political, and linguistic diversity of the Parties, as well as the limited capacity of many developing countries—some of which have only one person working on climate change—to study, critically analyze, and respond to novel concepts. . . . Continuing with an existing system would bypass the learning process that would inevitably be required for Parties to develop a common understanding of a new concept”.

The setting of a fixed target brings, however, specific challenges. Future GHG emission levels, especially in developing countries, are highly uncertain. Achieving a given fixed target might be very easy under conditions of low economic growth and industrial stagnation, but difficult and costly if economic growth were instead robust. This can lead to technical difficulties in establishing a future GHG emission limitation using a fixed target.

The broad-based nature of the target tends to increase this uncertainty. In particular, in developing countries, the emissions of some sectors, like agriculture, can be very uncertain, may change widely from year to year, and are hard to predict 5 to 10 years into the future. In these circumstances, including all emissions/removals in the target may thus be quite challenging, in particular when non-CO₂ gases and agriculture, land-use, land-use change and forestry are important sources and sinks. In Mexico, for instance, LULUCF represents 25% of GHG (net) emissions (Tudela, 2003).

Finally, countries need to be particularly careful when they set *legally-binding* targets. A legally-binding target means that instances of non-compliance will be met with consequences, either in domestic or international law. Thus, there is a strong imperative for the country’s government to comply.

Thus, in this first phase, the following *climate-specific* institutional needs are particularly needed for Kyoto-style targets:

- Strong *analytical capacity* is needed to assess what is the best target level among various options. In particular, sophisticated quantitative modelling tools may be needed to provide the best possible projections of business-as-usual emissions, as well as policy scenarios. Dedicated analytical resources are also needed in each major ministry/agency –energy, transport, industry, agriculture and forestry- so

⁹ It is important to note, however, that the stringency of targets adopted will determine, at least to some meaningful extent, the degree of the aforementioned needs. For example, in some economies in transition, commitments adopted under the Kyoto Protocol may be sufficiently lenient (in the face of economic and emissions declines in the former Soviet Union and central and eastern Europe) such that strong regulatory oversight of some domestic emitting sources is not necessary. It might be the case that future targets for some countries, particularly non-Annex I parties, are not especially stringent since these countries have had historically low emission levels, and have less capacity to address their growing future emissions.

as to assess mitigation options in its own sector to contribute to the climate strategy, as well as to quantify with some precision the GHG emission reduction potential of these measures.

- An effective *institutional framework* needs to be put in place very early on in the process, so as to facilitate the assessment of target options among various ministries and agencies, as well as other stakeholders. The broad-based character of the target means that all sectors need to be represented in this process. This suggests the need for a strong leadership, as well as the availability of sufficient human resources in all relevant organisations in order to participate in the formulation of the strategy. If there is a credible institutional process for selecting the target, it is more likely that the government will not back away from its commitment, if the target suddenly appears very challenging to reach. An efficient institutional framework is also needed to react quickly to unexpected increases in emissions, by adapting the current strategy, to make sure the target is met. Strong leadership is needed so that, through negotiations between major ministries, decisions can be adopted swiftly to strengthen existing policies and measures, or adopt new ones, if needed.

2) Design and implementation of policies and measures

Compared to other policy approaches, additional resources may also be needed in the design and implementation of policies and measures. First, domestic regulations are likely to cover all sectors and gases. Second, as already suggested, policies and measures may need to be modified regularly to make sure the target is met. Finally, the obligation for the country's government to comply is likely to require a programme that includes policies and measures, such as mandatory emission limits, efficiency standards and tradable permit systems. Those policies and measures, unlike other, softer measures, provide some certainty as regards emission reductions. If they are economic instruments, they might also be more cost-effective. Yet, designing and implementing so-called "hard" policies and measures is likely to require additional institutional capacity.

This additional capacity may not be required so much for actually administering these new measures, once they are implemented. In fact, the cost of administering an emissions trading programme, for instance, can be quite low (see Kruger J. & al., 2003). Rather, it is the institutional process needed to adopt so-called "hard" measures that is likely to require additional capacity. Indeed, the political system tends to exercise more scrutiny for measures with mandatory elements. This calls for high-quality assessment studies of possible options and their economic effects as well as for a strong institutional framework for climate policy, which allows different ministries and stakeholders to co-operate and resolve differences. As already discussed, market-based instruments also require an enabling environment, which includes competition law, laws to enforce contracts, an effective judiciary system, as well as sufficient expertise within entities that participate in the programme.

3) Monitoring, reporting, review and enforcement

An effective monitoring, reporting, review and enforcement system is critical to Kyoto-style targets and the mandatory policies and measures that go with it. Legally-binding targets and mandatory policies and measures need quantitative precision, thus require high-quality monitoring tools. Fixed targets, in particular, require the ability to monitor on a yearly basis emissions, which may present high fluctuations from year to year, in order to inform the policy process on whether the country is on track to meet the target. Broad-based targets require the ability to monitor all GHG sources and sinks.

In case of a fixed legally-binding target, the *national GHG inventory* becomes the most important piece of information to assess a country's compliance with the target. National inventories must therefore be subject to a wide range of domestic and/or international requirements, to ensure the inventory is of sufficient quality and is reported on time. In principle, this is true whether or not the target is also an international commitment. However, developing monitoring standards and reporting requirements, as well as review

processes, has indeed been one of the main goals of the UNFCCC since the beginning of the 1990s, in order to improve the quality of inventories over time. This international experience is therefore unique in this regard and can give some insights as to the level of institutional needs (see box 1).

As current experience suggests, it takes years for any country to develop a national inventory system that is able to meet minimum standards set by the UNFCCC and the Kyoto Protocol. This requires: training personnel and funding the institutions in charge of the inventory work; establishing a stable network where responsibilities and procedures are clearly defined; as well as strengthening the regulatory framework by giving authority to agencies to collect data (See Herold, 2003; OECD, 2002b; UNFCCC, 2002).

If Annex I Parties manage to comply with the current guidelines, the advantages of Kyoto-style targets are obvious for these Parties, since the system will already be in place. As for developing countries, they also have some experience in using the IPCC and UNFCCC guidelines, although FCCC reporting requirements for developing countries give them more flexibility (UNFCCC, 2003). It is, however, likely that institutional needs will be substantial –and that capacity will take years to develop– if developing countries are to provide national inventories of a quality similar to those requested for Annex I countries (Herold, 2003).

Box 1: Assessment of institutional requirements for high-quality inventories

Inventory assessment criteria, included in current UNFCCC guidelines (UNFCCC, 2000) are helpful in identifying the biggest institutional challenges for preparing inventories:

- **Transparency:** for audit purposes, third parties need to be able to understand how a national inventory is constructed. Hence, the need for a vast amount of detailed information to be reported in addition to actual inventory numbers, describing domestic methodologies and procedures for preparing the inventory (see the National Inventory Report in the UNFCCC guidelines), as well as a solid archiving system.
- **Consistency:** an inventory needs to be consistent in all its elements over the years. This can be a challenge for some countries, which may have difficulties to report inventory data in early years (including the base year) using the same data set or methodologies as for subsequent years.
- **Completeness:** making sure that all GHG emissions and removals that are covered by the national strategy or international commitment can be estimated is a particular challenge to the inventory work. Some activity data may not exist for some sources/sinks of emissions/removals. Thus, there is a need for additional surveys and/or research for such sources. In some cases, new institutional arrangements need to be created whereby such data can be collected on a regular basis.
- **Accuracy:** inventory estimates should be systematically neither over nor under true emissions/removals and uncertainties should be reduced as far as practicable (IPCC, 2000a). Achieving this may require, at least for source or sink categories that are significant as compared to total emissions/removals, the choice of new, more resource-intensive methodologies. Uncertainty assessment as well as procedures for Quality Assurance and Quality Control may also be needed (see IPCC, 2000a). These different tasks require additional resources and skills and may involve collecting data that are not readily available in the country (e.g. land area by type of forest cover).
- **Comparability:** comparability is particularly needed in case the country target is also part of an international commitment. Formats and/or methodologies approved at the international level need to be used to ensure the comparability of inventories. Adapting domestic methods for inventory estimation and reporting to new international standards takes time and extra resources¹.
- **Timeliness:** timely reporting is also essential, because any delay in submitting a national inventory derails the whole compliance process. Making sure that inventories are submitted on time is not a trivial task for the national inventory teams. Domestic procedures may need to be fundamentally overhauled in order to meet regular deadlines. When inventories need to be submitted annually, they can no longer be prepared in an ad hoc manner, but require stable institutional arrangements and dedicated resources.

