



CLIMATE CHANGE

Scientific Assessment and Policy Analysis

WAB 500102 025

Financing adaptation in developing countries

Assessing New mechanisms

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Report

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This study has been performed within the framework of the Netherlands Research Programme on Scientific Assessment and Policy Analysis for Climate Change (WAB), International mechanisms for financing adaptation: operational and institutional issues

Wetenschappelijke Assessment en Beleidsanalyse (WAB) Klimaatverandering

Het programma Wetenschappelijke Assessment en Beleidsanalyse Klimaatverandering in opdracht van het ministerie van VROM heeft tot doel:

- Het bijeenbrengen en evalueren van relevante wetenschappelijke informatie ten behoeve van beleidsontwikkeling en besluitvorming op het terrein van klimaatverandering;
- Het analyseren van voornemens en besluiten in het kader van de internationale klimaatonderhandelingen op hun consequenties.

De analyses en assessments beogen een gebalanceerde beoordeling te geven van de stand van de kennis ten behoeve van de onderbouwing van beleidsmatige keuzes. De activiteiten hebben een looptijd van enkele maanden tot maximaal ca. een jaar, afhankelijk van de complexiteit en de urgentie van de beleidsvraag. Per onderwerp wordt een assessment team samengesteld bestaande uit de beste Nederlandse en znodig buitenlandse experts. Het gaat om incidenteel en additioneel gefinancierde werkzaamheden, te onderscheiden van de reguliere, structureel gefinancierde activiteiten van de deelnemers van het consortium op het gebied van klimaatonderzoek. Er dient steeds te worden uitgegaan van de actuele stand der wetenschap. Doelgroep zijn met name de NMP-departementen, met VROM in een coördinerende rol, maar tevens maatschappelijke groeperingen die een belangrijke rol spelen bij de besluitvorming over en uitvoering van het klimaatbeleid.

De verantwoordelijkheid voor de uitvoering berust bij een consortium bestaande uit PBL, KNMI, CCB Wageningen-UR, ECN, Vrije Universiteit/CCVUA, UM/ICIS en UU/Copernicus Instituut. Het PBL is hoofdaannemer en fungeert als voorzitter van de Stuurgroep.

Scientific Assessment and Policy Analysis (WAB) for Climate Change

The Netherlands Programme on Scientific Assessment and Policy Analysis Climate Change has the following objectives:

- Collection and evaluation of relevant scientific information for policy development and decision-making in the field of climate change;
- Analysis of resolutions and decisions in the framework of international climate negotiations and their implications.

We are concerned here with analyses and assessments intended for a balanced evaluation of the state of the art for underpinning policy choices. These analyses and assessment activities are carried out in periods of several months to a maximum of one year, depending on the complexity and the urgency of the policy issue. Assessment teams organized to handle the various topics consist of the best Dutch experts in their fields. Teams work on incidental and additionally financed activities, as opposed to the regular, structurally financed activities of the climate research consortium. The work should reflect the current state of science on the relevant topic. The main commissioning bodies are the National Environmental Policy Plan departments, with the Ministry of Housing, Spatial Planning and the Environment assuming a coordinating role. Work is also commissioned by organisations in society playing an important role in the decision-making process concerned with and the implementation of the climate policy. A consortium consisting of the Netherlands Environmental Assessment Agency, the Royal Dutch Meteorological Institute, the Climate Change and Biosphere Research Centre (CCB) of the Wageningen University and Research Centre (WUR), the Netherlands Energy Research Foundation (ECN), the Netherlands Research Programme on Climate Change Centre of the Vrije Universiteit in Amsterdam (CCVUA), the International Centre for Integrative Studies of the University of Maastricht (UM/ICIS) and the Copernicus Institute of the Utrecht University (UU) is responsible for the implementation. The Netherlands Environmental Assessment Agency as main contracting body is chairing the steering committee.

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Preface

The Netherlands Research Programme on Climate Change – Scientific Assessment and Policy Analyses (NRP-CC-WAB) commissioned the research project *International mechanisms for financing adaptation: operational and institutional issues*. Based on literature review and expert consultation a multidisciplinary research team at the Institute for Environmental Studies (IVM) at the VU University compiled the policy brief *Financing Adaptation in Developing Countries: Assessing new mechanisms*, which was presented at the Poznan meeting in December 2008, and this report. The final draft version of this report was internally reviewed by Frans Berkhout (IVM).

The authors thank the Steering Committee for their valuable inputs and comments. The committee included: Michel den Elzen (Netherlands Environmental Assessment Agency - PBL), Joyeeta Gupta (IVM), Ekko van Ierland (Wageningen Universiteit en Research Center - WUR), Corneel Lambregts (Ministry of Housing, Spatial Planning and the Environment - VROM), Remco van der Molen (Ministry of Finance), Jan-Peter Mout (Ministry of Foreign Affairs) and Ian Tellam (ETC International). Without the team of experts, listed on page 43, this report could not have been written. Their insights, comments, ideas and suggestions were very much appreciated by the research team.

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Executive Summary

The estimated additional investment and financial flows needed for adaptation to climate change in developing countries up to 2030 could amount to many tens of billion US dollars per year. The funding available under the financing mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC) at their current levels are not sufficient to address the future financial flows estimated to be needed for adaptation meet these forecast needs. Therefore, additional financing mechanisms are necessary. This report reviewed a wide range of mechanisms for international financing of adaptation. It developed a systematic assessment of the major new mechanisms that were found in the literature, using among others a desk study and consultation of an international expert panel. Assessment criteria were categorized under feasibility, effectiveness and efficiency. The four mechanisms we considered in detail are:

- Insurance schemes;
- Auctioning of assigned amount units (AAUs - levels of allowed emission units in a cap and trade scheme);
- International airline and maritime transport levies;
- Carbon taxation schemes.

Our analysis shows that none of the mechanisms is superior on all the most important evaluation criteria. Table A1 presents an overview of the main advantages and disadvantages of the four mechanisms investigated.

Table A1 Most important advantages and disadvantages of the four financing mechanisms.

Mechanism	Advantages	Disadvantages
Insurance schemes	Involvement of the private sector No market distortion Implementing institutions exist Incentives for increasing adaptive capacity Widely supported	Only for specific purposes (e.g. agriculture, disaster relief) Countries that pollute(d) most do not contribute proportionally Transaction costs may be relatively high Not additional to ODA if ODA is used for re-insurance
Auctioning of assigned amount units	Likely to generate sufficient and stable financial resources Similar mechanism in operation for CDM Transaction costs may be relatively low	Historical GHG emissions are not taken into account Some market distortion to be expected Opposition expected from US, Japan, other Annex I countries Minor institutional reforms are required for implementation
International airline and maritime transport levies	Likely to generate sufficient and stable financial resources Contributes to mitigation Beneficial effects on air quality Based on capacity to pay (airline)	Contribution is only partly related to GHG emissions Some market distortion to be expected Opposition expected from OPEC, US, countries with important transport sector Institutional reforms are required for implementation
Carbon taxation schemes	Likely to generate enough and steady financial resources Revenues can be accurately predicted Contribution is proportional to capacity and GHG emissions Contributes to mitigation Transaction costs relatively low	Not additional if tax revenues replace ODA Some market distortion to be expected Opposition from Annex II countries is expected because domestic taxes are spent abroad Major institutional reforms are required for implementation

We conclude that the best way forward could be the adoption of a 'basket' with several mechanisms. We recommend that the guiding principles for adopting new proposals are discussed in international negotiations, to establish a consistent set of mechanisms that is

additional, fair, and raises sufficient funds. Three of such approaches are elaborated in this report. In the **Political approach**, feasibility is the driving force for obtaining the most suitable financing mechanisms. Most likely, policymakers will choose a 'patchwork' of politically feasible mechanisms that are coordinated by one or more international organizations. Auctioning of Assigned Amount Units and insurance schemes are probably the core of this patchwork. This approach may not generate sufficient funds unless international negotiations on this topic are successful. In the **Systems approach**, effectiveness is the driving force. It is likely to include a basket of mechanisms optimized for generating adaptation funds that will contribute to one central fund that is managed by an international organization. However, this approach is expected to face political opposition. The **Economic approach** is based on economic efficiency. Pigouvian taxes would be applied on bunker fuels and carbon taxes might also be applied. Both auctioning a fraction of assigned amount units and insurance schemes would play a role in this approach. This approach may not generate enough funds in the longer run when emitters substantially change their behaviour in response to the new policies.

