UNIVERSITY OF CAMBRIDGE
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International Support for Domestic Climate Policies

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Abstract

Domestic climate policies play an important part in shifting countries towards a low-carbon development trajectory. Six case studies explore the domestic drivers and barriers for policies with climate (co-)benefits in developing countries. International support can help to overcome these constraints by providing additional resources for incremental policy costs, technical assistance, and technology cooperation to build local capacity. Any such cooperation has to build on domestic stakeholder support for policies with climate co-benefits. Policy indicators play an important role for successful policy implementation. They facilitate monitoring of intermediate policy outcomes, international comparison of best practice, internal management for effective implementation and can be linked to international incentive schemes. As they are more responsive to successful implementation, indicators can be aligned with political time scales to provide early reward and reduce the uncertainty associated with predicting the long-term impacts of transformational policies on emissions reductions.

Keywords Policy instrument, international cooperation, intermediate indicators, climate policy

JEL Classification D78, H0, O38

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1. Introduction

Domestic climate actions and policies with climate co-benefits are required to reduce emissions. Six country case studies are presented here, which explore how policies for industry, transport, power and the agricultural sector can move developing countries onto low-carbon growth paths. Non-climate benefits, such as energy saving and reduced pollution levels, can create domestic support for such policies. However, other pressing needs and resource constraints often restrict the scale, scope and speed of the policy implementation. International support can help to overcome these constraints by providing additional resources for incremental policy costs, technical assistance, and technology cooperation.

To ensure successful policy implementation, policy indicators play an increasingly important role. They facilitate monitoring of intermediate policy outcomes, international comparison of best practice, and internal management of effective implementation. Indicators for intermediate policy outcomes have become a standard tool for the definition of policy targets in OECD countries and in international development cooperation. This motivates the interest in exploring whether they are also useful to support implementation of domestic climate policies. Using indicators for intermediate policy outcomes rather than final emissions targets avoids the uncertainty of predicting emissions reductions of transformational policies. Intermediate outcomes of policies can also be observed quicker than final emissions reductions, thus accelerating the learning from initial experiences and allowing for national and international incentive schemes that provide early rewards.

International support for the implementation of domestic policies can be anchored in the negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) on financial mechanisms and technology transfer. The principle *of common but differentiated responsibility* requires all countries to pursue climate policies and expects developed countries to pay for the incremental costs of climate policies in developing countries. With regard to technology transfer, the evidence from national and international innovation systems points to the importance of growing domestic markets for developing local capacities and attracting national and international technology investment and production. Domestic policies creating such markets are therefore an integral part of international technology cooperation.

Financial support for individual projects under the Clean Development Mechanism (CDM) is currently the main international support mechanism for climate activities in developing countries. However, increasing the scale of the mechanism has some

drawbacks, including rents flowing into carbon intensive sectors, rather than driving a shift towards low-carbon activities.

The project therefore explored options for cooperation beyond the CDM mechanism to support domestic climate policy implementation. Thus this project draws on the analytic framework of Sustainable Development Policies and Measures (SD-PAMs) (See Winkler et al. 2002; Bradley and Baumert 2005; Ellis et al 2007) and further ideas to integrate development and climate policies (Chandler et. al. 2002, Kok et. al. 2008) and thus reflects many of the components contained in the G77 and China proposal for an enhanced financial mechanism for UNFCCC (Accra 2008).

Increasing global awareness and a growing perception of climate change impacts, suggests that it is a suitable time to move the focus beyond the support for individual projects to the implementation of wider climate policies in developing countries. Our country case studies illustrate that domestic constituencies in developing countries can initiate such policies. Domestic policies also seem more viable given the improving institutional capacity in developing countries. These policies can be complemented with increasingly robust analytic and empirical frameworks for effective policy implementation using policy indicators, targets and incentive schemes. Finally, the recent development in financial markets has focused attention on the need for robust government policies that provide solid frameworks for private sector investment, operation and consumption decisions.

International cooperation on domestic climate policies provides institutional capacity and private sector expertise that enables developing countries to move to a low-carbon growth path. As this path becomes more robust, emissions trajectories become more predictable and can be managed, suggesting that developing countries can benefit from absolute emissions targets in the period post-2020.

2. Transformational Domestic Policies with Climate (Co-) Benefits

For this project, six case studies from developing countries explored the role of transformational policies with climate co-benefits that have significant impacts on carbon emissions in developing countries. To illustrate the approach, Figure 1 depicts historic and projected global energy demand in major sectors and energy savings projected by IEA in the alternative policy scenarios. The various trigger points are depicted where domestic policies can facilitate a shift to an energy efficient development trajectory.