One of the advantages of Kyoto-style targets is to allow the use of market-based instruments, such as emission trading. Emission trading, however, requires additional monitoring tools, such as *entity-level emission monitoring systems and emission permit registries*. The first system measures the level of emissions for each entity participating in emission trading, while a registry system records transfers and acquisitions of emission permits among these entities. Setting up these systems requires sufficient expertise and financial resources, even if the cost of administering them may be quite low, once they have been set up. Such systems also require that sufficient expertise exists within entities themselves to monitor emissions and record trades. It may be argued that entity-level monitoring would be needed anyway if companies are serious about reducing emissions. However, trading mechanisms require high quantitative precision and common methodologies across entities participating in the system.

The Kyoto Protocol itself requires the establishment of national registries, in order to record transfers and acquisitions of assigned amount units, if Parties wish to trade internationally. Again, the experience of Annex I Parties that are currently setting up their registry system will help them build capacity for any future next step. For developing countries, however, setting up registries in order to use emission trading systems would be an entirely new undertaking.

Systems for reviewing the performance of national strategies and individual policies and measures are also critical for Kyoto-style targets, for reasons already mentioned previously. This requires again a dedicated personnel, as well as institutional arrangements through which results of the review process can be shared with all stakeholders and appropriate decisions can be taken on this basis.

Finally, a legally-binding target also implies a corresponding policy framework that ensures that clearly defined emission limits will be met. As already suggested, this might mean that domestic sources will meet mandatory emission limits, efficiency standards, or other requirements. This, in turn, might suggest the need to impose mandatory consequences for non-compliance. Without such mandatory consequences for non-compliance, it is unlikely that any domestic permit market could emerge, if entities are able to abuse their rights by overselling. In addition, if national trading programs authorize domestic regulated sources to buy and sell allowances internationally, it is likely that it will be governments, not the violating sources, that will be held responsible under international non-compliance procedures (as with the Kyoto Protocol). Hence, there is the need for an effective domestic enforcement system to prevent entities from overselling (see Bygrave and Bosi 2003).

3.2.2 Dynamic targets

The most salient feature of dynamic targets is that they do not establish an absolute cap on a country's allowable emission level. Instead, the allowable emission level for dynamic targets is a function of a variable; in other words, instead of being fixed, allowable emissions fluctuate in response to some other measure. There are numerous variables that could be employed to dynamically adjust allowable emission levels, including sectoral activity data such as electric power production (kilowatt hours) or manufacturing output (e.g. tons of cement). One aggregate data frequently chosen by analysts is gross domestic product (GDP) because it tends to be a substantial driver of a country's GHG emissions output. (See, e.g., Kim and Baumert, 2002; Philibert and Pershing, 2000, 2001).

By relaxing the constraint of a fixed target, dynamic targets present some potential benefits compared to fixed ones. However, they also present added institutional challenges. The most significant ones are for the estimation, reporting and review of additional data, such as GDP.

1) National assessment, strategies and goals

Relative to fixed targets, dynamic targets do not rely as heavily on shaky emission projections. Thus, dynamic targets are likely to prove especially useful for countries with volatile economies and especially unpredictable emission levels¹⁰. For countries that are attempting to formulate a target, a dynamic target might reduce the burden of developing accurate future emission projections. It might in turn facilitate the negotiation among government ministries and agencies on the target level. For instance, the only possible way for Argentina to formulate a target that (1) ensured actual emission reductions while (2) avoiding hot air was to design it to dynamically adjust according to actual economic output.

Dynamic targets, however, would constitute a new form of target for most countries—one that is relatively simple in principle. Nevertheless, in order for governments to be comfortable with dynamic targets, significant learning may be needed.

More specifically, if dynamic targets were to be negotiated internationally, they would tend to increase the complexity of the negotiation process. The added complexity results not only from having multiple target forms under simultaneous negotiation, but from the particular characteristics of dynamic targets. Kyoto targets are differentiated only in that they require countries to limit their emissions in 2008-2012 according to different percentage changes relative to 1990. Dynamic targets might add a further layer of differentiation by allowing country targets to differ with respect to the relationship between emissions and GDP (or other variables). For example, in country A, allowable emission levels might increase or decrease on a “one-for-one” basis with changes in GDP. Yet, this might not be the case in country B, whose target allows emissions to increase by only 0.75% for every 1% change in GDP. Argentina’s proposed dynamic target, for example, was uniquely tailored to its circumstances, and could not be easily duplicated by other countries (i.e., allowable emission was a function of the square root of GDP)¹¹.

Complexity can have major implications for institutional capacity needs for participation in international negotiations. Country delegations would need the training and skills to understand and assess various dynamic target options, and to propose appropriate ones for their own countries. Civil society and the media must also be capable of understanding and critiquing proposed targets, at least to some meaningful degree. Otherwise, dynamic targets may present a additional barrier to understanding other countries’ position; and thus a barrier to consensus, especially when mistrust between governments is pervasive.

2) Policy Design and Implementation

With respect to domestic policy design and implementation, dynamic targets would entail institutional needs that are similar to Kyoto-style targets. Whether the needs are “greater” or “less” depends on a particular country’s national circumstances and the stringency of the targets.

For example, with a dynamic target a domestic emission control program might be easier to implement in that uncertainty with respect to the stringency of the target is reduced. In particular, the reduction of the economic uncertainty that might accompany a dynamic target could increase the likelihood of domestic support for the programme of policies and measures, including among the general public and business

¹⁰ However, dynamic targets may afford less benefit for countries with stable economic and emission indicators, including some industrialized countries. Höhne and Harnisch (2002), for example, show that in some cases, such as when emissions and GDP are not strongly correlated, dynamic targets do not offer uncertainty-reduction benefits.

¹¹ To make things simpler, the negotiation process might benefit from an initial agreement on several different dynamic target formulas to provide some standardization in methodologies (e.g., a few different GDP coefficients, α). See Kim and Baumert, 2002.

sector. One advantage would also be that policies and measures would not need to be revised so often, to compensate for possible emission increases due to (unexpected) economic growth.

One might argue that dynamic targets would allow for the adoption of softer measures, such as voluntary agreements. However, this depends on the overall stringency of the target. Moreover, dynamic targets can be legally-binding, either in domestic or international law, like Kyoto-style targets. This rather calls for measures with mandatory limits, such as trading programmes. However, what would a national emission trading program that was predicated on a dynamic target at domestic or international level look like?

One option would be for domestic policymakers to develop dynamic targets for the entities participating in the national trading program (e.g., tons of CO₂ per unit of electric power, steel, cement, etc.). This would present two challenges. First, customizing dynamic targets for all sectors and/or sources would be highly technical and complex, with large implications for institutional capacity needs. Second, it will be technically more difficult to execute trades using dynamic targets because tradable units are denominated in *absolute* terms while the domestic targets are in *relative* terms. For example, in the UK trading system, domestic sources that have relative (i.e., dynamic) targets can only trade on a *post-verification* basis. This can reduce the depth and liquidity of the market and, consequently, some cost-effectiveness benefits.