Key-words: financing mechanism, adaptation, climate change, developing countries, carbon tax, insurance, carbon trading, international transport levies, multi-criteria analysis

Samenvatting

De kosten van adaptatiemaatregelen tegen klimaatverandering in ontwikkelingslanden tot 2030 worden geraamd op tientallen miljarden dollar per jaar. De bestaande financieringsmechanismen onder het VN Klimaatverdrag (UNFCCC) zijn niet toegerust om dergelijke geldstromen te genereren. Aanvullende financieringsmechanismen zijn daarom noodzakelijk. Dit rapport beschrijft een aantal financieringsmechanismen en tevens een raamwerk om ze te beoordelen. De belangrijkste mechanismen die in de literatuur zijn beschreven werden beoordeeld met een bureaustudie en door raadpleging van elf internationale deskundigen. De gebruikte beoordelingscriteria zijn onder te verdelen onder haalbaarheid, doelmatigheid en efficiëntie. De vier financieringsmechanismen die in detail zijn bestudeerd zijn:

- Verzekeringen
- Veiling van *assigned amount units* (AAU's – emissierechtenheden)
- Internationaal-transportheffingen
- Koolstofbelastingmaatregelen

Geen van deze vier mechanismen scoort duidelijk beter dan een van de andere op de belangrijkste beoordelingscriteria. In Tabel A2 is een overzicht gegeven van de belangrijkste voor- en nadelen van de vier onderzochte mechanismen.

Tabel A2 Belangrijkste voor- en nadelen van de onderzochte financieringsmechanismen.

Mechanisme	Voordelen	Nadelen
Verzekeringen	Private partijen betrokken Marktwerking niet verstoord Uitvoerende instituten aanwezig Prikkel voor vergroten klimaatbestendigheid Breed gedragen	Alleen geschikt voor bepaalde doelen (bv. landbouw, rampenbestrijding) Vervuulende landen betalen niet evenredig Transactiekosten kunnen relatief hoog zijn Niet additioneel aan ontwikkelingsgelden (ODA) als ODA wordt ingezet voor herverzekering
Veiling van emissierechtenheden	Redelijk zekere inkomsten bron Gelijksoortig mechanisme bestaat al voor CDM Transactiekosten kunnen relatief laag zijn	Broeikasgasemissies in het verleden tellen niet mee Enige marktverstoring verwacht Tegenstand verwacht van de VS, Japan en andere Annex I-landen Nauwelijks institutionele veranderingen nodig voor implementatie
Internationaal-transportheffingen	Redelijk zekere en stabiele inkomstenbron Draagt bij aan mitigatie Gunstig effect op de luchtkwaliteit Gebaseerd op draagkracht (vliegtax)	Bijdrage per land is slechts gedeeltelijk afhankelijk van broeikasgasemissies Enige marktverstoring verwacht Tegenstand verwacht van de VS, OPEC, en landen met een grote transportsector Institutionele hervormingen zijn nodig voor implementatie
Koolstofbelastingmaatregelen	Redelijk zekere en stabiele inkomstenbron Inkomsten kunnen nauwkeurig worden voorspeld Bijdrage is evenredig met broeikasgasemissies Draagt bij aan mitigatie Transactiekosten zijn relatief laag	Niet additioneel als tax wordt ingezet ter vervanging van ODA Enige marktverstoring verwacht Tegenstand van Annex II-landen verwacht, omdat belastinggeld in het buitenland wordt besteed Grote institutionele hervormingen zijn nodig voor implementatie

De belangrijkste conclusie van dit onderzoek is dat de beste manier om vooruitgang te boeken is de samenstelling van een 'mandje' met verschillende mechanismen. Wij bevelen aan om - aan de hand van een international overeen te komen leidraad – een consistent pakket met mechanismen vast te stellen dat additioneel en eerlijk is en bovendien voldoende inkomsten genereert. Drie mogelijke manieren om zo'n mandje samen te stellen worden hier uitgewerkt. In de **politieke benadering** is haalbaarheid het leidende principe. Waarschijnlijk kiezen beleidsmakers hier voor een 'lappendeken' van politiek haalbare mechanismen die min of meer internationaal zullen worden gecoördineerd. Het is aannemelijk dat de veiling van emissierechten (AAU's) en verzekering centraal komen te staan. De politieke benadering leidt mogelijk tot onvoldoende inkomsten, tenzij de internationale onderhandelingen succesvol verlopen. In de **systembenadering** is doelmatigheid de drijvende kracht. Zij resulteert waarschijnlijk in een mandje met mechanismen dat is geoptimaliseerd om voldoende inkomsten te genereren voor een centraal, door een internationale organisatie geleid fonds. Tegen deze benadering is wel politieke weerstand te verwachten. De **economische benadering** is gebaseerd op economische efficiëntie. Pigouvianse belastingen worden toegepast op internationaal-transportbrandstoffen en ook koolstofbelastingen worden ingevoerd. Veiling van AAU's en verzekeringen spelen ook een rol in de economische benadering. Niettemin zou het kunnen dat er onvoldoende inkomsten worden gegenereerd, omdat de vervuilers maatregelen nemen om hun emissies terug te dringen onder druk van de maatregelen.

Kernwoorden: financieringsmechanisme, adaptatie, klimaatverandering, ontwikkelingslanden, koolstofbelasting, verzekering, CO₂-handel, internationaal-transportheffingen, multicriteria analyse

1 Introduction

The estimated additional investment and financial flows needed for adaptation in the developing countries up to 2030 amount to many tens of billion US dollars per year (e.g. World Bank, 2006; Oxfam International, 2007). The funding available under the financing mechanisms of the United Nations Framework Convention on Climate Change (UNFCCC) at their current levels are not sufficient to address the future financial flows estimated to be needed for adaptation. The most important reason is that these mechanisms at the present mainly rely mainly on voluntary contributions (UNFCCC, 2007a; see also the more detailed evaluation in Section 4). Although the available funds are likely to increase by one to two orders of magnitude in the coming years, as the Adaptation Fund, among others, becomes operational, this is still likely to fall considerably short of the estimated demands (Agrawala, personal communication). The current financial crises may also have some medium-term impacts on the willingness of governments to contribute to such funds. This implies that additional financing mechanisms are required.

It is important to note that most proposals for such additional mechanisms are based on the urgency to raise considerable additional resources at the international level, to do justice to Article 4.8 of the UNFCCC that: “[...] the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures [...]”. At the same time, it has been noted that considerable resources will have to be generated by other actors, including national governments and the private sector, in order to ensure mainstreaming of climate change adaptation responses in development policies (which includes *climate proofing*). However, this paper restricts itself to assessing international financing mechanisms.

This report aims to provide insight into the available fund raising options for adaptation and to arrive at a realistic understanding of possible international funding sources¹. This study will provide a basis for the European Union (EU) and the Netherlands to put this issue on the political agenda and move it forward by providing important background information on the feasibility of suggested or existing options for funding adaptation. The main research question is:

Which international funding mechanisms, existing and new, additional and innovative, will score well under a systematic assessment?

Consequently, the associated detailed research questions are:

1. What existing and new mechanisms can be identified (both from public and private sources)?
2. Which of the financing mechanisms can be shortlisted through a quick evaluation of their effectiveness and feasibility?
3. For each shortlisted mechanism, how much money could they potentially generate?
4. What criteria (apart from effectiveness and feasibility) are essential to systematically evaluate the shortlisted mechanisms, and how do the various mechanisms score on these criteria?
5. What are the implications of the various mechanisms for the international distribution of funding sources?

In our research, it was not always possible to separate the assessment of the mechanisms from the disbursement of funds, because for some mechanisms, such as insurances, the funds are specifically earmarked. Hence, we included the aspect of disbursement as one of our

¹ Some private sector initiatives are mentioned as well in order to give a complete picture, but these are not thoroughly assessed.

assessment criteria. It also should be noted that this report does not go into detail on *institutional arrangements* associated with the disbursement of the funds raised. Other related issues include the magnitude of climate change impacts, costs of adaptation to these impacts, and sharing the burdens of finance adaptation. But whilst all of these issues are interrelated to generating international funds for adaptation (see Figure 1), in this report we focus on the international funding mechanisms.

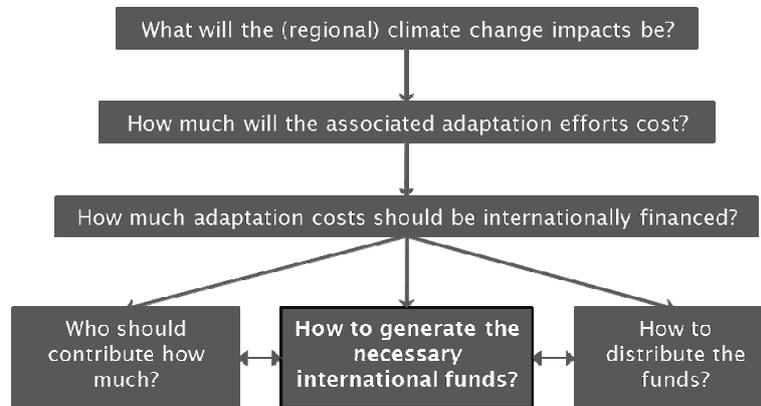


Figure 1 The context of the research questions in this report. (Source: Dellink et al., 2008).

This report is outlined as follows: Chapter 2 describes the methodology we applied in this research project. It is followed by a chapter on theoretical considerations, which discusses definitions, the Tinbergen Rule and the issue of additionality of funds compared to official development assistance. Chapter 4 introduces the most important existing funds for adaptation projects in developing countries and Chapter 5 discusses the newly proposed mechanisms found in literature. Based on an existing framework we categorized these mechanisms in Chapter 6. Chapter 7 describes the financing mechanisms that we investigated in detail and that were evaluated by our expert panel. This panel applied the criteria summarized in Chapter 8 for this evaluation. The next chapter provides an overview of the scores of the investigated alternatives on these criteria. This report ends with a Synthesis (Chapter 10) and a chapter with conclusions and a discussion.