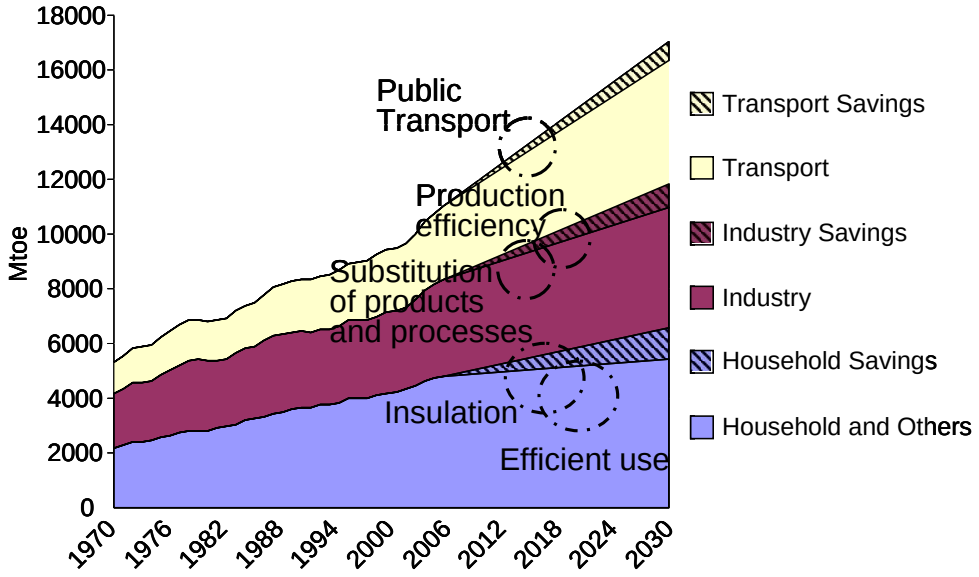

Figure 1: Trigger points for policies to enhance energy efficiency (based on IEA data 2008)

Urban planning and infrastructure determines transport patterns and energy demand for transport. In the Brazil country study paper, Machado Filho (2008) discusses how national transport policy, city planning and targeted transport investment can create options for public transport development. It is desirable to complement 'pull' schemes in order to increase the attractiveness of public transport systems with simultaneous 'push' elements. For example, reducing the fuel subsidy and/or increasing prices for private car use. This makes the overall policy package environmentally more effective and reduces financing costs.

Technology choice and operational procedure shapes industrial energy demand. In the Ghana country study paper, Gboney (2008) describes the success of a semi-governmental body in auditing industry energy consumption in the capital city Accra; identifying energy saving opportunities, and supporting policy realisation with capital grants.

Sreenivasamurthy (2008) illustrates the role of domestic policies for industrial sector GHG emissions for steel production in India. Domestic policies can have significant impacts by incentivising or administering energy efficiency; shifting production away from the inefficient coal DRI process to BF-BOF production, creating incentives to use steel economically, and exploring the use of substitutes.

Un-metered electricity access prevented investment in, and effective use of, efficient water pumps in rural India. Singh (2008) illustrates how public support to replace inefficient pumps is beneficial for both individual farmers and the overall system, when implemented alongside electricity metering and a cost reflective tariff structure.

Effective insulation of buildings curtails energy demand for heating and cooling. Li (2008) describes how large-scale demonstration programs are necessary to enable commercial providers to develop the supply chain and train staff. At this stage, regulation or other incentive schemes are required to ensure effective insulation of all new-build or large-scale retrofit programs. Much new-build takes place in emerging

economies, and will shape their future energy demand. Any improvements of insulation practices will therefore shift the future energy demand for buildings.

Figure 2 summarises the historic and projected mix of primary energy sources to meet the expected global energy demand, thus also determining the CO_2 emissions from fossil fuel use. Overall carbon emissions can be further reduced using carbon capture and sequestration for fossil fuel combustion, with substantial reductions occurring if the technology is applied to large installations in the power sector.

Strategic deployment policies for renewable energy technologies are required to enable large-scale contribution of renewables to energy supply from 2020 onward. Grant (2008) illustrates how procurement of increasing shares of energy from Concentrated Solar Power Plants can encourage domestic and international firms to adopt the technology and stimulate its production in South Africa.

Large wind resources require appropriate technology and network design to capture the resources and integrate them with the energy system. Zhang's (2008) case study of the Chinese wind power industry points to the importance of technical cooperation and domestic policy design for the development of industry.

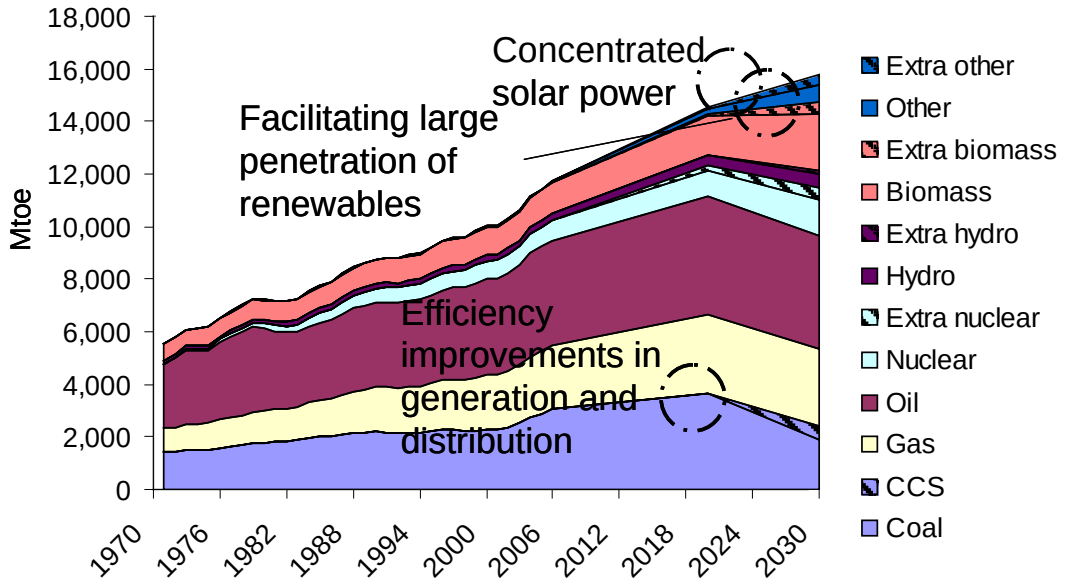

Figure 2: Policies to shift to low-carbon energy provision (based on IEA data 2008)

Singh (2008) illustrates how shifting coal power stations to supercritical designs in India reduces transformation losses, and how upgrading of transmission and distribution networks can significantly reduce transmission losses.