An alternative option would be for governments to allocate *fixed* emission limits to domestic sources, assuming a relatively conservative GDP growth. Then, governments could auction additional permits (or distribute them some other way) if national GDP growth exceeded the conservative expectations (or buy them back if growth assumptions turned out too high). Fixed targets would better enable domestic sources to interact with the international trading system, since targets would be denominated in a unit internationally recognized and tradable (i.e., units of CO₂ equivalent).

With either of these options, additional capacity would be needed in the design and implementation of a national trading system. The reason is that, unlike with fixed targets, the allowable emission level is not known *ex ante*. Thus, it would be harder for policymakers to ensure that the individual targets collectively “add up” to the national target. One approach to alleviating this last challenge would be to “fix” the dynamic target just prior to the budget period so that, in practice, the target would be implemented as a fixed target (Kim and Baumert, 2002: 123). In the meantime, allowing the target to dynamically “float” during the period between negotiation and the commencement of the budget period (5-8 years) might still considerably reduce the economic risks of target taking.

3) Monitoring, Reporting and Review

As discussed in section 3.2.1, greenhouse gas emissions must be subject to a wide range of monitoring standards, reporting requirements, and review provisions that, in turn, require substantial institutional capacity to effectively operationalise. If GDP or other variables were used to adjust emission targets, that data would need to be subject to similar scrutiny. Consequently, dynamic targets entail extra information needs relative to targets based on fixed emissions levels.

In case of internationally agreed dynamic targets, one advantage of using GDP rather than other adjustment variables is that standards and methods for national income accounting (i.e., GDP and related measures) already exist. Table 3 offers a comparison of the “systems” that exist at international level for estimating, reporting, and verifying GDP, on the one hand, and GHGs on the other. For each system that exists to account for GHGs, one or more analogous systems for GDP accounting are already in place. For example, the System of National Accounts, created in 1952 and updated periodically, provides a common set of concepts, definitions, classifications, and accounting rules for measuring GDP and related macroeconomic variables (e.g., inflation). Although these systems need not be duplicated by the Climate Convention, some of them may need to be integrated or recognized in some formal way. The IMF, for example, could play a

role in providing GDP data or verifying the data provided by governments through its existing “surveillance” and oversight processes¹².

Table 3: Monitoring, Reporting, and Review: Greenhouse Gases and Gross Domestic Product

	Greenhouse Gases (GHGs)	Gross Domestic Product (GDP)
M E T H O D O L O G I E S	<p>Intergovernmental Panel on Climate Change (IPCC) provides the parties with guidelines for estimating GHG inventories and good practice guidance.</p> <p>Kyoto Protocol (Art. 5): (Annex I parties only.)</p> <p>Par. 1 requires that “national systems” be established to estimate GHG emissions/removals (see section 2.3.3).</p> <p>Par. 2 requires the use of emissions (and absorption) estimation methodologies that are accepted by the Intergovernmental Panel on Climate Change and agreed on by the Conference of the Parties.</p>	<p>System of National Accounts (SNA). The SNA is a common set of concepts, definitions, classifications, and accounting rules used in economic analysis and policymaking for all countries. The SNA provides a comprehensive conceptual and accounting framework for analyzing and evaluating economic performance. The SNA is updated periodically through a working group that, to ensure consistency and comparability, includes the United Nations, Statistical Commission, the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD), Eurostat, and the World Bank.</p> <p>IMF Article IV consultations. Data gathering through Article IV consultations relies on an internal IMF process and it responds to specific informational needs of the IMF such as for data on gross domestic product (GDP).</p> <p>IMF's Special Data Dissemination Standards (SDDS) guides countries in the dissemination of financial statistics (in order to promote access to international capital markets). The SDDS includes standards in the following areas (1) data: coverage, periodicity, and timeliness (or reporting); (2) public access to data; (3) integrity of the disseminated data; and (4) quality of the disseminated data.</p>
R E P O R T I N G	<p>UNFCCC (Art. 12 and COP decisions). Reporting of national communications and national inventories using UNFCCC Reporting Guidelines.</p> <p>Kyoto Protocol (Art. 7). Annual emissions inventories and necessary supplementary information to ensure compliance. (Annex I parties only.)</p>	<p>SNA. The U.N. Statistical Commission sends an international questionnaire to be filled out by members voluntarily on an annual basis.</p> <p>IMF Article IV Consultations (surveillance). Contrary to the 1993 SNA, a member country (of the IMF) has the obligation to provide the information requested by the IMF's staff as stated in IMF's Article IV. The country itself, though, decides the public availability of this information to avoid the disclosure of sensitive information. IMF surveillance activities are conducted annually.</p> <p>SDDS. See above.</p>
R E V I E W	<p>UNFCCC Guidelines for the technical review of national inventories (UNFCCC 1999). (Annex I parties only.)</p> <p>Kyoto Protocol (Art. 8). Information relevant to compliance submitted by each Annex I Party shall be reviewed by expert review teams. (Annex I parties only.)</p>	<p>IMF Article IV Consultations. See above.</p> <p>IMF Reports on the Observance of Standards and Codes assess the extent to which countries subscribing to the SDDS observe international standards</p> <p>Milestone Assessment of the Implementation of the SNA is a system for monitoring and assessing the performance of countries. The system includes six milestones that indicate different levels of national accounts development.</p> <p>Generally, the SDDS promotes dissemination, transparency, and public access to data. These data can then be reviewed and assessed by financial institutions (e.g., creditors) and others.</p>

Sources. Websites of UNFCCC (<http://unfccc.de>); IMF (<http://www.imf.org>; <http://dsbb.imf.org/>); and UN Statistics Division (<http://unstats.un.org/unsd/sna1993/introduction.asp>; <http://unstats.un.org/unsd/statcom/doc00/2000-3e.pdf>).

Generally, most governments have more expertise on and experience with national economic statistics such as GDP than they do with measuring GHG emissions. Despite experience and the availability of standards and oversight systems, however, most national governments still have difficulties implementing and adhering to them. The “Milestone Assessments” of the System of National Accounts show that some countries are not reporting GDP data at all, and others are doing so incompletely (UN Statistical

¹² This would be consistent with the Convention, which authorizes the COP to, “seek and utilize, where appropriate, the services and cooperation of, and information provided by, competent international organizations and intergovernmental and non-governmental bodies.” Art. 7.2(1).

Commission, 2000).¹³ Likewise, only 52 countries (32 from Annex I) subscribe to the IMF's Special Data Dissemination Standard.¹⁴

Thus, some specific institutional needs with respect to improving the estimation, verification, and reporting of GDP would most probably include the following:

- *National accounting systems that adhere to internationally accepted measurement and reporting standards.* Just as the Kyoto Protocol requires a national system for monitoring and reporting GHG emissions/removals, similar institutional arrangements are necessary for GDP. Such a system would most likely be operated by a statistical agency or body housed in a finance or economic ministry. An effective system for measuring national accounts like GDP requires skilled staff with competitive salaries and a political commitment to increased fiscal transparency and accountability. The IMF's General Data Dissemination Standard can assist countries in this regard by providing a statistical framework for national accounts as well as education and training programs.
- *A politically-neutral system for estimating GDP growth.* In many countries, statistical agencies are not functionally independent and can be subject to political influence. To be deemed credible, GDP estimates must be objectively determined by competent statistical and economic bodies, free of political considerations. This points to one of the main governance issues identified in the previous chapters.