2 Approach

The activities in the study described here involved a desk study, including literature review and (qualitative) analysis, coupled with a workshop and a survey to incorporate expert knowledge. The main purpose of actively involving the international expert panel was to ensure that all potentially important financing mechanisms were included in the analysis, and to complement the scarce literature on evaluation of these mechanisms with their expert judgements. The research questions led to the following tasks:

1. Assessing the relevant literature on international financing of adaptation efforts.
2. Workshop: Creating a long list of potential international financing mechanisms for adaptation efforts and providing a rough classification based on feasibility, effectiveness, instrument type, international experiences, and number of stakeholders involved.
3. Systematically categorizing or grouping the identified mechanisms.
4. Short-listing the mechanisms based on effectiveness and feasibility.
5. Identifying essential criteria for systematic evaluation of the shortlisted mechanisms.
6. Evaluating the short-listed mechanisms based on the comments of international experts using a survey.
7. Identifying, and where possible quantifying, the consequences of the various mechanisms for the international division of funding sources.

A workshop was held on September 30, 2008 with project team members and the Steering Committee. During the workshop, the various potential international financing mechanisms found in literature were discussed and prioritized based on feasibility and effectiveness criteria.

A team of eleven selected international experts completed an on-line questionnaire (Appendix I). The experts were selected based on a discussion with the Steering Committee during the workshop. Of the eleven, only eight completed the survey in full: three from governmental organizations, three from research institutes, one from the private sector and one from an NGO.

Based upon the survey and the literature review we present here an overview of the strengths and weaknesses of various (types of) funding mechanisms. In addition, we attempted to identify key pitfalls that would hamper the implementation of a well-functioning mechanism.

3 Theoretical considerations

3.1 Definitions

In this report we define *financing mechanisms* as sources of funding and/or the way in which the resources are made available. Such mechanisms include: taxation, revenues from pollution fines and (tradable) permits, loans, grants, debt for nature/environment swaps, credit lines, and savings in a bank account. These mechanisms are often confused with instruments. *Environmental policy instruments* are individual tools used by governments to implement specific environmental policies. These include environment-related taxes, fees and charges, tradable permit systems, deposit refund systems, environmentally motivated subsidies and voluntary approaches.

It can be observed from the above definitions that some financing mechanisms investigated in this report cannot be assessed separately from their role as a policy instrument. For example taxation on greenhouse gas emissions is a mechanism for obtaining funds that can be used to adapt to climate change, but at the same time taxes are an environmental policy tool in the sense that they are an incentive for decreasing greenhouse gas emissions. The next section deals with the complications arising from the dual function of some financing mechanisms.

It should also be noted that there is a difference between financing mechanisms and funds, although in some cases they are closely linked. E.g. the financing mechanism for the Adaptation fund is a combination of voluntary contributions and a 2% levy on traded CDM credits. In this report we are mostly interested in the financing mechanism. Therefore, if the information is available, we indicate what financing mechanism is behind each listed fund.

3.2 The Tinbergen Rule

The complication behind the dual function of some mechanisms presented in this report stems from economic theory. The Tinbergen Rule (or *Fixed Targets Approach*) states that “consistent economic policy requires that the number of instruments equals the number of targets. Otherwise, targets are incompatible or instruments alternative.” (Tinbergen, 1952). Hence, two or more goals cannot be achieved effectively with the same policy tool. When the Tinbergen rule is applied to the field of financing adaptation, it suggests that separate programmes or procedures for generating funds and for decreasing greenhouse gas emissions are needed. If not, the targets would be incompatible.

For example a bunker fuel levy can be applied as a mechanism to generate resources for an adaptation fund. The magnitude of this levy would be based on the amount of resources that need to be generated. However, from an economic perspective the optimal tax level (or *Pigouvian tax*) would be a tax that is levied to correct the negative externalities (i.e. the damage resulting from associated greenhouse gases and other emissions) of the international transport sector. It is not likely that the desirable levies for adaptation funding are the same. Furthermore, the objective of the levy to correct private incentives (i.e. as a Pigouvian tax) is positively influenced when demand for bunker fuels decreases, as the negative externalities are avoided. For the dual objective of raising resources for an adaptation fund such decreases in demand are however detrimental.

3.3 Adaptation or development: the issue of additionality

Several authors, including Agrawala and Van Aalst (2008), Yohe et al. (2007), McGray et al. (2007) and Klein and Persson (2008), emphasize the interconnection between (sustainable) development and adaptation to climate change. This complicates earmarking funds specifically

for adaptation in developing countries. People are vulnerable not only to the impacts of climate change but to many other stresses. Vulnerability is a complex concept and marginalized people in developing countries are at risk of (temporarily or permanently) losing their livelihoods or losing their lives, as a result of a range of factors including a lack of access to technology, to markets and to decision making. In most cases climate risk is only one factor, and often a minor factor, which influences vulnerability. This implies that finance schemes should, as far as possible, take an approach to reducing climate risk that is integrated with efforts to improve economic and social development as a whole (Tellam, personal communication).

Hence, government initiatives and technological measures designed to adapt to specific changes in climate may fail to address the underlying causes of vulnerability considered as most urgent by local communities, such as access to water and food, health and sanitation, education and livelihood security (Schipper, 2007). In addition, poverty reduction programmes in general also help to increase adaptive capacity (Lim and Spanger-Siegfried, 2004). Mainstreaming adaptation into development assistance emerges as an efficient way to effectively work on two important issues at the same time (e.g. Huq and Reid, 2004). The incremental costs due to climate change impacts should be funded with the earmarked adaptation funding (Müller, personal communication).

McGray et al. (2007) and Klein and Persson (2008) recognized that there is actually a continuum from development funding to adaptation funding as shown in Figure 2. This figure, however, suggests that new and additional funding comes over and above existing traditional development funding. Indeed that was the original agreement.

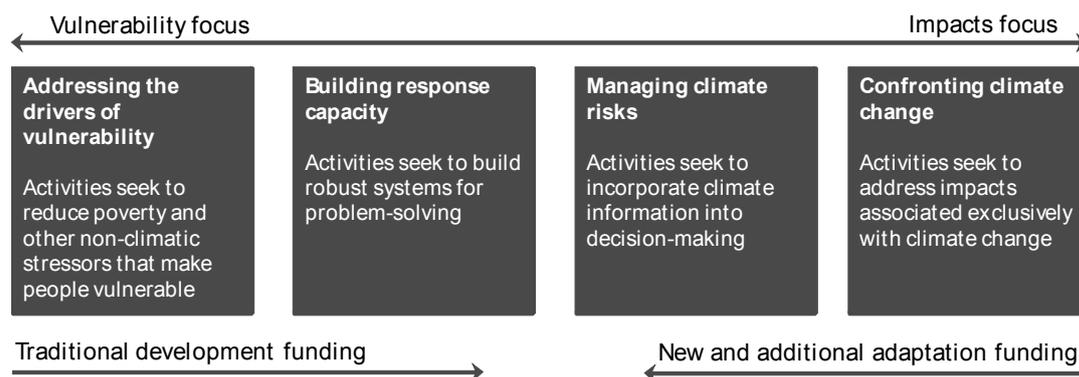


Figure 2 A continuum from development funding to adaptation funding (Source: Klein and Persson, 2008).

Since the 1960s, there have been international soft law declarations in which the developed countries have committed to providing 0.7% of their gross national income to developing countries to promote development in the recipient countries. The initial goal was that the developed countries were to meet this target by the mid 1970s (United Nations, 1970). Thereafter, this target was adopted again and again at different international conferences (e.g. WSSD, 2002; International Conference on Financing for Development in Monterrey, 2002). The G8 countries also discussed the significance of meeting this target to deal with the basic issues of hunger and poverty (G8, 2005). However, most of the developed countries have been unable to meet this 0.7% commitment and in recent years there has even been a decline in assistance provided and amounted to only 0.31% of the countries gross national income (OECD, 2008). This continuous failure to meet the target since the 1970s has been a source of considerable tension in North-South discussions especially as some economists see this percentage as in itself not adequate (Tinbergen, 1996).

The new and additional resources refer to the new commitment made by the developed countries both within the General Assembly (A 44/228) and within the United Nations Framework Convention on Climate Change (1992). Such adequate and predictable funds were meant to help developing countries meet the agreed full incremental costs that developing

countries would have to pay to implement three different types of measures under the Convention; and this can also be linked to the article which states that the implementation by developing countries depends on the assistance they receive from the developed countries. These new and additional funds were to be seen as a discussion that came over and above the 0.7% target (interviews at COP-14 Poznan 2008; Government of China, 2008; Government of Argentina, 2008). While the government of India (2008) goes on to argue that such new and additional funds should be seen as 0.5% of GDP over and above the existing commitments, the G-77 and China suggested an additional 0.5-1.0% of GDP (G77 and China Proposal, 2008).