Discussion of methods to support domestic activities in developing countries also builds on previous country case studies for Sustainable Development Policies and Measures in: Brazil, China, India and South Africa (Bradley and Baumert 2005); China, Brazil and Mexico (C-CAP 2007); South Africa (Winkler et al 2007); and Brazil, Indian, China, South Africa and Mexico (Murphy et al 2008). Cross country comparisons shows that in most countries and sectors, various policies with climate co-benefits already exist (e.g. WRI database on SD-PAMs). The challenge is to pursue these policies faster, at a larger scale, or with a more comprehensive scope.

3. Opportunities for International Support for Domestic Policies

The country case studies illustrate that policies with climate co-benefits exist and are implemented in developing countries. Local constituencies support these policies, in part, due to the immediate development benefits unrelated to emissions reductions. In some countries, high import bills for fossil fuels and power generation shortages have been a major motivation for government energy efficiency policies. Negative impacts on human health inspired clean production laws and some transport policies.

This suggests that it is easier to gain political support for domestic policies that are not primarily climate centric, but which contribute to overall socio-economic growth and long-term improvements. These policies, therefore, also have more domestic beneficiaries and supporters. Well-developed climate change policies need to be inclusive of the needs of developing countries. The country case studies analyse how international support could enhance the scale, scope and time-frames of implementation.

Immediate domestic priorities like inequality and poverty, unemployment, and economic growth often precede interests to pursue efficiency improvements, structural reforms, and particularly the use of low-carbon technologies and fuels. Many policies unintentionally create 'winners' and 'losers' and can only be successfully implemented where hardships for individual consumers are avoided. The example of electricity metering in rural environments illustrates how combining policies can ensure that consumers who lose from an individual policy, for example their un-metered electricity access, can benefit from a policy that allows a combination approach and can provide more efficient water pumps.

For policies that drive investment and technology innovation, domestic and international firms need to have confidence in the stability of the policy (Miller 2008). International support can serve to increase the confidence in a policy. For example, financial support for climate policy creates an incentive to maintain a domestic policy framework for low-carbon and energy efficiency. Thus international cooperation contributes to regulatory stability and enables investment, for example, in production facilities for concentrated solar power in South Africa.

Impacts of new policies and technologies are, however, uncertain. Countries with scarce resources are risk averse and often prefer replicating economic growth concepts that have been previously pursued, rather than exploring alternative options to develop low-carbon economic activities and infrastructure. International support for the costs associated with policy implementation reduces the risks for domestic policy makers, which may otherwise prevent the implementation of a policy. Successful examples of low-carbon policies in other countries, alongside sharing of experiences and best practice of policy implementation, can also reduce uncertainties.

In many instances, international cooperation will contain a package of activities. For example, in the absence of viable economic opportunities to apply new skills and an unsupportive institutional setting, capacity building is not very effective. Likewise, it is unlikely that financial transfers will deliver any policies with climate co-benefits and private sector responses if they cannot build on local expertise. Combining international cooperation with local capacity, however, can contribute to successful policy implementation.

4. Experience with Effective Policy Implementation

Various obstacles can reduce the effectiveness of domestic policies. To address these concerns, the second part of the project focuses on three aspects of policy implementation in a domestic and international context: (i) policy indicators and targets, (ii) international incentive schemes, and (iii) inclusive policy processes.

Policy indicators have received an increasing level of attention. Cust (2008) summarises how such indicators facilitate benchmarking, information exchange, learning about and monitoring of effective implementation. The use of indicators has enabled policy targets to become an integral part of policy design. Amongst other examples, Lester and Neuhoff (2008) summarise how policy targets have been used in the UK domestic context in the negotiation of Public Service Agreements between the local and central government. Examples are also drawn from the Government Performance Results Act of the USA, which sets targets for central administration. Policy targets are also increasingly used in international processes, including in the Poverty Reduction Strategy Papers of the IMF and in the accession process of new Member States to the European Union, and as part of the Millennium Development Goals.