If a country adopts a dynamic target for its own domestic purpose -as it is currently the case for the United States-, it may not be necessary to adhere to such high standards of GDP measurement. Although this would suggest less required capacity, it could detract from the credibility of the target.

3.2.3 Targets with Price Cap

Fixed or dynamic targets, such as discussed in the previous sections, might be coupled with a "price cap", which places an upward limit on the price of emission reductions, thereby providing greater up-front certainty about the potential magnitude of implementation costs for a given target (See Pizer, 1999; Victor, 2001; Philibert, 2002b; IEA, 2002). There would be both advantages and disadvantages as regards institutional needs associated with this approach.

1) National assessment, strategies and target setting

A price cap reduces the cost uncertainty associated with fixed targets, as it is the case with dynamic targets, but likely to a greater extent. Again, this might facilitate the selection of a target level and therefore require less institutional needs. However, price caps add a new feature to the form of the target, which has not been tested yet. This would require a specific learning process for many countries, particularly if such a price cap were to be negotiated at international level.

2) Policy design and implementation

As far as implementation is concerned, depending upon how a price cap is implemented, there could be important institutional implications. A government may choose to implement a price cap as part of a

¹³ These assessments are for reporting only; they do not assess data quality. The IMF and World Bank-led Reports on the Observance of Standards and Codes (ROSCs), on the other hand, do assess the extent to which countries observe international standards. See <http://www.worldbank.org/ifa/rosc.html>.

¹⁴ For a list of subscribers to the SDDS, see <http://dsbb.imf.org/subscrib.htm> (4 February 2003).

domestic strategy outside any international agreement, or it may choose to implement it as part of an international agreement.

- In the first case, a government could implement a price cap domestically, issuing supplementary permits at a fixed price. Domestic entities would therefore be faced with the price cap and would, to the extent needed, make payments to their national governments to avoid non-compliance.
- In the second case, there are two possible options: either governments implement the price cap at the *domestic* level, issuing supplementary permits at the agreed international price (IEA 2002: 126) or they could freely purchase supplementary allowances from a single authorized *international* entity. These purchases could be at any time during the commitment period, including at the end of the commitment period in order to avoid non-compliance.

In all cases, added institutional requirements would be needed, in particular when a domestic body is charged with administering the price cap. Institutional needs could be identified that are similar to those discussed in chapter 3 for other national systems. This authority would need to be built into the same legal and regulatory framework in place to control domestic emission levels.

It is also worth stressing that a price cap is a *market* institution and presupposes that a domestic trading system is in place. Similarly, the likelihood of the price cap fulfilling its intended purpose depends on whether other underlying market institutions are properly functioning. A well-functioning emission market presupposes effective monitoring and enforcement as well as properly aligned economic incentives that favour competition and cost minimisation. These conditions may not always hold: even mature industrialized countries with strong regulatory regimes have not always been successful in regulating financial markets or in establishing markets for intangibles like emission allowances, water rights, and electricity (See, e.g., Greenspan Bell, 2002 and Perkaus and Baumert, 2001). Thus, in the absence of a well functioning emission market that seeks out low-cost reductions, it is conceivable that some countries might avail themselves to a convenient price cap option, despite the theoretical availability of lower cost domestic reductions.

Finally, the design and implementation of a price cap needs to receive careful scrutiny. For example, governments might recycle price cap revenues back to the very entities that paid for the supplementary permits, thereby circumventing the price cap's intended purpose. In case the price cap is part of an international agreement, this could be considered as a form of manipulation by governments, which would have the unfortunate implication of loosening the collective environmental target of the treaty. Thus, in this case, institutional considerations suggest vesting any future price cap permit-issuer at the international rather than the domestic level. This would relieve national governments of this burden, while affording all countries the same level of access to a price cap administered by an international entity. In addition, a single issuer might avoid unnecessary duplication and give governments wider discretion in designing domestic policies.

3) Monitoring, reporting and review

At domestic level, monitoring and reporting of operations under the price cap would be part of the monitoring and reporting requirements under the emission trading system. However, if the price cap falls under an international agreement, governments issuing supplementary permits would likely have an additional international reporting requirement and be subject to international review to ensure proper implementation of the price cap.

3.2.4 *Non-binding national targets*

The targets discussed above were presumed to be of the legally binding variety, such as those entered into by Annex I countries under the Kyoto Protocol. However, both fixed (i.e., Kyoto-style) and dynamic targets could also be adopted in a *non-binding* form, which means that there would be no mandatory consequences for exceeding the target emission level. The principal example of such targets at the *international* level are the Convention commitments adopted by industrialized countries, which pledged to return their emissions to 1990 levels by 2000. Although all international treaty commitments can be considered legally-binding, these commitments have been couched in inspirational rather than mandatory terms and lack an accompanying system of enforcement (see Baumert and Kete, 2002: 11-13). Many developed countries have also adopted non-binding *domestic* targets, as they were developing their climate change strategies during the 1990s.

Clearly, these kinds of aspirational commitments place less institutional demands on countries than legally binding commitments. The institutional needs for non-binding commitments are relaxed with respect to each phase of the policy process.

- **National assessment, strategies and target setting:** A non-binding target provides an incentive to develop the necessary institutional arrangements that are needed to develop a climate strategy: set a target, develop a programme of measures that is consistent with this target, periodically assess the performance of policies and measures and, finally, strengthen the programme of policies and measures, if needed. However, countries may not need such a careful assessment of possible options, using the most sophisticated modelling tools, to set their quantitative target. Also, the policy process required to reach swift political decisions on the climate strategy may not need to be completely mature, which usually requires that human resources, with the appropriate skills, are already available in all relevant agencies and that institutional arrangements are already well-defined.
- **Policy design and implementation:** the quantitative precision regarding an emissions target is an incentive for domestic policymakers to choose a set of policies and measures that, at least potentially, is able to meet the non-binding target. However, it may be difficult, when a country first develops a climate strategy, to implement a set of so-called “hard” measures, which require, as we have seen, more institutional capacity. Softer measures would be acceptable under “soft” targets: they provide no certainty as regards their effectiveness, yet are easier to implement. Yet, even with a non-binding target, a country would be free to experiment with any policy instrument, including mandatory ones, like domestic emissions trading. In this last case, the country may have a national target, which is non-binding, but may have a capped sector, whose emission limits would be binding under domestic law.
- **Monitoring, reporting, review and enforcement:** all these functions remain very important with non-binding targets, since they allow the national government -and/or the international community- to check whether the country is on track to meet its target and to take specific measures if it is not. However, it is clear that much less institutional effort is needed in this regard in case of non-binding targets. For example, under the Convention, industrialized countries are required to submit annual inventories and periodic national communications. While the level of monitoring and reporting that was required in the 1990’s may have been appropriate for the “soft” Convention targets, it was strengthened significantly with the adoption of the Protocol and the advent of legally binding commitments by Annex I Parties. There is little doubt that the jump from non-binding to binding targets represents a significant step with respect to the needed institutional capacities. As for enforcement, the absence of mandatory consequences puts much less burden on the judiciary system and/or international institutions.

As already suggested, institutions need time to adapt and build capacity. One rationale for advancing non-binding commitments would be to gain practical experience and progressively build institutional capacity

in all of the priority areas discussed above. This option might suit particularly developing countries. In principle, developing countries already have mitigation commitments under the Convention. However, their commitments under the Convention do not have any quantitative dimension. The discussion in previous sections has shown that quantitative targets require specific institutional capabilities. Emission targets that are quantitatively precise, though non-binding, may help developing countries move toward the level of capacity—and the resulting information base—needed to eventually adopt legally-binding targets. The process of developing a national greenhouse gas emissions target—even a non-binding one—may also be useful experience upon which to build later.