However, some donors are using ODA funds for some adaptation activities and also to fund capacity building under the Clean Development Mechanism (Yamin, 2005) even though the Conference of the Parties decided against such use (COP 13; 17/CP7), and is supported by the OECD (OECD DAC, 2004).

For disaster risk reduction, it is generally more difficult to attract resources (including ODA) for *ex ante* or anticipatory measures to reduce risks, than for the more visible *ex post* activities such as emergency response or post-disaster recovery. According to van Aalst (personal communication), this is exactly the opposite case for adaptation to climate change. Resources might become available for adaptation to avoid dangerous consequences of climate change, but collecting resources to compensate for unavoided consequences (e.g. disasters) is impossible among Annex-1 countries, because they would see it as opening the UNFCCC up to compensation claims. Theoretically, in a developing country ex-post disaster recovery from a purely climate change-driven disaster should be funded by adaptation funds, but in reality this would therefore be co-funded by ODA.

4 Existing adaptation funds

There are already many international funds available for adaptation projects in developing countries. Table 1 provides an overview. The most important mechanisms are included here although it is possible for the list to be expanded further.

Table 1 Overview of existing adaptation funds in US\$, excluding insurance schemes (UNFCCC, 2008; Le Goulven, 2008; Müller, 2008 and UNDP, 2007). N.A. = not available, est.=estimated and mln=million.

Fund	Creation closing date	Origin	Amount delivered until Oct 2008	Financing mechanism	Type of instrument
Small Grants Programme	1992	GEF	\$38.5 mln	N.A.	Grants
Canada CC Development Fund	2000/2006	CIDA	\$100 mln	N.A.	N.A.
LDC Fund	2001	UNFCCC	\$172 mln	Voluntary	Grants
Strategic Priority on Adaptation	2004	UNFCCC/GEF	\$50 mln	Voluntary	GEF Trust Fund / Grants
Special CC Fund	2004	UNFCCC	\$91 mln	Voluntary	Grants
MDG Achievement Fund	2008-2011	Government of Spain, UNDP	Not Known (est. \$5.5 mln/year)	N.A.	N.A.
Adaptation Fund	2008-2012	UNFCCC / Kyoto Protocol	\$50 mln (\$80-300 mln/year)	2% levy on CDM credits + Voluntary	To be determined
Climate Change Initiative	2007	Rockefeller Foundation	\$70 mln for 5 years	N.A.	N.A.
Global Climate Change Alliance	2008-2010	European Commission	Not Known (est. \$28 mln/year)	Voluntary	Grants
German Climate Initiative	2008-2012	German Min. of Environment	Not Known (est. \$50 mln/year)	4.4% of carbon allowances in ETS	N.A.
Pilot Program for Climate Resilience	2009-2012	World Bank	Not Known (est. \$60 mln/year)	N.A.	Grants and loans without interest

One of the experts pointed out in the survey that there are currently too many funds and mechanisms, especially because development and adaptation in developing countries are closely related as outlined in Section 3.3. Moreover, the proliferation of funds will make it very difficult to determine exactly what is on the table at the climate negotiations in Copenhagen in 2009.

5 Newly proposed mechanisms

Surveying newly proposed mechanisms in the literature, Le Goulven (2008) summarizes the following additional categories of proposals (excluding insurance schemes):

1. **Levy on trading schemes** (expand CDM² levy to Joint Implementation and Emission Trading Scheme (ETS); or levies on auctioned emission permits under the ETS).
2. **Carbon taxation**;
3. **Bunker fuel levies**;
4. **International Financing Facility for Climate** (similar to the Global Climate Financing Mechanism listed below; it issues bonds to frontload the flow of aid, i.e. to make future funds sooner available); and
5. **Public Private Partnerships** (e.g. for infrastructure projects).

Müller (2008) discusses the following financing mechanisms (again without taking insurance schemes into account):

1. **Conventional funding**. This includes official development assistance (ODA), the World Bank Pilot Programme for Climate Resilience and the G77+China proposal to earmark 0.5 to 1% of the GDP for mitigation and adaptation in developing countries (G77 and China Proposal, 2008).
2. **The Mexican Multilateral CC Fund proposal**. Under this proposal, countries must contribute to this fund based on their GHG emissions, population and ability to pay.
3. Bi- and multilateral **Carbon Auction Levy Funding**. This proposal includes the US International Climate Change Adaptation and National Security Fund and the EU ETS Auction Adaptation Levies (CEPS, 2008: 35).
4. **The Swiss Global Carbon Adaptation Tax proposal**. This proposal suggests a uniform \$2/tCO₂ global tax, with a basic tax exemption of 1.5t CO₂ per capita per annum.
5. **The Global Climate Financing Mechanism**. This is an International Financial Facility that issues bonds to frontload the flow of aid using future annual commitments for repayment. These repayments could come from ODA or from revenues generated by the carbon market or airline ticket levies (Michel, 2008).
6. An **Adaptation Levy on International Emissions Trading**. Müller (2008) distinguishes three different options: (1) Extending the 2% issuance levy on the CDM assigned amount units (permits to emit) to the JI and ETS schemes. This would create a level playing field between the three flexibility mechanisms (Gupta, 1998). (2) Transaction levies to individual trades of permits. These are objected, particularly by the EU, because such levies would discourage market participation and therefore interfere with the efficiency of the market. (3) Norway has proposed withholding a small portion of GHG emission permits from national quota allocations, and auctioning it by an appropriate international institution (Government of Norway, 2008).
7. **The Tuvalu Adaptation Blueprint**. This is a burden sharing mechanism where an international authority collects levies on international airfares and maritime transport freight charges. Non-Annex I countries and LDCs would get lower or no levies.
8. **The International Air Travel Adaptation Levy**. This proposal suggests a levy on international flight tickets of approximately €1-5, depending on the distance and other parameters (Müller and Hepburn, 2006).
9. **International Maritime Emission Reduction Scheme (IMERS)**.

Exploring the role of insurance, the UNFCCC (2007c) discusses schemes to finance losses from climate and weather related extremes. Some successful examples of weather variability risk insurances operate in India and Latin America. The **Caribbean Catastrophe Risk**

² It should be noted that there is no levy on CDM projects in least developed countries.

Insurance Facility (CCRIF) is a public-private partnership where Caribbean governments purchase insurance and the CCRIF trust fund with contributions from donors. Its premium is managed by the World Bank. The **Munich Climate Insurance Initiative (MCII, 2008)** is an initiative of the World Bank, scientists, NGOs and the insurance industry seeking solutions for developing countries to insure against the increasing frequency of weather related hazards they are facing. As an insurance mechanism, however, it does not provide funds itself. The international community may support re-insurance schemes to absorb the upper limit of the risks (UNFCCC 2007e: 13).

Insurance, in a wide definition, may include formal commercial insurance, as well as ex ante pooling by government. Additionally, micro-credits and micro-insurance, provided by multilateral finance institutions as well as local and small-scale institutions, can complement more conventional financial market products. This is particularly true for the agricultural sector, where micro-credits and crop insurance can help to diversify income and create greater resilience. Depending on the product, they may cover asset, product or income loss. Insurance is foremost a mechanism to spread (residual) losses over time and may help to mix climate risks with other risks, such as geophysical (earthquake) and non-natural disaster related risks.

However, expanding, introducing, or improving insurance is mostly a reactive form of adaptation, as it does not directly influence factors such as the hazard, exposure and vulnerability, which underlie the impact. But insurance can potentially help in reducing vulnerability to climate change, by creating economic incentives for risk reduction, and by raising awareness of risks. This can be achieved by collecting premiums that reflect actual risks, and by introducing premium reductions or lowered deductibles when e.g. homeowners or farmers manage to reduce potential losses. In a wider context, the insurance sector can promote standards for building construction, and influence land-use planning by creating risk-zoning maps for coastal zones and river basins. More about climate change insurance can be found in the MCII special issue of *Climate Policy*, 6(6), 2006, in Bouwer and Aerts (2006) and Bouwer et al. (2007).

In 2007 Oxfam International introduced its **Adaptation Finance Index**. The contribution to the suggested fund is based on a country's GHG emissions, its Human Development Index and its population. It shares similarities with the **Mexican Multilateral CC Fund proposal**.

The Brazilian Government proposed a fund financed through the collection of fees from countries in non-compliance with their obligations regarding greenhouse gas emission reduction under the UNFCCC (**Brazilian non-compliance fund**). The fund would be used for clean development, but it could also be targeted specifically at financing adaptation measures (UNFCCC, 1997).

UNFCCC (2007b) also discusses the Adaptation Levy on International Emissions Trading and the bunker fuel levies. In addition it mentions the proposal for introducing a **Tobin currency transaction tax** of about 0.01%. Finally it mentions a new form of **Special Drawing Right (SDRs)** proposed by George Soros and Joseph Stiglitz. The IMF would provide this intergovernmental currency to serve as a supplemental form of liquidity for its member countries. Under the SDR proposal, the IMF would allocate SDRs to all member countries. Developed countries would make their SDRs available to approved international non-governmental organizations (NGOs) to distribute to meet specific Millennium Development Goals, including adaptation projects. These NGOs would be permitted to hold SDRs that they could convert to hard currencies.