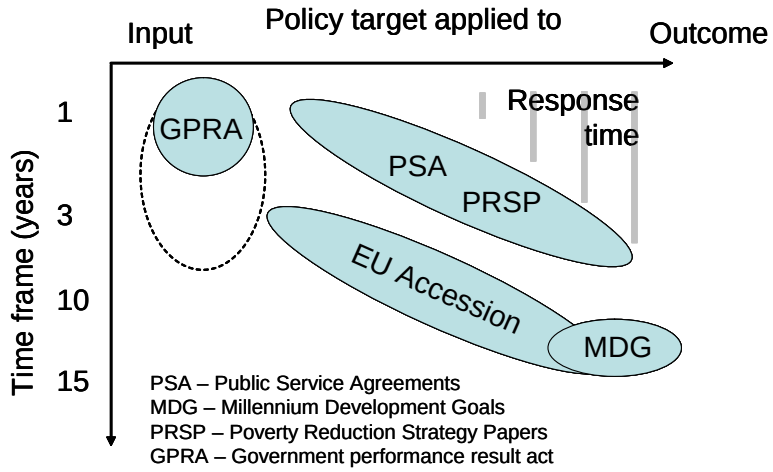

Figure 3 Time frames and outcomes used for policy targets

The horizontal axis in Figure 3 shows that in most cases successful policy targets do not apply to the final outcome measure, successful examples usually focus on intermediate indicators. This is beneficial as it allows for shorter timeframes for target definition and implementation, which means the time-lag from policy implementation to final outcome can be managed. Moving away from final outcomes, however, has the drawback of reducing the flexibility of policy choices; the closer policy targets are linked to inputs, the more prescriptive they become for policy and low-carbon activity. The definition of policy indicators and metrics has to balance the benefits of short-time lags, which allow for effective implementation, and the flexibility provided by outcome-based metrics.

Up to this point much of the focus in climate discussions has centred on the role of measured emission reduction outcomes, either in absolute values or relative to a baseline. There is, however, considerable scope for broadening the discussion to explore intermediate indicators of policy actions with emission mitigation co-benefits.

Indicators for the successful implementation of policies offer a range of advantages, particularly for developing countries, such as shorter time horizons for both implementation and feedback for policy design.

A clear definition of policy targets and monitoring of the associated metrics is not only of interest for internal governance processes, but can also be used as a component of international cooperation. In particular, one could envisage that policy outcomes are subject to incentive schemes. For example, in the UK local authorities are often rewarded for delivering against the policy targets negotiated with central government.

Experience from international incentive schemes and the governance issues around the relevant institutions, offer both positive and negative learning experiences; examples include, the conditionality provisions of the World Bank and IMF, bilateral development assistance, and the EU accession process of new Member States. The paper by Sippel and Neuhoff (2008) argues that effective schemes require a clear definition of objectives and meaningful indicators for their measurement. Effective schemes also require stringent reactions in the case of non-compliance. However, mutual interests in program continuity and concern for the poor often limit the stringency of response. In bilateral development assistance, the strategic interests of developed countries and range of options for developing country partners further limit stringency of responses. Financial incentives are now increasingly used ex-ante during the qualification process for project and program support.

Similarly, during the accession process new Member States had to satisfy legal, institutional and economic requirements before joining the European Union. Cooperation between different public and private institutions of the respective countries contributes to improved information sharing and technical assistance. This is illustrated in the paper by Pato (2008), which discusses the Hungarian experience of twinning cooperation with an existing EU Member State. Twinning programmes formed the basis for administrative cooperation and exchange of staff at various levels of government to enhance mutual understanding, provide technical assistance and create a network of contacts that allowed for informal resolution of problems.

The cooperation process is likely to be the most important determinant for success or failure of policy cooperation. Only local constituencies can ensure an effective implementation of a policy, and they will only do so when there are shared objectives and a sense of ownership for the policy design. This understanding is now reflected in the design of IMF and World Bank programs. For example the Poverty Reduction Strategy Papers build on experience in developing countries; reflecting jointly developed objectives and criteria for the success of the cooperation. The paper by Magen (2008) draws on wider experience from legal and political economy analysis; illustrating how the process of developing cooperation determines the level of ownership of the objectives, which in turn is the main determinant for the motivation to comply with these objectives.

5. Anchoring Climate Cooperation in the UNFCCC Process

The multilateral framework is an important pillar, which supports an inclusive approach, to ensure all countries will receive support in implementing effective mitigation and adaptation policies. As developing countries might face the highest

adaptation costs, an inclusive framework that addresses their concerns is particularly important. Inclusiveness, therefore, should be the basis for cooperation on mitigation policies. The Bali Action Plan provides opportunities to discuss international support for domestic policies under the UNFCCC negotiations on financing and technology transfer.

The principle of *common but differentiated responsibility* requires all parties to pursue policies to mitigate climate policies (Art 4.1 of UNFCCC) and requires developed countries to provide **financial resources** to meet the agreed incremental costs of implementing climate policies (Art. 4.3).

Developed countries could pledge resources for such transfers; for example a share of the auction revenue from domestic emissions trading schemes (current EU proposals), or other public funds (Norway). In addition, a levy on international aviation and shipping could create both climate benefits and additional funds (see Müller 2008). Additional sources of finance could support multi-lateral funds, like the Global Environmental Facility (GEF) or the World Bank led BioCarbon Fund and the Forest Carbon Partnership Facility in supporting domestic climate policies in developing countries.

To ensure the necessary portfolio of policies with climate co-benefits will be pursued, all countries should outline a low-carbon development strategy and identify actions and policies necessary to achieve development and climate objectives. Developing countries can use low-carbon development strategies to discuss financial support, and other assistance they may require for the implementation of specific domestic climate policies, with developed countries.

Anchoring discussion in the UNFCCC framework ensures transparency for monitoring and reporting by all parties. Under the current reporting framework of national communications and inventories, reporting is infrequent and focussed on aggregate greenhouse gas emission measures and qualitative policy detail. This only allows an estimation of policy success based on changes to aggregate emissions. As a result, the current framework is characterised by large time lags and uncertainties. For effective cooperation on domestic climate policies, new indicators are required to report on the scale and scope of policy implementation and on intermediate policy outcomes, such as modal split in transportation policies, or change in investment volumes in low-carbon technologies.