Non-binding targets and international emissions trading

A key issue would arise if non-binding targets were part of an international agreement, which, like the Kyoto Protocol, allows access to international emissions trading under certain conditions. Legally-binding commitments, defined in an international framework, are generally considered a fundamental pre-requisite to participation in the international trading system. Non-binding targets are unlikely to give countries access to trading mechanisms other than the Clean Development Mechanism. Thus, with reduced obligations come reduced rights under the Protocol. However, it is conceivable that in the future developing countries with non-binding targets could have access to the international trading system as *sellers* (Philibert, 2000; Philibert and Pershing, 2000, 2001; IEA 2002). Under this approach, a developing country whose actual emissions were below their non-binding target could sell their excess permits, although they would have no obligation to buy permits or face non-compliance consequences if emissions exceeded target levels. Here, it is important to ensure that only truly surplus allowance sales are permitted by countries with non-binding targets. There are several ways of promoting environmental integrity with this approach (IEA 2002: 128-29):

- As soon as a country with a non-binding target starts to sell allowances, the target would become binding. The benefit of such an option, as compared to binding targets from the onset, would be roughly similar to that of “fixing” dynamic targets at the beginning of the commitment period mentioned earlier: it will reduce the economic risk of taking on a target.
- If a country sold allowances and exceeded its emission budget, it would be required to buy back allowances, but not beyond the amount it has sold. Under this option, the responsibility of a country is limited to the unit sold and the non-binding character of its target preserved.
- Countries with a non-binding target are allowed to sell allowances only *after* the commitment period, i.e., after it has demonstrated an actual surplus.

The use of a commitment period reserve, as adopted in the Marrakesh Accords, would also reduce the risk that countries with non-binding targets would oversell their allowances.

Any of the approaches above would have important consequences for institutional needs. Essentially, such commitments, even though framed as “non-binding”, would need to include the monitoring, reporting, and review requirements stipulated for *legally binding* targets. In other words, the institutional capacity needs with respect to these requirements would be similar those of Kyoto-style commitments.

These accountability requirements would probably need to be adhered to from the beginning of the commitment period in order for the trading option to remain open. By analogy, the Kyoto’s “national systems” for estimating emissions (and removals) must be in place *by 2007*, prior to the commitment period (Kyoto Protocol Art. 5); acceptable inventories must be submitted annually (Kyoto Protocol Art. 7). For non-binding targets, failure to adhere to accountability requirements during the entire commitment period, in the interest of environmental integrity, might extinguish any future trading options. After all, for Annex I parties, failure to adhere to accountability requirements can result in a loss of trading eligibility.

For *ex post* trading (the third option above), it may be possible to relax monitoring and reporting requirements. However, a strong national greenhouse gas accounting framework, like the one required for Annex I countries under Kyoto, would nevertheless be needed prior to determining the amount of allowances that were allowed to be traded *ex post*. Even if *ex post* trading provides a few more years to build such a framework (since it does not have to be in place prior to the beginning of the commitment period), it cannot be built overnight. As the experience of Annex I Parties shows, high-quality monitoring systems may take many years to be build.

3.2.5 Sectoral targets

Kyoto-style targets are nearly comprehensive in that they encompass all emission sources and certain sinks as well as the six main greenhouse gases. This is consistent with UNFCCC language stating that “policies and measures should . . . be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.” (UNFCCC, 1992: Art. 3.3). Comprehensive future targets will likewise afford greater opportunity for participants to undertake emission reductions where they are least costly.

At the same time, however, as we have seen in previous sections, targets that are broader in scope will entail greater institutional needs. This might form one rationale for limiting the coverage of a national target in some circumstances, particularly in developing countries. Sector targets could approximate Kyoto-style targets, except be narrower in scope; alternatively, *dynamic* sector targets are also conceivable, for which electric power generation, cement manufacture and other output variables might be used for target formulation.

Sector-based targets might encompass those parts of national economies where greenhouse gas emissions are most prominent, such as heavy industry, land-use change and forestry, or electric power generation. Alternatively, the choice of sectors that should be subject to limitations may rather depend on other factors, such as the ability to estimate and report GHG emissions/removals of these sectors or to regulate these sectors¹⁵. Indeed, governments may be able to effectively monitor and enforce regulations for large stationary sources, but not other sources that are widely dispersed in sectors like agricultural or forestry. Quantitative limitations in the land-use, land-use change and forestry sector should be considered with particular care, due to problems with data reliability and scarcity (see Depledge (2002: 49-50)). Making and enforcing public policy can also be especially challenging for this sector due to jurisdictional and other issues associated with land tenure and/or indigenous populations. Another factor, which could be taken into account, would be the predictability of future emissions. Sectors with high emission fluctuations would be left out of the target scope.

This would allow significant resources saving:

- **National assessment, national strategy and target setting:** the national assessment and strategy formulation could be more limited in scope, saving human and financial resources. Target setting would still be quite complex, since a number of studies, as well as a political process, would be needed to set the target at a level that is environmentally meaningful, yet politically and economically acceptable. Uncertainties in future emissions could be reduced, however, since the most unpredictable sectors could be left out.

¹⁵ In fact, if a country is unable to effectively monitor emissions of a particular sector, it is equally unlikely that it will be able to effectively regulate that sector.

- **Policy design and implementation:** this stage of the policy process would focus on those sectors, where a sufficient capacity to regulate emissions already exists, because of other measures or policy frameworks.
- **Monitoring, reporting, review, and enforcement:** High-quality monitoring, reporting, review and enforcement processes would be restricted to those sectors, where a minimum level of these capacities already exists. Capacity improvement needs would therefore be reasonable.

As a result, it would be possible to channel saved resources toward more stringent abatement activities in the regulated sectors.

As it is the case for the other types of target, sectoral targets might be adopted in the framework of an international agreement, or simply be adopted at domestic level without reference to an international agreement. Within an international framework, namely the Kyoto Protocol framework, one alternative sector-based approach would be to fashion sectoral initiatives under the existing Clean Development Mechanism (Samaniego and Figueres, 2002). For example, “Sector-CDM” initiatives might involve a country’s entire electric power sector or, alternatively, all sectors within a single geographic boundary (e.g., a municipality). Such initiatives would require related (but somewhat different) institutional capacities compared to the sector targets described above. Assuming such sector-CDM projects were allowed, the major challenges faced by governments and project developers would be developing credible sector baselines that represent a reasonable approximation of what would have happened without the particular initiative. In addition to significant capacity among “project” developers, this kind of commitment would probably require guidance by the COP regarding how to develop sector or geographic baselines.

It is worth noting that domestic sector targets, outside international agreements, might also be developed for non-climate reasons. For example, the government of Mexico City has expressed interest in developing a municipal target and joining the privately operated Chicago Climate Exchange (Samaniego and Figueres, 2002; CCX, 2001). The rationale is not climate protection per se, but rather the opportunity to deliver cost-saving emission reductions that support the city’s sustainable development goals. Likewise, in pursuit of sustainable development objectives, governments may decide to formulate industry agreements that limit emissions within particular sectors, such as aluminium or electric power production.

3.3 Other approaches

Quantitative targets tend to bring some clarity to the policy process; they provide a focus to policy-makers, giving somewhat a higher profile to the issue at stake. Sometimes, they can also be used to force through much needed reforms in some sectors. They also provide much needed milestones, in a policy issue with a long term perspective. Yet, in some cases, they may just provide an illusion of clarity and control, leaving in the shadow more subtle qualitative issues that actually drive policy-making. They focus minds on goals, rather than on the complex institutional processes that make it possible to achieve effective results in the long term¹⁶.

This debate somewhat mirrors the current debate between developed and developing countries on the global climate regime. Industrialised countries have quantitative targets, sophisticated strategies, complex monitoring systems and yet their GHG emissions are not expected to decline in the medium term.