6 Categorizing financing mechanisms

Sagasti et al. (2005) distinguish eight categories of financing mechanisms. These are shown in Table 2. This table also provides an overview of existing and newly proposed mechanisms. Sagasti et al's seventh category (Market creation) is omitted in the table because none of the mechanisms found in the literature could be assigned to this category³.

Table 2 The categorization of the financing mechanisms discussed here. The first two columns follow Sagasti et al. (2005). The third and fourth column show existing funds and newly proposed mechanisms, respectively.

Source	Type of mechanism	Existing Funds	Newly proposed mechanisms
1. Bilateral mechanisms	Regular loans Soft (concessional) loans Grants for public and civil society organizations Debt relief	Canada CC Development Fund Global Climate Change Alliance German Climate Initiative	
2. International organizations and agencies	Regular grants (from their core budgets and trust funds) Special purpose grants	Small Grants Programme LDC Fund Strategic Priority on Adaptation Special CC Fund Adaptation Fund ⁴ MDG Achievement Fund	
3. International financial institutions			
a. Multilateral Development Banks	Regular loans Soft (concessional) loans Grants (mostly to public institutions)	Pilot Program for Climate Resilience	
b. International Monetary Fund and regional monetary funds	Short term financial assistance Concessional funds Debt management and debt relief Issuing SDRs (IMF)		SDRs for adaptation projects
4. Private sources			
a. Commercial and investment banks	Loans Risk mitigation and risk management Portfolio flows	Caribbean Catastrophe Risk Insurance Facility (CCRIF) Weather Index Insurances	
c. Private foundations, not-for-profit and non-governmental institutions	Grants and donations	Climate Change Initiative (Rockefeller)	
5. International capital markets	Bonds and related Instruments		Global Climate Financing Mechanism
6. International taxes, fees and charges	Creating international tax arrangements User fees, charges and assessed contributions	Adaptation Fund ⁵	Adaptation Levy on International Emissions Trading Auctioning of 2% of

³ This does not imply that this is not a potentially important type of instrument, but merely that it has not been discussed in the literature.

⁴ This fund is partly funded by a 2% levy on CDM, and therefore it is present both in category 2 and in 6.

⁵ See footnote 4.

Source	Type of mechanism	Existing Funds	Newly proposed mechanisms
			assigned emission permits Tuvalu Adaptation Blueprint International Air Passenger Adaptation Levy International Air Travel Adaptation Levy International Maritime Emission Reduction Scheme Tobin currency transaction tax
8. Global and regional partnerships	Special purpose official funds (international, multilateral and bilateral) Public-private funds and partnerships for specific purposes		Oxfam Adaptation Finance Index Mexican Multilateral CC Fund proposal Swiss Global Carbon Adaptation Tax proposal Brazilian Non-compliance proposal Chinese 0.5% GDP Levy proposal

7 The alternatives

7.1 Introduction

Table 3 presents the mechanisms we examined more closely. The choice of mechanisms was based on a literature study and discussions held during the WAB Financing Adaptation Workshop of September 30 between the project team and the steering committee. The main criterion for selecting these mechanisms was the expected political feasibility of the mechanism. During the workshop, the G-77 and China 0.5% GDP levy proposal was rejected because the developed countries are likely to oppose it, given that they are not in a position to meet their initial commitment of 0.7% for development assistance.

The Tobin tax was not considered in detail because ‘the biggest barrier to implementation of a currency transaction tax is the global political consensus needed for universal adoption’ (UNFCCC, 2007b: 206).

Frontloading (bonds that make funds available sooner) was also rejected, because they do not raise new money, but only improve accessibility to ODA. Non-compliance fees, such as the Brazilian proposal, were considered not feasible by the Steering Committee, based on Bouwer and Aerts (2006). They claimed that “besides scientific difficulties, such as estimating the impact of the emissions of individual countries on the global climate (Rosa et al., 2004), it is likely that direct coupling of non-compliance and payments for adaptation would prove problematic in the negotiation process as this would imply acknowledgement of responsibility for damages”. This would set a precedent that most developed countries would be unwilling to accept.

From each mechanism that we decided to evaluate we took a *prototype* that allowed our expert group to assess it thoroughly and to compare it to other prototype mechanisms. The choice of the prototype was mainly based on the assessment by Müller (2008), ActionAid (2007) and ourselves. We preferred the Norwegian proposal in the category Adaptation Levy on International Emissions Trading over issuance levies, because the Norwegian proposal involves a type of issuance that is ‘genuinely international, namely the allocation of the country assigned units themselves’ (Müller, 2008: 17). However we expect that the issuance levies would score similarly on most criteria. The score on political feasibility would be lower though.

The Swiss proposal was chosen as the prototype for global taxation schemes. Alternatively we could have chosen the Mexican proposal or the Oxfam Adaptation Index, but we considered the Swiss proposal the prototype that is the easiest to explain to the expert panel. Global taxation proposals in general are not likely to be politically feasible because of the *domestic revenue problem*. This is the political problem of convincing domestic tax payers, or for that matter their government, that it is a good idea to spend ‘their’ tax money abroad (see also Müller, 2008). In this research however we did not consider the domestic revenue problem a disqualifying factor *ex ante*.

The mechanisms were taken as they were described in the literature, except for the Tuvalu Adaptation Blueprint. This was modified by increasing the suggested levies by a factor of 100, as will be explained in detail in Section 7.4. In Table 3 the prototypes are elaborated. Note that we do not intend to assess the specific proposals but the financing mechanisms behind it.

Table 3 Prototypes of financing mechanisms assessed in this study.

Type of mechanism	Mechanism	Prototype
Risk mitigation and risk management	Insurances	Caribbean Catastrophe Risk Insurance Facility (CCRIF)
User fees, charges and assessed contributions	Emission trading levies	Norwegian proposal Auctioning of 2% of assigned emission permits
Creating international tax arrangements	Air fare levies & International bunker levies	Tuvalu Adaptation Blueprint International Air Travel Adaptation Levy + International Maritime Emission Reduction Scheme
Special purpose official funds	Specified country contributions	Swiss Global Carbon Adaptation Tax proposal

7.2 Caribbean Catastrophe Risk Insurance Facility (CCRIF)

The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is the first regional insurance fund covering both earthquake and hurricane risks, with sixteen member countries in the Caribbean. The fund covers government risk, by providing quick liquidity. The advantages of the fund are the rapid pay-out, and the relatively low premiums that need to be laid in. It has been estimated that governments save about 40% compared to then when they would have negotiated individual contracts. The fund is to hold 10 million US\$, with an additional 110 million US\$ on the international reinsurance and capital markets. The fund is also backed by the World Bank. Policies are triggered when a particular parameter (modelled losses) are exceeded. The first weather-related payout was made to the government of the Turks and Caicos Islands, following hurricane Ike in September 2008 (CCRIF, 2009).

7.3 Norwegian proposal Auctioning of 2% of assigned emission permits

In an emission trading system auctioning of emission quotas is a possible source of revenue. In cap and trade systems allowances have a value. The annual asset value of allowances is the product of the amount of allowances (the cap) and the price. Here, the cap is set by the total amount of allowances and the price will equal the marginal abatement costs. The number of allowances issued, depends on the emission targets (Government of Norway, 2008).

Revenue could be created through a tax on issuance of the allowances, but this would create inefficiencies and would therefore be a less attractive option. Instead, a small percentage of this asset value could be auctioned directly. E.g. a two percent auctioning of the asset (similar to the CDM levy) would generate an annual income of between \$15bn and 25bn. The value of the asset (price times quantity) is relatively robust to the actual cap: a tight cap would increase the price and a loose cap would decrease the price (Government of Norway, 2008). However the price may get very close to zero in case the cap would be much too loose.

7.4 Modified Tuvalu Adaptation Blueprint (Bunker fuel levies)

The Tuvalu Blueprint envisages a collection authority under the guidance of the UNFCCC that will collect levies on international aviation and maritime transport:

- A 0.01% levy on international airfares and maritime transport freight charges operated by Annex I nationals;
- A 0.001% levy on international airfares and maritime transport freight charges operated by Non-Annex I nationals;
- Exemptions would apply to all transports to and from Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

Since the expected revenues at the rates originally suggested by Tuvalu would be in the order of only \$40m (Müller, 2008), we adapted the proposal for the sake of this study by multiplying the levies by a factor of 100:

- A 1% levy on international airfares and maritime transport freight charges operated by Annex I nationals;
- A 0.1% levy on international airfares and maritime transport freight charges operated by Non-Annex I nationals;
- Exemptions would apply to all transports to and from LDCs and SIDS.

Following Müller (2008), this would have generated \$3.7bn from Annex I countries and \$0.3bn from Non-Annex I countries in 2005.