Transparent indicators provide evidence for policy effects and are necessary to retain and increase political support for financial transfers from developed countries. Evidence of success also fosters support for domestic contributions to the policy scheme. Experience and success with the implementation of mitigation policies can feed back to improve decisions on the future scale and scope of cooperation. Clear indicators create ‘objective’ evidence on policy performance, which can strengthen both internal and external accountability in addition to the learning benefits from international benchmarking and exchange of best practice.

The UNFCCC negotiation on **technology transfer** allows for a wider view of technology cooperation. Figure 4 outlines how innovation is often guided by experience from use of the technology. Policies can create synergies if they support both innovation in, and use of, a technology. At the global scale, innovation builds on

the experience from technology use in individual countries and can thus create an accumulated knowledge-base for technologies applied across the world. Most technologies have to be adapted for the needs of local users, and for the specific resources and constraints of local industry. This adaptation is typically a gradual process that results from the development of local capabilities, which in turn is a result of the parallel development of local use alongside local production of the technology.

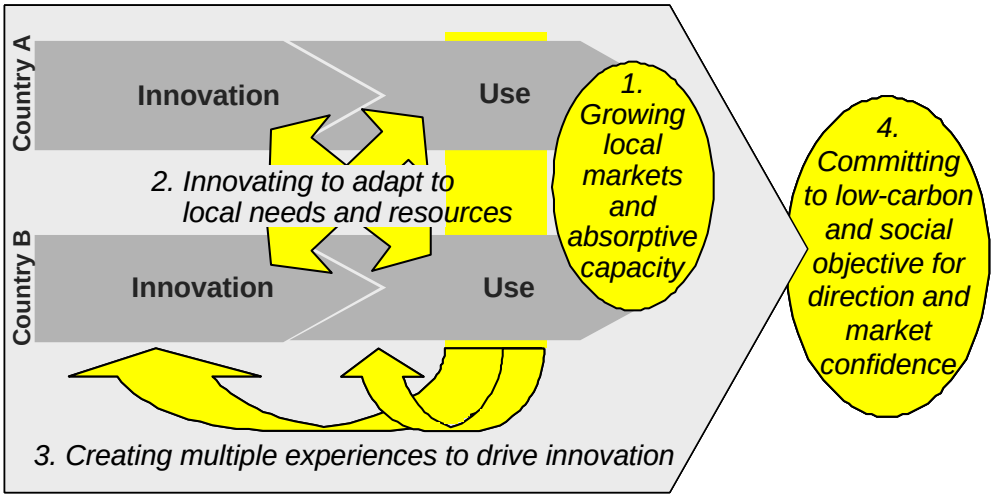

Figure 4 International Synergies in Innovation and Use

Figure 4 illustrates international inter-linkages in technology development and diffusion across the stages of technology development (Cust et al 2008). (1) Any new technology has to be sold on national markets, and is therefore dependent on the capacity of these markets to manufacture, install, operate and use the technology. Absorptive capacity includes the skills, training, institutional setting and domestic supply chain required to produce complex technologies; such capacity must expand in conjunction with the market for low-carbon technologies in both developing and developed countries. (2) For technologies to be viable in a national context, innovation is required to adapt technology to the domestic needs. Specific resources and capacities in the manufacturing sector are also required. (3) Experiences from different national applications of a technology allow subsequent choice of the most successful options. Multiple national schemes also give technology companies the confidence to invest in innovation, as the larger market is less exposed to policy and regulatory uncertainty of individual governments. (4) Shared low-carbon and social objectives of an overall technology policy can further enhance success. Government development and learning about the effectiveness of individual policy instruments will result in a continued evolution of national policies and frameworks. Commitment to the overall objectives ensures that successful low-carbon and energy efficiency technologies and projects will continue to find market opportunities.

6. Moving Beyond Project-Based Mechanisms?

The Clean Development Mechanism (CDM) has effectively supported low-carbon investments in developing countries and has attracted engagement of private parties to pursue new project ideas and overcome initial barriers (Michaelowa 2008). While questions about the exact nature of additionality and the regional distribution of projects have emerged, more fundamental aspects of the mechanism are of concern:

First, CDM credits subsidise low-carbon projects to compete in subsidised fossil fuel energy markets of host countries. Thus energy and energy intensive commodities remain cheap, and consumers have no incentive to use them more efficiently or shift to low-carbon alternatives.

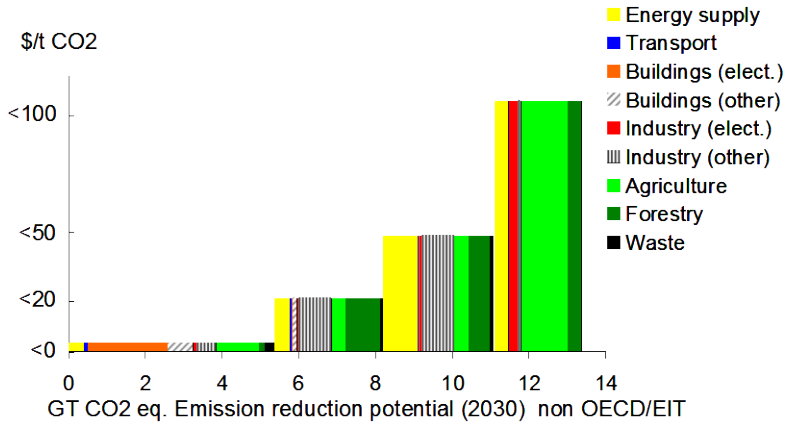

Figure 5: Mitigation options in non-OECD countries (Source: based on IPCC 2007)

Second, all CDM projects receive the same carbon price. Figure 5 illustrates how the costs differ across mitigation options. Often large rents accrue from the difference between carbon price and the costs of a specific mitigation project. These rents cannot be used to support other mitigation measures. While rents are common and largely accepted in commodity markets (e.g. oil), they are typically not accepted in markets that are created by public policy and could undermine public support for the policy.