¹⁶ A similar debate can be found in other areas as well. For instance, while the European Central Bank has an inflation target, the adoption of such a target is opposed by the Federal Reserve Board in the US. A similar controversy exists between EU Member States over the 3% target on budget deficits.

Developing countries have used much less of these policy tools. Yet, even in the absence of quantitative targets, many developing countries are already taking actions that are curbing greenhouse gas emissions (Reid and Goldemberg, 1999; Biagini, 2000).

From an institutional capacity perspective, the choice between these two approaches also represents a choice between two fundamentally different ways to strengthen capacity. As we have seen in the previous chapters, quantitative targets require a lot of institutional capacity for all phases of the policy process, but in particular for the national assessment, the strategy formulation and the target setting, as well as for monitoring, reporting, review and enforcement. These capacity needs tend to be climate-specific. Quantitative precision requires the use of climate-specific high-quality modelling tools and monitoring and reporting systems. Strong leadership and sufficient resources are also needed for strategic planning, so as to bring all possible policy initiatives from many sectors into a coherent framework, consistent with the target. Climate-specific institutional arrangements need to be developed to negotiate among participants how to share the burden of the mitigation efforts. Quantitative targets also tend to favour the use of climate-specific policies and measures, such as emission trading or project-based mechanisms. In turn, the development of this national strategy requires that a climate-specific expertise be developed in many organisations around the country. In some sense, only quantitative targets are able to transform the climate issue into a new, separate policy area..

This may have clear advantages. The development of a high quality climate capacity in a country certainly adds credibility to the whole climate issue in the domestic policy making. Good technical experts may be better able to convince policy-makers in other areas. Yet, much time -and resources- may be wasted in the formulation of a strategy, which may only take place within “climate circles”. The development of such a capacity may result in yet another small institutionalised lobby with little influence over major policy priorities and little support from the general public. As a result, resources may be diverted from developing capacity to strengthen other policy processes, which, while not climate-specific, are climate-relevant.

In this sense, a non-quantitative approach rather calls for a sustainable development strategy, rather than a climate specific strategy. This strategy would allocate most available resources in actually integrating climate considerations into other policy processes, with a view to sustainable development, rather than developing a sophisticated climate strategy.

This paper does not intend to take sides, even less to solve this issue. However, this debate certainly raises major policy questions, which cut across both rich and poor countries. This issue, though, tends to be even more critical for developing countries, which can ill afford to divert resources away from basic development goals for other issues.

3.3.1 Policies and measures

A policy approach without quantitative targets may simply be called a *policies and measures approach*, whose goal is to adopt and implement a set of policies and measures that lead to GHG emission reductions. All Parties to the Climate Convention have actually already committed to developing such an approach. Pursuing it would therefore essentially mean strengthening current programmes over the medium term to implement existing obligations under the Convention.

This approach may also be explicitly linked to other sustainable development objectives. For example, Winkler et al (2002) outline the concept of sustainable development policies and measures (SD-PAMs), where countries adopt a basket of policies and measures that are primarily geared toward their national sustainable development needs. As noted above, public awareness and public support for climate protection is a key institutional need in implementing domestic climate policies. SD-PAMs would not need

to overcome this obstacle because it is oriented expressly around national sustainable development objectives and needs, rather than a more distant priority like climate change. The expectation is that, by moving toward greater sustainability in their development path, developing countries will start bending the curve of their greenhouse gas emissions downward. This hypothesis is more fully characterized by the IPCC emission scenarios and other IPCC findings (IPCC 2000). According to the IPCC, a low carbon future is “associated with a whole set of policies and actions that go beyond the development of climate policy itself” (Morita and Robinson 2001).

A policies and measures approach is in this context an entirely domestic process, where countries choose their own policies according to their own national circumstances. This is consistent with past and current developments under the Climate Convention and the Kyoto Protocol, which have shied away from attempts to define “common” or “co-ordinated” measures across countries. However, this approach could also be turned into a form of international commitment (Winkler et al (2002)). Under such a commitment, countries would still choose their own basket of policies and measures, but they would also agree to an international commitment to implement this basket of policies and measures.

As already indicated, a policies and measures approach tends to require less institutional capacity, as compared to quantitative approaches:

1) National assessment, strategy and goals

An assessment of mitigation opportunities would still be required in many ministries/agencies, with the help of research centres or consulting firms. However, there would be much less need for quantitative modelling tools (although still useful). The strategy itself would consist in the different ministries/agencies, as well as other stakeholders, negotiating among themselves on the basket of measures that could be part of the strategy. That would still require sufficient personnel, however less trained in climate-specific issues. This approach presumably would not need to encompass all sector and GHG sources and sinks, thereby reducing institutional needs. Less institutional capacity would be needed for regularly adapting the strategy, since there would be no need to make sure that a quantitative target is reached.

In case of an SD-PAM process as suggested by Winkler et al. (2002), national-level buy-in and participation might also be relatively easy to come by, considering that SD-PAMs would be oriented primarily around sustainable development needs first, and climate change only incidentally. Finally, participation in international negotiations would still require some domestic planning and co-ordination prior to the meetings as well as sufficient resources to participate in the negotiations. However, it is likely that this process would be less complex to handle than with quantitative targets.

2) Design and implementation of policies and measures

Governments would still face formidable institutional challenges in formulating and executing policies and measures. Government agencies might develop an ambitious set of policies and measures, yet fail to implement them because of lack of political will, financial resources, or support from the public or other government institutions.

These obstacles will not disappear if actions are framed in terms of sustainable development, rather than climate change. Many of the obstacles to implementing climate-friendly policies—e.g., lack of authority of environmental institutions—are the same ones that make implementing sustainable development policies challenging. In this sense, institutional capacity issues might be just as great for pursuing sustainable development as climate policy, particularly since sustainable development touches on an even broader array of economic activity and political interests than climate change. However, the SD-PAMs approach need not necessarily “define” or “achieve” sustainable development per se. It may merely involve

packaging a new set of domestic policies and measures that have a beneficial impact on emission trends, yet are primarily geared toward other objectives, such as reducing energy consumption, diversifying energy sources, or creating jobs.

Most importantly though, the rationale behind a policies and measures approach is to invest most of available resources in strengthening capacity in the actual implementation of policies and measures, precisely because this is a phase which requires the most capacity, rather than in strategy formulation, goal setting, or monitoring and reporting. Hopefully, this might increase the chances of a successful implementation process.

Another advantage is that countries may choose the set of policies and measures that most suits their national circumstances. Some policies and measures may be more effective -or easier to implement- in some countries than in others, depending on the economic and social environment. Quantitative targets, as we have seen, may favour the choice of instruments with explicit emission limitations within the timeframe set by the target. Market-based instruments, such as emission trading, in particular, may well be potentially very cost-effective, but their design and implementation may require a lot of institutional capacity in certain country settings (see section 3.2.1)¹⁷. By contrast, other policy approaches, which may bring GHG benefits only in the long term, such as some types of changes in the transportation system, are compatible with a policies and measures approach, yet would receive a low priority in a strategy with quantitative targets.

3) Monitoring, reporting, review and enforcement

Monitoring, reporting, and review of GHG emissions would be substantially less onerous for a policies and measures approach. Although these functions would still be important, they would require substantially less rigor than for quantitative targets, in particular when those are coupled with emissions trading. Review of policies and measures, however, may acquire more importance. A regular review of their implementation would be needed if the process is to be sustained over many years. Yet, good ex-post review processes can be quite complex to set up.

Finally, enforcement systems, and the rule of law that goes with it, would still be essential for effective implementation of policies and measures. However, they may be less in the frontline, if measures without explicit mandatory limits were to be implemented.