7.5 IATAL and IMERS

The International Air Travel Adaptation Levy (IATAL) involves a charge based on the ticket price, the passenger emissions coefficient of the type of plane used, and the length of the journey. For this study it is supposed that the levy would be \$1 for a typical European economy class flight. The exact levy would vary depending on the weights of the parameters indicated above. On a global scale, IATAL would generate \$4bn-10bn annually (Müller and Hepburn, 2006; UNFCCC, 2008). The Maldives have actually made a proposal within the framework of the Bali Action Plan on behalf of the group of least developed countries. This **International Air Passenger Adaptation Levy** is to raise between \$8bn and \$10bn annually in the first five years (Republic of Maldives, 2008).

The International Maritime Emission Reduction Scheme (IMERS) is a bunker fuel levy of \$30/ton for maritime fuel (equivalent to 5% of the 2008 fuel price of \$600/ton) that would generate approximately \$4bn-15bn; UNFCCC, 2008). The collection could take place by a similar authority as the existing Oil Pollution Compensation Funds.

7.6 Swiss Global Carbon Adaptation Tax proposal

In the Swiss proposal (Government of Switzerland, 2008), the revenues are to be raised through a uniform global levy of 2\$/ton CO₂. This includes a tax free emission level of 1.5 t CO₂-eq/capita. The proposal indicates that of the total revenue collection 18.4 bn US\$ would be allocated to a multilateral adaptation fund. The share of revenues which are deposited to the multilateral regime depends on the economic situation of the countries: the industrialized countries would contribute 76% (Müller, 2008).

As only a low CO₂-based levy is introduced, this would not have any noticeable negative effects on economic growth and GDP in industrialised countries (Government of Switzerland, 2008). In emerging and developing countries with low- and medium GDP, negative economic impacts are not likely due to the tax free emission level of 1.5 t CO₂-eq/capita (Müller, 2008).

8 Criteria for financing mechanisms

In the literature a number of criteria for the evaluation of international adaptation financing mechanisms have been proposed. We extract and elaborate on a number of these and some additional ones, in order to come up with a comprehensive set that allows for the evaluation of the mechanisms that were presented in the previous chapter.

While Müller (2008) argues that additional, innovative funding mechanisms are required he also states that such mechanisms should meet the following criteria according the Bali Action Plan (UNFCCC, 2007d):

1. New and additional (it must be over and above ODA);
2. Predictable (in particular, not subject to the ‘domestic revenue problem’);
3. Appropriate (i.e. no loans, but debts that are being repaid);
4. Equitable (reflecting the differentiated responsibility and capabilities);
5. Adequate (it should generate at least \$10 billion/year).

Below we elaborate these and additional criteria that were discussed during the Financing Adaptation Workshop of September 30, 2008. We renamed the Bali Action Plan criteria into *Additionality*, *Political Feasibility*, *Repayment*, *Fairness* and *Capacity*, and *Contribution*, respectively. Hence ‘Equitable’ was split into two different criteria (Table 4).

Dellink et al. (2008) elaborate the fairness principle in detail. They distinguish several burden sharing mechanisms based on historical and current greenhouse gas emissions. Hence they calculate for each country the share they should contribute to a multilateral adaptation fund, irrespective of any financing mechanism. Here we take a different perspective: we investigate to what extent the investigated mechanisms would lead to a country’s (historic) greenhouse gas emission pattern as assessed by the experts.

Table 5 shows that we grouped the criteria into four categories:

- a. Feasibility: criteria that refer to political, institutional and ethical issues;
- b. Effectiveness: criteria that refer to meeting the adaptation targets;
- c. Efficiency: criteria that refer to economic issues; and
- d. Other criteria.

All Müller’s criteria are grouped under Feasibility, except for *Contribution* that is listed under Effectiveness (Table 4). We added the criterion *Institutional feasibility* to the Feasibility group, because the existence of capable institutions responsible for raising funds is likely to contribute to the success of a mechanism.

Table 4 Bali Action Plan criteria and the criteria applied in this study.

Bali Action Plan criteria	Criteria applied in this study	Group
New and additional	<i>Additionality</i>	Feasibility
Predictable	<i>Political Feasibility</i>	Feasibility
Appropriate	<i>Repayment</i>	Feasibility
Equitable	<i>Fairness</i>	Feasibility
	<i>Capacity</i>	Feasibility
Adequate	<i>Contribution</i>	Effectiveness

We added the criteria *Predictability*, *Transparency*, *Indirect effects* and *Inclusiveness* to the group Effectiveness. The characteristics of these criteria are outlined in Table 5. We considered incentives to increase adaptive capacity or to mitigation positive, although these incentives may violate Tinbergen’s Rule as discussed in Section 3.2.

The Efficiency group includes the criteria *Economic consistency*, *Transaction costs* and *Stability*. Finally we added the criteria *Subsidiarity* and *Sources*, which were grouped under Other criteria.

Table 5 Overview of feasibility, effectiveness, efficiency and other criteria.

Criteria	Rationale	Description
Feasibility Criteria		
Additionality	The funds generated are new, and above and over ODA. See the discussion on additionality in Section 3.3.	++ = New and additional in case of a strict interpretation of additionality ⁶ + = New and additional in case of a loose interpretation of additionality 0 = New but not additional - = Neither new nor additional
Fairness	Countries (or actors) contribute to the fund proportionally to what they have contributed to climate change (polluter pays principle), taking into account their capacity to pay (see also the related report of Dellink et al., 2008).	++ = There is a direct link between (historic) GHG emissions and contribution + = There is a remote link between (historic) GHG emissions and contributions 0 = There is no clear link between (historic) GHG emissions and contributions - = There is a inversed link between (historic) GHG emissions and contribution
Capacity	Countries contribute to the fund proportionally to their capacity	++ = The contribution is proportional to the country's GDP + = The contribution is positively related to the country's GDP 0 = There is no relationship between contribution and GDP - = There is an inversed link between contribution and GDP
Repayment	Some mechanisms are closely linked to the way the funds are allowed to flow: Grants, loans or insurances.	++ = Grants + = Loans at very low or no interest 0 = Insurances - = Other loans
Political feasibility	The mechanism is politically supported by all states that are involved.	+ = The mechanism will be widely accepted 0 = The mechanism is likely to face some obstacles - = The mechanism is likely to invoke severe political obstacles
Institutional feasibility	Institutional barriers to implementation.	+ = Institutions are available and capable to implement the mechanism 0 = Minor institutional reforms are necessary to implement the mechanism - = Major institutional reforms are necessary to implement the mechanism
Effectiveness Criteria		
Contribution	The mechanism generates a significant contribution of the funds that are annually needed (estimated tens of billions US\$ annually).	Expected annual US\$ raised by 2030

⁶ Here a strict interpretation is: above the 0.7% of GDP for ODA (additional) and detached from existing funds (new).

Criteria	Rationale	Description
Feasibility Criteria		
Predictability	The mechanism provides a steady and predictable source of funds.	++ = The revenues can be predicted with >95% accuracy + = The revenues can be predicted with >75% accuracy 0 = The revenues can be predicted with >50% accuracy - = The revenues can be predicted with <50% accuracy
Transparency	The revenues are verifiable, measurable and reportable.	+ = The revenues are easy to verify, to measure and to report 0 = The revenues are difficult to verify, to measure and to report - = It is impossible to verify, to measure and to report the revenues
Indirect effects	Incentives for mitigation or for increasing adaptive capacity.	++ = Significant incentives for additional mitigation are expected 0 = No indirect benefits - = The mechanism hampers mitigation
Inclusiveness	The financing mechanism is not allocated to specific stakeholders but can be used for all kinds of adaptation projects.	Targeted stakeholders or economic sectors
Efficiency Criteria		
Economic consistency	The mechanism does not distort (carbon) markets.	+ = No significant distortions on carbon and other markets 0 = Some distortions on carbon and other markets - = Significant distortions on carbon and other markets
Transaction costs	The transaction costs of raising funds.	+ = Transaction costs are relatively low 0 = Transaction costs are average - = Transaction costs are relatively high
Stability	A sustainable source of resources over time.	+ = Revenues are likely to increase 0 = Revenues are likely to remain the same - = Revenues are likely to decrease
Other Criteria		
Subsidiarity	The mechanism fits within (the spirit of) the UNFCCC.	Yes or no
Sources	The revenues can be public, private or a mix.	Public, Private or Public Private Partnership

9 Scoring the mechanisms

Table 6 shows the experts' assessment of the financing mechanisms. The table shows the averaged scores. In several cases there was much disagreement among the experts. These criteria are marked with a # and the experts' scores are indicated between brackets. Some criteria were scored using literature data. These are marked with an *.

It is important to notice that the criteria below are mostly focused on the generation of additional funds. However, other important issues related to adaptation funding are the effectiveness, equitability, and the governance etc. of the *disbursement* of the raised funds.

Table 6 Effects table of mechanisms for financing adaptation.