Third, stakeholders benefiting from the CDM mechanism have an interest in the continuation of the approach. An expansion of the CDM project-based approach must be weighed against the risk of a growing number of CDM stakeholders supporting the continuation of the CDM and delaying a shift to more integrated and effective policy frameworks.

7. Too Early for Absolute Targets for Developing Countries?

Absolute emissions targets create a framework for individual policy components that contribute towards delivering the necessary overall emissions reductions. Figure 6 illustrates, for two OECD regions, emissions projections from studies by the International Energy Agency. At the aggregate level, less so at a sectoral level (Winebrake and Sakva, 2006), such studies give relatively robust projections of future baseline emissions. The biggest change occurred recently for Europe; an increasing number of climate policies have been implemented, causing projected emissions to decline. Using a robust projection it is possible to calculate emissions reduction opportunities and set credible emissions targets. Anchored in robust institutional frameworks, targets can create strong incentives for public and private actors to manage emissions in a prudent manner. They also create clarity in longer-term trends beyond the timeframe of individual policies, and allow forward-looking companies to identify emerging opportunities for low-carbon innovation.

However, it is too early for most developing countries to move towards absolute emission targets. It is institutionally very demanding to translate long-term emissions targets into incentives for policy implementation. More importantly, emissions

projections for developing countries are more uncertain, as Figure 7 illustrates using the example of China. The 2020 projections almost doubled between the IEA World Energy Outlook 2002 and 2007. The change can be attributed to data accuracy, expected GDP growth, assumptions on energy intensity and improvements in modelling techniques.

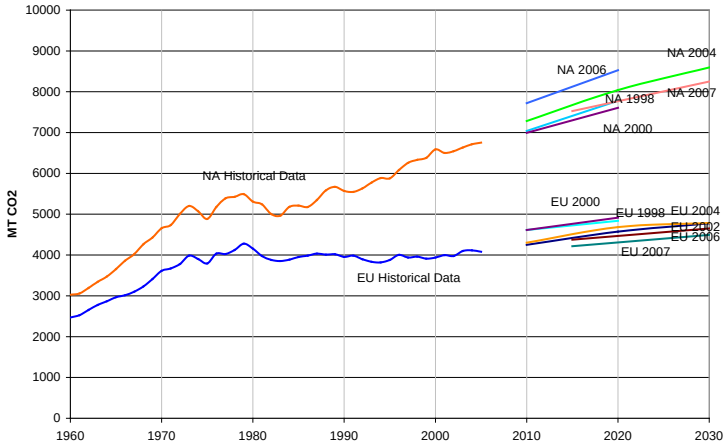

Figure 6: OECD Europe and North American CO_2 emissions & IEA business as usual projections

Large underlying uncertainties mean that it is difficult to define emissions targets. To be credible for industry and acceptable in developing countries like China, the emission targets must be set relative to the upper level of BAU projections. The same would have to apply to no-lose targets to limit the risk of a country exceeding the no-lose target and forgoing any incentives to pursue emission reductions.

If the targets are set at such high levels, and emissions turn out to be far lower, then developing countries have access to large amounts of hot air to sell in the international carbon market. Potentially, even a supply of more than 1 Gt/year carbon allowances from China alone would replace any emissions reduction requirements in OECD countries and thus crash the allowance price.

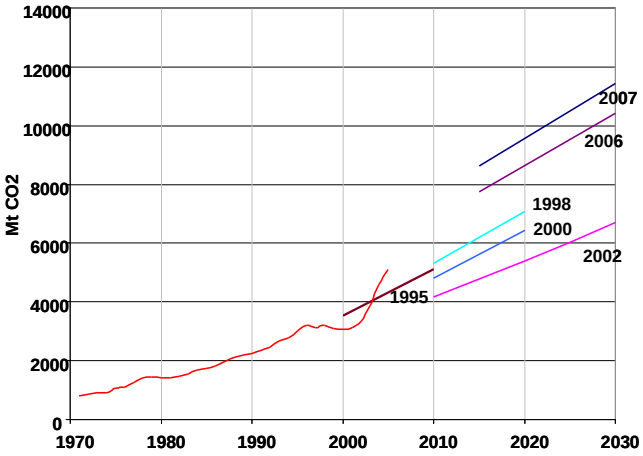

Figure 7: Chinese CO_2 emissions & IEA business as usual projections (BAU)

As a large share of the uncertainty in emission projections of developing countries relates to uncertainties in their potentially large growth rates, some authors argue for the definition of targets relative to GDP. However, this creates many questions about GDP measurement including the valuation of products and services in countries with a strong financial incentive to inflate GDP measurements.

While emission targets are currently difficult to define for developing countries, they have several benefits for the design and implementation of national climate policies: they create the opportunity to converge towards a global carbon price and can create a framework for a fair allocation of environmental resources. Developing countries are unlikely to use national emission targets before 2020. With the implementation of domestic climate policies they can nevertheless acquire the necessary institutional capacity and experience that enables them to graduate to a regime with absolute emission targets in the future.