3.3.2 Technology development and co-operation

In some sense, a domestic technology policy is just part of a “policies and measures” approach, which would target in particular technology development and dissemination. Thus, institutional capacity needs are quite similar to those described in the previous section. However, technology is a very specific area within any domestic climate policy. Technology is indeed essential for developing long term solutions to climate change. In addition, this approach to climate policy has a potentially strong international dimension.

Technology co-operation is already one of the Convention commitments and there are many bilateral and multilateral technology programmes currently operating to influence the fulfilment of these. As for future international commitments, technology co-operation is indeed seen as a potentially promising approach.

¹⁷ This does not mean that new types of policies, such as economic instruments, cannot be implemented in countries that have not yet implemented them. However, it is likely that extra care needs to be given to their implementation, which therefore will require more institutional capacity.

Possible options include: set up of international research and development programmes, information sharing, common test protocols and/or standards for a range of technologies, adoption of targets for new technologies, such as renewables (see Philibert, 2003).

A domestic policy framework or an international agreement to promote technology development and cooperation would focus resources to building capacity in the technology area. The extent of capacity needs would obviously depend on the kind of technology policy that would be adopted, but they might include:

- **National assessment, strategy formulation and goal setting:** Technology policy as well as technology co-operation requires a national assessment of technology needs. This is not a simple matter, as it requires much expertise in many different sectors. The formulation of a technology strategy is also quite complex, because it would need to be adapted to the specific circumstances of many different sectors, as the recent technology needs assessments undertaken within the UNFCCC have shown (UNFCCC, 2003). Finally, if the technology policy includes specific quantitative targets (e.g. a renewable energy target), setting those targets and making sure they can be reached may in some cases create its own set of capacity needs, which resemble those of GHG targets, as the effects of technology policies are usually also quite uncertain.
- **Policy design and implementation:** the design and implementation of technology programmes can be quite resource intensive. Many “affirmative” technology programmes require substantial funding (in particular for research) and highly-skilled personnel in the public service that can design and implement them. If there is an international dimension to the programmes, human resources must be specifically allocated to following international development in these areas¹⁸. Besides “affirmative” technology programmes, there is a whole set of “enabling” reforms that need to be implemented to create a sound business environment: market reforms, “intellectual property” laws, etc... (UNFCCC, 2003). While these reforms usually require less personnel in the public administration, the political economy of decision-making in a country can be a much tougher barrier to overcome. For example, many special interests may have a voice in the government, so as to stall market reform processes.
- **Monitoring, reporting and review and enforcement:** technology policies have their own set of monitoring and review needs. Technology programmes need to develop their own assessment criteria and be reviewed regularly to fine tune them over time and make sure they are still relevant. As for enforcement, the judiciary system must obviously be able to enforce property laws.

Even this superficial assessment shows that each single policy that is included in climate strategies can have its own capacity needs. Given that capacity assessment can be resource intensive, extending the range of policies to be considered (e.g. energy, transport, agriculture and forestry policies, technology and education policies, as well general economic policies) could be prohibitively expensive. Hence, the overriding need to set priorities.

¹⁸ This aspect is often forgotten: international programmes require a lot of resources in recipient countries, simply to be able to have access to them.

4. Conclusion

Assessing institutional capacity needs for current and future actions to combat climate change is an overwhelming task, since it spans so many dimensions of a country's ability to respond to a particular challenge. This paper has attempted to provide a coherent view of institutional capacity as well as an initial assessment of institutional requirements for a range of future policy options. However, the paper has stopped short of suggesting any specific priorities for actions.

As regards options for future mitigation actions, assessing capacities required for implementing them does not provide by itself sufficient clues to select the most appropriate option. An assessment of *current* capacities is needed to determine the extent of the capacity gap between *current* capacity and the capacity *required* for specific policy options. Even if most Least Developing Countries are unlikely to have sufficient capacity to take on even the softer types of policy approaches, there is another set of countries in a "grey zone" (i.e., more economically advanced, rapidly developing countries) that may already have at least some of the capacity needed to take on certain climate actions, possibly even quantitative approaches. This said, even more economically advanced countries, developed or developing, may have specific capacity barriers that prevent them from taking ambitious forms of action. For example, some countries with a federal structure or with a weak central government may have difficulties in reaching national consensus about quantified national targets, in particular if they are legally-binding.

As regards capacity building actions, one of the main lessons of the paper may be that there is no simple way to define capacity building programmes that would simply "fill the gap" between existing capacities and capacities required for future climate policy options, or even international commitments.

This is particularly true for international capacity building programmes. "Capacity development in environment (CDE) presents a profound challenge to donor organisations and recipient country institutions because of the complex interplay of socio-cultural, political, economic and environmental interests. (...) *Raising the environmental performance of organisations and people in any society is a daunting task even for its own citizens. Assuming this can be done easily by outside interveners may be the first mistake in any capacity development programme. Recognition of the need to experiment, listen and learn may be the first step to some sort of progress.*" (OECD, 2000).

Most capacity needs are country-specific. As it was suggested in the beginning of this paper, capacity development is indeed a home-grown, dynamic process, which is not a simple addition of new capacities. Thus, rather than suggesting priorities for capacity building, a main priority would be for countries to undertake detailed self-assessments of current capacities. For instance, 26 non-Annex I Parties and 3 Annex I Parties are currently undertaking a self-assessment of needs in the framework of the GEF action on capacity building¹⁹.

Under the pragmatic, institutional model suggested in the paper, detailed self-assessments could be a key element in the evolution of future climate actions, both for developed and developing countries. Self assessments could be the beginning of a process whereby countries would define the kind of next steps that are consistent with their capacity level, including the kind of capacity development needed.

Most assessments, however, focus on capacity needs of current climate policy. It may therefore be important to undertake self-assessments with a forward looking approach, which would assess capacity *in view* of decisions to be made about future policies. Case studies by Tudela, 2003 and Gupta, 2003 include to some extent such a forward looking approach. Many other possible studies could be undertaken. For

¹⁹ See GEF web site <http://cfapp2.undp.org/gef/site/>

instance, one of the first assessments that could be undertaken with this approach would be to evaluate whether most countries around the world have the analytical means to assess the economic, social and institutional consequences for their own country of the different policy options discussed in chapter 3.

In the climate area, needs assessments tend to focus on climate-specific capacity, such as capacity to assess national circumstances, formulate climate strategies, implement climate-specific measures, such as project-based mechanisms, or develop GHG monitoring systems. Although this is a much more difficult exercise, such assessments could also include an assessment of climate-relevant needs, such as needs in other policy areas, or in other national systems, such as data collection or enforcement systems (see also Peeva, 2003 and Gupta, 2003).

Cross-country comparisons of institutional capacity are also helpful. However, they can only be undertaken in areas where common assessment criteria can be used across countries. This is the case, for instance, with national inventories, for which a set of common guidelines exist internationally (see Herold, 2003). There are also climate-relevant cross-country comparisons that shed some light on the overall level of institutional capacity for public governance across countries (see Kauffman & al., 2003).

A final word on the role of the international community in capacity assessments. There is much scope for widening the current discussion on institutional capacity. One focus of current international co-operation is on funding capacity assessments and capacity building initiatives. As we have seen, this is an important issue. However, the capacity issue could also be part of *policy* discussions among governments. Countries, both developed and developing, could share information on the level of their current capacities and discuss how to identify the best policy options that are consistent with these capacities. The link with broader capacity issues that are being discussed in other fora (e.g. OECD or World Bank), such as on governance, could also be made. True, there is a danger, in international discussions, that countries use capacity constraints as a reason not to act, while in fact, they may simply be unwilling to act. While this danger may exist, capacity constraints *do* shape national positions in international negotiations. Honest discussions about what countries can and cannot do, considering their respective capacities and constraints, could promote mutual understanding of national contexts and, possibly, preferences for certain policies. They could also provide a non-confrontational way to consider how to move forward on climate change policies.