Criteria	Description	Caribbean Catastrophe Risk Insurance Facility	Norwegian proposal Auctioning 2% of emission permits	Modified Tuvalu Adaptation Blueprint	IATAL and IMERS - Bunker fuel levies	Swiss Global Carbon Adaptation Tax proposal
Additionality	++ = New an additional in case of a strict interpretation of additionality					
	+ = New and additional in case of a loose interpretation of additionality	+	++	++	++	++
	0 = New but not additional					
	- = Neither new nor additional					
Fairness	++ = There is a direct link between (historic) GHG emissions and contribution					
	+ = There is a remote link between (historic) GHG emissions and contributions	0	++	+	+	++
	0 = There is no clear link between (historic) GHG emissions and contributions					
	- = There is a inversed link between (historic) GHG emissions and contribution					
Capacity	++ = The contribution is proportional to the GDP					
	+ = The contribution is positively related to the country's GDP	0	+	+	+	++ ⁷
	0 = There is no relationship between contribution and GDP					
	- = There is an inversed link between contribution and GDP					

⁷ The Swiss Proposal involves a tax free emission of 1.5 t CO₂-eq/capita. Therefore the contribution is only close to proportional in developed countries. E.g. the Netherlands emitted about 13 t CO₂-eq/capita in 2003.

Criteria	Description	Caribbean Catastrophe Risk Insurance Facility	Norwegian proposal Auctioning 2% of emission permits	Modified Tuvalu Adaptation Blueprint	IATAL and IMERS - Bunker fuel levies	Swiss Global Carbon Adaptation Tax proposal
Repayment*	++ = Conditional grants					
	+ = Loans at very low or no interest	0	++	++	++	++
	0 = Insurances					
	- = Other loans					
Political feasibility[#]	+ = The mechanism will be widely accepted	+	+/0	0	0	0/-
	0 = The mechanism is likely to face some obstacles	+ (4)	+ (2)			+ (1)
	- = The mechanism is likely to invoke severe political obstacles	- (1)	0 (5) - (1)	0 (6) - (2)	0 (6) - (2)	0 (4) - (3)
Institutional feasibility[#]	+ = Institutions are available and capable to implement the mechanism	+	0	0	0	-
	0 = Minor institutional reforms are necessary to implement the mechanism	+ (3)		+ (1)		
	- = Major institutional reforms are necessary to implement the mechanism	0 (4) - (1)	0 (5) - (3)	0 (3) - (4)	0 (5) - (3)	0 (2) - (6)
Contribution*	Expected annual US\$ raised by 2030 (See chapter 7 for more detail)	110m	20bn	4bn	18bn	18bn
Predictability[#]	++ = The revenues can be predicted with >95% accuracy	0	0	+	+	++
	+ = The revenues can be predicted with >75% accuracy	++ (1)	++ (1)	++ (1)	++ (1)	++ (4)
	0 = The revenues can be predicted with >50% accuracy	0 (1)	+ (2) 0 (2)	+ (4) 0 (1)	+ (3) 0 (3)	+ (2) 0 (1)
	- = The revenues can be predicted with <50% accuracy	- (2)	- (2)			
Transparency	+ = The revenues are easy to verify, to measure and to report					
	0 = The revenues are difficult to verify, to measure and to report	0	+	0	0	+
	- = It is impossible to verify, to measure and to report the revenues					
Indirect effects	++ = Significant incentives for additional mitigation are expected					
	0 = No indirect benefits	0	+	+	+	++
	- = The mechanism hampers mitigation					

Criteria	Description	Caribbean Catastrophe Risk Insurance Facility	Norwegian proposal Auctioning 2% of emission permits	Modified Tuvalu Adaptation Blueprint	IATAL and IMERS - Bunker fuel levies	Swiss Global Carbon Adaptation Tax proposal
Inclusiveness*	Targeted stakeholders or economic sectors	Spec. countries	DCs	DCs	DCs	DCs
Economic consistency	+ = No significant distortions on carbon and other markets					
	0 = Some distortions on carbon and other markets	+	0	0	0	0
	- = Significant distortions on carbon and other markets					
Transaction costs	+ = Transaction costs are relatively low					
	0 = Transaction costs are average	-	+	0	0	-
	- = Transaction costs are relatively high					
Stability	+ = Revenues are likely to increase					
	0 = Revenues remain the same	+	+	0	0	0
	- = Revenues are likely to decrease					
Subsidiarity*	Yes or no	Yes	Yes	Yes	Yes	Yes
Sources*	Public, Private or Public Private Partnership	PPP	Public	Public	Public	Public

* This criterion was not assessed by the experts but by the authors using literature data cited in Chapter 7.

There was much disagreement on the scores among the experts. In grey the scores given by the experts are shown. The number of experts that assigned the score is given in brackets.

The expert group considered almost all criteria ‘important’. When asked what would be their top three, *Additionality*, *Fairness* and *Contribution* were mentioned most often, followed by *Predictability* (although this is seen as very important to recipient countries) and *Capacity*. Least important were *Repayment*, *Economic consistency* and *Indirect effects*.

The experts agreed on some of the criteria, such as *Economic consistency*, *Transparency*, *Indirect effects* and *Inclusiveness*. On others, such as *Repayment*, experts disagreed. Mout mentions repayment should only be a last option for a more advanced developing country that covers a part of the burden on its own. Conditional grants were the most favoured among the experts because they could, for example, help to meet nationally agreed targets on reducing vulnerability (Van Aalst), or promote sustainable development (Den Elzen). Müller however points out that adaptation fund disbursements are basically debt repayments and putting in place conditions would therefore be unethical. On *Repayment*, the experts only agree that loans are undesirable.

It is very important to take into account that the *Institutional feasibility* not only depends on the way the funds are collected, but also in the way they are disbursed, and who will manage the funds (Van Aalst, Dickinson, Klein, Mout). Different opinions on this criterion therefore arise and that causes disagreement.

The experts also disagreed on the *Political feasibility* in terms of which countries would oppose certain mechanisms, and how predictable the revenues of some of the mechanisms would be over time.

Although neither the literature review, nor our survey point out that there is a silver bullet for financing adaptation, some clear major trade-offs can be identified based on Table 5. For example the carbon tax schemes score well on *Fairness*, *Capacity* and *Contribution*, but will probably lack political support. The insurance schemes will find political support, but they have limited applicability (Dickinson), only a limited scope for adaptation, and they do not really raise money. The international airline and maritime transport levies and auctioning of assigned amount units in carbon trading schemes score somewhat lower on *Fairness*⁸ and *Capacity* than global tax proposals, but score a bit better on *Political feasibility*.

We asked the expert group which countries would oppose the investigated mechanisms. They did not expect much opposition against the Caribbean Catastrophe Risk Insurance Facility⁹. The auctioning of assigned amount units in carbon trading schemes is likely to be opposed by the US, Japan, Canada and possibly many other Annex I countries, especially the countries with economies in transition. The Modified Tuvalu Adaptation Blueprint is likely to be opposed by those countries that must contribute relatively more, because they have a carbon intensive economy or a large transport sector. Such countries include the US, Japan, Canada and OPEC countries. For bunker fuel levies this argument can be valid as well, although it must be said that IATAL is a levy on individuals and not on countries, and hence the size of the transport sector can be considered irrelevant (Müller, personal communication).

The experts disagree on the countries that are likely to oppose the Global Carbon Adaptation Tax proposal. Examples of countries mentioned are the G77 and China (Müller), the US and richer developing countries (Van Aalst), Annex 1 parties, emerging economies and OPEC countries (Klein), and the US, Japan and Canada (one other expert). This implies that the full range of countries is likely to oppose this option. Apparently, the actual impact of implementation of this mechanism is still under discussion.

⁸ Müller however mentions that the international airline transport levy is the fairest mechanism, because it is unique in terms of its explicit design for personal responsibility and capability.

⁹ However, up to date this is only implemented on a regional level (Van Aalst and Van Ierland).

10 Synthesis

Our analysis reveals that among the different proposals for adaptation financing mechanisms there is no silver bullet. Every investigated mechanism has its specific advantages and disadvantages. These are summarized in Table 7. In this table we merged the Modified Tuvalu Adaptation Blueprint and the IMERS / IATAL bunker fuel levies into 'International airline and maritime transport levies', because they received similar scores on all criteria in the our experts' survey.

Table 7 Most important advantages and disadvantages of the four financing mechanisms.