8. International Support for Domestic Climate Policies

Domestic climate policies have three dimensions in which they can enable energy efficiency and low-carbon activities. Firstly, they change regulation and institutional structures to remove barriers for energy efficient and low-carbon technologies and activities. Second, they create markets and other stimuli to support new technologies and grow local capacity for their production and use. Growing experience and scale will reduce their costs and allow for wider diffusion. Third, they remove subsidies for energy and start to internalise carbon costs. While economically efficient, such price adjustments have to be carefully managed to avoid negative impacts on poor households. This can involve policies to reduce energy needs (insulation, energy efficient devices) or to provide direct compensation for increased costs.

International support can help domestic climate policy in these dimensions via financial transfers, technical assistance, technology cooperation, and by providing a broader framework for innovation. A successful design of international cooperation can also create incentives for the continuity of domestic policies, and thus enhance regulatory stability. Therefore, international support for domestic policies gives the confidence for increased investment by domestic and international firms.

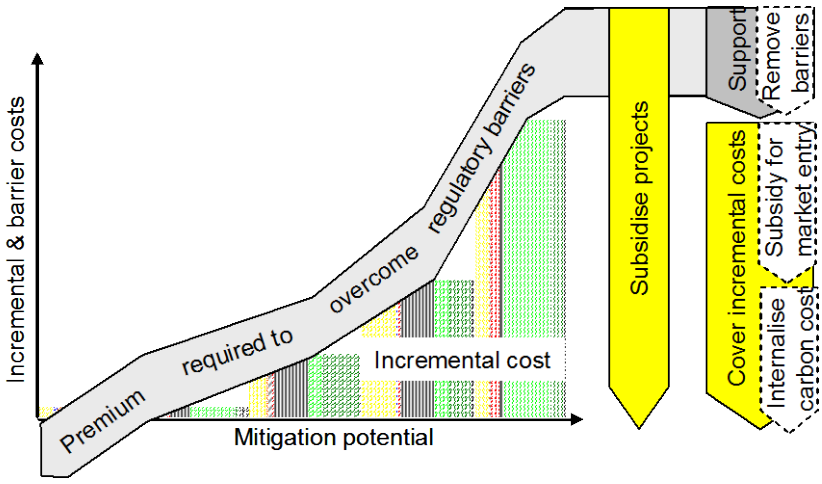

Figure 8: Moving from subsidised projects to frameworks for profitable investment

Figure 8 compares a tailored mix of domestic policies with the currently prevailing project based mechanisms (CDM). The subsidising of low-carbon projects under the CDM approach has to be high enough to overcome all barriers. But as individual projects are subsidised, this might not contribute to a removal of institutional and regulatory barriers. Furthermore, the level of support cannot easily be differentiated between sectors, processes, technologies or countries, as this would undermine the credibility of the simple international trading scheme.

Moving towards frameworks for profitable investment, financial support for domestic climate policies covers the incremental costs of pursuing a policy. Monetary support could be linked to indicators monitoring successful implementation of the policy. Thus policy makers are only exposed to the risk they can manage – the policy implementation – but not the more uncertain transformational impact. Whether or not a desired long-term transformation, e.g. to a public transport system, succeeds, will affect the reputation of the policy maker, but will have no impact for the international incentive scheme. Thus policy makers can pursue ambitious transformational policies that are necessary to shift economies to low-carbon growth trajectories.

Figure 9 summarises the different frameworks to provide international support for domestic climate activities and policies.

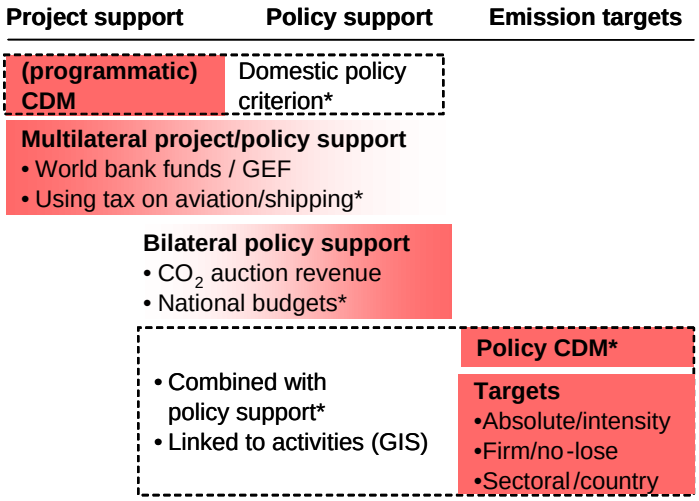

Figure 9: Cooperation and funding framework (* not in existence)

The **CDM** subsidises individual projects with credits that are internationally accredited, monitored and verified. This creates some local activities and some local stakeholders, but contributes little towards domestic institutions to manage and implement wider climate policies. As CDM credits are used to off-set emissions of installations in Annex 1 countries, it does not create net emission reductions unless targets in Annex 1 are defined more stringently in expectation of the use of CDM credits (Müller and Ghosh 2008).

The **CDM mechanism** could evolve and be **linked to domestic policy** implementation. Projects would only qualify if the host government implements domestic policies that allow for the subsequent large-scale application of the technology/process without further CDM support. Thus only initial projects in a specific sector and country might require support.