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Annex Selected Criteria for Assessing Institutional Capacity

1) The individual: human resources, skills and performance

A sufficient number of personnel in organisations is a necessary condition for effective action. However, it is not sufficient. The performance of individuals, their motivation and ability to be proactive is also a key measure of capacity. Performance depends on many different factors. “The micro level assessment (...) might involve measurement of skills or competence in the organisation against a set of standards or criteria. (...) Management consultancies have developed many quasi-mathematical and check-list type tools that can be translated into profiles” (Johnston 1999). The main factors are the following:

- Job definition: one measure of capacity is to assess whether job profiles are defined in such a way as to correspond to clear priorities. Insufficient personnel may lead to job profiles that are meant to cover too many issues, hence reducing performance. Yet in some other cases, it is simply a management issue to define work missions that are challenging, yet realistic.
- Skill level and training opportunities: Professionals need to have the skills that correspond to their job profile. This depends on hiring procedures, but also on the availability of skilled personnel in the country. It also depends on training opportunities. These trainings can be both of a technical/analytical nature, in particular in relation to climate change, and of a more general nature, such as trainings in management or in communication. Such training opportunities need to correspond to the most important capacity needs (see Peeva, 2003).
- Financial and non-financial incentives: Other, more structural, human resources issues may influence the performance of individuals in their job. The pay level, the nature of the job contract, the possibilities of career progression or redeployment, the level of responsibilities, the possibility to take initiatives within the system all influence job satisfaction and motivation in the long run.
- Interest in climate change issues: skilled individuals may be motivated to specialise in climate-related field in some countries, while this issue may not attract any interest in others. Personal motivation may also depend on how climate change is considered at higher management levels.

2) The organisation: management capacity

At this level of analysis, assessment methods use concepts from sociology, management consulting or performance auditing (Segnestam & al., 2002). Many criteria can be used to assess the management of organisations:

- Mandates of the organisation: defining clear mandates, including on climate change, enhances the organisation’s overall capacity to act. They should be well publicized and drive the work of the organisation. They should also be mutually compatible. Finally, they should be allowed to evolve over time, without being changed or transferred too often from one organisation to the other.
- Availability of human and financial resources: sufficient human and financial resources should be available to fulfil the organisation’s mandates and missions. Since climate change is an emerging issue, there is a danger that this issue is not really acknowledged in the management structure and does not receive specific resources. The ability of an organisation to allocate sufficient resources to an emerging issue, like climate change, is crucial.
- Management practices and processes: there is a vast array of management practices that are important for an efficient management, such as: creating stable management structures with clearly defined responsibilities at each level; creating well-defined, yet flexible, rules and procedures to conduct a

task; making higher management accountable for their successes or failures; providing efficient access to information and appropriate equipment (information technology, buildings, offices...).

3) National systems for climate policy

Different factors may affect the efficiency of national systems for climate policy:

- Rules of procedures and financial provisions: Usually, clear *rules and procedures* need to be set for them to prepare –and officially approve- a national position in the negotiation, a domestic policy framework, or an inventory. The frequency of meetings as well as the availability of specific financial and human resources for such institutions are also likely to be factors of success.
- Level of participation: All key actors and institutions need to participate in the climate change policy process. This includes key government ministries and agencies, but also all major stakeholders, like industry, local governments, environmental NGOs or the scientific community. Different types of working groups or committees may be necessary. For instance, it may be useful to create committees of high-level Officials, or even ministers, as well as technical working groups.
- Allocation of responsibilities: Clear responsibilities need to be allocated between the different actors and institutions, which should be made accountable for what they have committed to do. Overall responsibility for a specific task should be allocated to one agency or organisation. This issue is particularly relevant for some countries with a federal structure, where responsibilities are not always well defined between different levels of government.
- Authority: The institution(s) in charge of co-ordination should have sufficient authority and sense of leadership. In many countries, environmental institutions are relatively recent creations. Accordingly, they often lack the political weight needed to influence key governmental decisions. Despite significant advances in recent years, Bucher (2000: 73) describes environmental institutions in the context of Latin America and the Caribbean as “at an incipient stage of development, lacking resources, authority, and links to other sectors.”
- Stability/adaptability of the institutional framework: Perhaps one of the most important indicators for institutional capacity is the stability of the institutions that have been created for climate policy and the predictability of their achievements. On the other hand, one of the key challenges of such institutions is to be able to regularly adapt current approaches and policies and respond quickly to new challenges. Too much rigidity in the institutional framework will in the end harm the policy process.

4) The regulatory framework and public sector setting

As Segnestam & al. (2002) put it, “Institutional capacity assessment must be seen as more than a superficial description of the institutional landscape in the country. [It] include[s] governance issues like the rules of the game, the incentives and actions of institutions to carry out their mandates, the rule of law and accountability of governments to the citizens”. There are many different ways to measure a country’s capacity for good governance. The World Bank, the OECD and many public and private institutes use a variety of assessment criteria. For the purpose of this paper, we will use the World Bank’s three clusters of assessment criteria (World Bank, 2003):

- Political stability, voice and accountability: the political economy of decision-making has a substantial influence on the kind of policies that governments can adopt. The way governments are selected, monitored and replaced, as well as the way political institutions take decisions on policy issues, has major implications on governance. Political instability or a weak government usually makes it very difficult for a country to implement sound policies, including climate change policies. More specifically, a legislative process that creates too many hurdles for important decisions to pass or that

gives a voice to too many special interests may be unable to adopt any ambitious and innovative policy framework in this area. In addition, the ability of citizens, groups and associations to make their voice heard, monitor government's actions and participate in the decision making process is increasingly seen as essential for good governance. In turn, this ability depends on the availability of political rights and civil liberties, including media independence, as well as on the ability of government to provide transparent information. Public participation may be particularly important for climate policy. The level of awareness –and interest- of citizens in the climate change problem will also be influenced by their ability to make their voice heard in the policy process.

- Government effectiveness and regulatory quality: the effectiveness of non-climate policies in integrating climate concerns depends on other, non-climate factors, such as the quality of the civil service in these policy areas, its overall ability to implement sound and coherent policies. In turn, the ability of governments to design and implement sound policies and programmes will depend on other factors, such as the independence of the civil service from political pressure and special interest groups, on the government's ability to collect sufficient resources as well as on the stability/adaptability of public institutions.
- Rule of law and control of corruption: the rule of law refers to the respect of the citizens for the rules of society and, more specifically, to the effectiveness of the judiciary, the enforceability of contracts, the incidence of crime, as well as the control of corruption. The rule of law is essential during all phases of the policy process, so as to avoid the corruption of policy-makers in the selection, design and implementation of policy priorities. Finally, an efficient judiciary system is essential for effective enforcement of mandatory policies and measures. This will in turn depend on many factors: political independence, a free press, transparent access to information, control of corruption.

5) Social norms, values and practices

There is no universal set of norms, values and practices that are conducive to effective action on climate change. However, it is likely that norms, values and practices will help climate change policies when:

- they foster co-operation among individuals and institutions, as well as public participation in public policy, in particular on new emerging issues like climate change;
- they foster a sense of individual or collective responsibility towards the environment, which may also lead individuals, businesses, local governments, or non-government organisations to voluntarily take GHG mitigation measures;
- they foster acceptance of the Rule of Law, which may restrict individual behaviour to protect the environment;
- they are sensitive to long term threats to the environment and society.

When market-based instruments are considered as the main elements of a climate policy, it is also crucial that social norms, values and practices already pave the way to the emergence of competitive markets, which are needed for such policy instruments.