The CDM Executive Board has demonstrated how a harmonized international framework allows for the development and application of a methodology to evaluate additionality of CDM projects. So far, however, it has been difficult to develop, under the same framework, a methodology to reward developing countries with CDM project credits for the implementation of Sustainable Development Policies and Measures (SD-PAMs).

Instead of expanding the CDM methodology to create explicit linkages with policy implementation, national governments could engage in discussions on policy implementation of the project host country when buying CDM credits. Host countries are most inclined to discuss policies that allow for large-scale diffusion of cost effective technologies, and therefore cooperation would focus on project types in sectors with low incremental costs. Private actors could, however, also buy the credits and might thus undermine the efforts of the international policy cooperation.

Multi-lateral institutions, such as the Global Environmental Facility funded by a tax on CDM credits and several World-bank funds, currently pursues a mixed portfolio of supporting individual projects as well as wider policy frameworks and climate actions. Levelling a tax on international aviation and shipping could allow for a significant scaling up of these activities. They could allocate funds to support investment and policy reforms in response to proposals by coalitions of public and private actors (Heller and Shukla, 2003).

Multilateral cooperation offers transparency as it is based on a harmonized process for all interactions. This, however, might also restrict the flexibility of cooperation in responding to national specificities. In addition, due to the inherent complexity of international negotiations, any international framework must be basic in order to be a manageable part of the negotiation process. This creates a governance challenge for the international institutions tasked with allocating funds to cover incremental costs. Such institutions are in a position to exercise significant discretion, and as a result could be exposed to strong political pressure attempting to influence the decision-making process.

For **bilateral policy support,** auction revenues from domestic emission trading schemes or national budgets in developed countries could support domestic climate policies in developing countries. The bilateral structure would allow for more flexibility in tailoring the design of such cooperation. For example, policy makers can prioritise policies in response to domestic preferences, resources, capabilities and the size of energy and transport systems. Bilateral cooperation also facilitates technical assistance and information sharing across different levels of administration and private sector actors of the respective countries.

However, the experience from bilateral development assistance shows that multiple donor countries supporting a partner country often duplicates administrative burdens and results in a reduced sense of responsibility. The Paris Declaration on Aid Effectiveness (2005) aims to address this problem by making donors' actions more harmonized, transparent and effective. This approach could be extended to climate cooperation; a lead partner might be selected to cooperate with a developing country, either across all policy areas or for activities in a specific sector. The choice might reflect geographical vicinity or other comparative advantages of the respective relationships.

Targets, no-lose targets, and policy CDM reward developing countries for emission reductions relative to a baseline; reductions are marked by credits that can be sold in international markets (see also Baumert et al 2002; Samaniego and Figueres 2002; Baron and Ellis 2006; Schmidt et al 2006, Ward et al 2008) This approach can define emission targets for the overall economy (targets and no-lose targets) or selected sectors and activities (targets, no-lose targets and policy CDM). While targets provide a clear metric for the success of domestic policies, it is unclear how effective they are in guiding policy implementation. This uncertainty is due to the time lags between policy implementation and impact on emissions, difficulty in determining the baselines ad uncertainties in emission reductions achieved from policies (Bosi and Ellis 2005).

Green Investment Schemes use financial transfers from emission trading under absolute Kyoto caps to support, for example, insulation of the housing stock in recipient countries (Ürge-Vorsatz et. al. 2008). Discussion of no-lose targets envisages additional direct support for the initial implementation of policies. With direct support for policy implementation, the question arises as to whether additional rewards for emission reductions are justified. Perhaps future transfers could better be used in a more targeted manner to support low-carbon economic growth.

The different options for a co-operation and funding framework to support domestic climate policies are not exclusive. The CDM already works in parallel with the multi-lateral funds of the World-bank and GEF, as well as by various national governments and cities that cooperate on climate topics.

Several criteria can be used to select the most suitable approach towards international support for domestic policy. For example, incremental funding required for new technologies can be more easily defined, and might thus be provided from a multi-lateral body. In contrast, the implementation of policies to shift transport investment and modal choice towards mass transit, are country specific and might benefit from close cooperation at the city level. Therefore, they are more likely to be pursued through bilateral arrangements within a wider UNFCCC framework.

9. Conclusion

Domestic policies are required for the long-term transformation to a low-carbon economy. The examples explored in the project illustrate the diversity of suitable approaches across sectors and countries. The experience from policy implementation across other policy fields suggests how policy indicators, policy targets and international incentive schemes can improve policy implementation – if they are carefully managed. International frameworks can offer this opportunity, by moving from project-based support schemes towards policy cooperation. The relative merits of bilateral or multilateral schemes might have to be evaluated on an individual case-by-case basis. However, it is clear that an overall international structure is important even in the case of bilateral support for domestic policies. For example the UNFCCC could facilitate transparent monitoring and reporting of policy cooperation, in order to; ensure all parties make their pledged contributions; protect weaker players in the bilateral setting; and perhaps most importantly, to create a robust framework for potentially large funding requirements for adaptation policy.

The different options for cooperation can easily distract from any focused effort to coordinate emissions reductions. Therefore it will be important to clarify difficult aspects at an early stage, to avoid obstacles. Such early cooperation could possibly even extend to a certain level of implementation activity. Early activity could include decisions on the volume of resources pledged by developed countries, the detail of reporting on low-carbon development strategies, and a set of shared policy indicators or policy categories to facilitate international cooperation.

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