Mechanism	Advantages	Disadvantages
Insurance schemes	Involvement of private sector No market distortion Implementing institutions exist Incentives for increasing adaptive capacity Widely supported	Only for specific purposes (e.g. agriculture, disaster relief) Countries that pollute(d) most do not contribute proportionally Transaction costs may be relatively high Not additional to ODA if ODA is used for re-insurance
Auctioning of assigned amount units	Likely to generate sufficient and stable financial resources Similar mechanism in operation for CDM Transaction costs may be relatively low	Historical GHG emissions are not taken into account Some market distortion to be expected Opposition expected from US, Japan, other Annex I countries Minor institutional reforms are required for implementation
International airline and maritime transport levies	Likely to generate sufficient and stable financial resources Contributes to mitigation Beneficial effects on air quality Based on capacity to pay (airline)	Contribution is only partly related to GHG emissions Some market distortion to be expected Opposition expected from OPEC, US, countries with important transport sector Institutional reforms are required for implementation
Carbon taxation schemes	Likely to generate enough and steady financial resources Revenues can be accurately predicted Contribution is proportional to capacity and GHG emissions Contributes to mitigation Transaction costs relatively low	Not additional if tax revenues are contributed instead of ODA Some market distortion to be expected Domestic revenue problem is likely to cause opposition from Annex II countries Major institutional reforms are required for implementation

The fact that no mechanism scores well across the board is no surprise given the number and complexity of criteria they are meant to fulfil. This then leaves policymakers with the potential dilemma of attempting to weigh the merits of one mechanism over another to come to some negotiated solution. Perhaps a better way forward could be the adoption of a 'basket' with several of the four mechanisms described in Table 7, instead of one, to be managed under an umbrella institution providing oversight and insuring that all assessment criteria are met through the different avenues. Oxfam International (2008) comes to the same conclusion and proposes to adopt a basket of mechanisms which includes auctioning of 7.5% of the assigned amount units, an aviation emission trading scheme, and a maritime emission trading scheme. The content of a basket can be chosen based on different kinds of principles. Three (extreme) approaches are briefly outlined below.

In the **Political approach** feasibility is the driving force for obtaining the most suitable financing mechanisms. Policymakers will be left with the potential dilemma of attempting to assess the merits of one mechanism over another to come to some negotiated conclusion. It is likely to result in a 'patchwork' of politically feasible mechanisms that are more or less coordinated by one or more international organizations. The preferred mechanism resulting from this approach is likely to be auctioning a fraction of assigned amount units. Insurance schemes may also play

an important role. This approach may not generate sufficient funds unless international negotiations on this topic are successful.

In the **Systems approach** effectiveness is the driving force. This would seek for an integrated approach that is optimized for generating adaptation funds. It is likely to include a mixture of mechanisms that will contribute to one central fund that is managed by an international organization. This approach is expected to face political opposition.

In the **Economic approach** efficiency is the driving force for obtaining the most suitable financing mechanisms. Pigouvian taxes would be applied on bunker fuels. If possible, carbon taxes could also be applied. Transaction levies on emission trading schemes would be absent because they distort the market, but both auctioning a fraction of assigned amount units and insurance schemes would play a role in this approach. This approach may not generate enough funds in the longer run when emitters substantially change their behaviour in response to the new policies. For example if they decide to install equipment that decreases their greenhouse gas emissions, tax revenues would also decrease.

11 Conclusions and recommendations

This report reviewed a wide range of existing and new mechanisms for international financing of adaptation. It developed a systematic assessment of the major new mechanisms that were found in the literature, using among others desk study and consultation of an international expert panel. Assessment criteria were categorized under feasibility, effectiveness and efficiency. The four mechanisms we considered in detail are:

- Insurance schemes;
- Auctioning of assigned amount units;
- International airline and maritime transport levies;
- Carbon taxation schemes.

It appeared that none of the mechanisms is superior on all the most important evaluation criteria. For example the carbon taxation schemes score well on *Fairness* (countries contribute based on their greenhouse gas emissions), *Capacity* (countries contribute proportionally to their capacity) and *Contribution* (the mechanism generates billions of US\$ annually), but will probably lack political support. The insurance schemes will find political support, but they have limited applicability. The international airline and maritime transport levies and auctioning of assigned amount units in carbon trading schemes score somewhat lower on *Fairness* and *Capacity* than global tax proposals, but score a bit better on *Political feasibility*.

We conclude that the best way forward could be the adoption of a 'basket' with several mechanisms, instead of one, to be managed under an umbrella institution providing oversight and insuring that all assessment criteria are met through the different avenues. Table 7 in Chapter 10 provides an overview of the advantages and disadvantages of the four mechanisms.

Our final recommendations are two-fold. First, it is essential that more research is done on innovative mechanisms that can overcome the major obstacles that surround the current proposals, and this includes:

- More research on a proper indicator-based evaluation of new proposals, so that they can be assessed quickly as they come to the table.
- This report focused on a short-list of options, to be implemented in the near future. However, the long-list may still have some attractive options in the long-term.

Second, we recommend that the guiding principles for adopting new proposals are discussed in international negotiations, to establish a consistent set of mechanisms that is additional, fair, and raises sufficient funds.

Three of such approaches are described in this report and can function as a reference point for discussions that are ultimately political in nature. In the **Political approach**, feasibility is the driving force for obtaining the most suitable financing mechanisms. Most likely, policymakers will choose a 'patchwork' of politically feasible mechanisms that are more or less coordinated by one or more international organizations. Auctioning of Assigned Amount Units and insurance schemes are probably kernel in this patchwork. This approach may not generate sufficient funds unless international negotiations on this topic are successful. In the **Systems approach**, effectiveness is the driving force. It is likely to include a basket of mechanisms optimized for generating adaptation funds that will contribute to one central fund that is managed by an international organization. However, this approach is expected to face some political opposition. The **Economic approach** is based on economic efficiency. Pigouvian taxes would be applied on bunker fuels and carbon taxes might also be applied. Both auctioning a fraction of assigned amount units and insurance schemes would play a role in this approach. This approach may not generate enough funds in the longer run when emitters substantially change their behaviour in response to the new policies.

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Expert panel

For this study, the following experts completed the web based questionnaire:

Dr. M.K. van Aalst	Red Cross/Red Crescent Climate Centre
Dr. S. Agrawala	OECD/Environment Directorate
T. Dickinson	Clean Air Partnership, Burton-Dickinson consulting
M. den Elzen	Netherlands Environmental Assessment Agency
Prof. dr. E.C. van Ierland	Wageningen University
Dr. R.J.T. Klein	Stockholm Environment Institute
Dr. C. Lambregts	Netherlands Ministry of Environment
Dr. R. van der Molen	Netherlands Ministry of Finance
Dr. J.P. Mout	Netherlands Ministry of Foreign Affairs
Dr. B. Müller	Oxford Institute for Energy Studies
Dr. I. Tellam	ETC International

Appendix I Questionnaire

Financing Adaptation

With the demand for international cooperation to finance adaptation efforts comes the question of how to generate international funds, how to spend them, and who should spend them. In the context of the project 'International mechanisms for financing adaptation: operational and institutional issues', this questionnaire focuses on one essential element in the chain of topics surrounding international financing of adaptation efforts by addressing the question on how to generate international funds to finance adaptation.

Currently a number of possible sources or innovative financial mechanisms, either new or enhanced, have been suggested. This project aims at providing better insight into both the already existing and newly devised sources on how effective (how much revenue could be generated) and technically and politically feasible these mechanisms may be, and evaluates a selection of relevant options on a set of criteria.

The main objective of this questionnaire is to come to a better understanding of the available fund raising options for adaptation. We primarily focus on newly proposed mechanisms. Furthermore we often ask you to explain your answers. Completing the questionnaire will take about 60 minutes. Thank you very much for your co-operation.

Note that you can return to preceding questions using the Back button of your browser without losing your answers. Please contact pieter.pauw@ivm.vu.nl if you have any questions.

User name

Password

Next

Q0

ABOUT THE RESPONDENT (2 questions)

1. What kind of organisation do you work for?

consultancy / business

government / ministry

university / research institute

NGO

other

Q0a

2. How many months have you been working on adaptation issues and financing adaptation?

	Months of work experience
adaptation	<input type="text" value="Q0a_r1_c1"/>
financing adaptation	<input type="text" value="Q0a_r2_c1"/>

[Next](#)

Q2

INTRODUCTION (6 questions)

3. What is your estimation of the overall financial resources needed per annum for adaptation in developing countries in 2012 (in Euro/year)?

- Tens of millions
- Hundreds of millions
- Billions
- Tens of billions
- Hundreds of billions

Q2a

4. What is your estimation of the overall financial resources needed per annum for adaptation in developing countries in 2030 (in Euro/year)?

- Tens of millions
- Hundreds of millions
- Billions
- Tens of billions
- Hundreds of billions

Next



Q3

5a. Are new (non-existent) international mechanisms necessary to raise adequate resources for funding adaptation?

yes

no

Q3a

5b. Comments (optional, max 300 characters)

Q4

6a. Should these financial resources be additional to those included in Official Development Assistance?

Yes

No

Q4a

6b. Comments (optional, max 300 characters)

Next

Q5a

7a. Of the existing funds below (see the PDF file attached to the invitation email for an explanation), and considering the criteria you value highest, which are according to you the:

- 3 best ones, overall
- 3 worst ones, overall

	best fund	worst fund	I am not familiar with this fund
Canada CC Development Fund	Q5a_r1_c1 €	Q5a_r1_c2 €	Q5a_r1_c3 €
Global Climate Change Alliance (European Commission)	Q5a_r2_c1 €	Q5a_r2_c2 €	Q5a_r2_c3 €
German Climate Initiative (German min. of Environment)	Q5a_r3_c1 €	Q5a_r3_c2 €	Q5a_r3_c3 €
Small Grants Programme (GEF)	Q5a_r4_c1 €	Q5a_r4_c2 €	Q5a_r4_c3 €
Least Developed Country Fund (UNFCCC)	Q5a_r5_c1 €	Q5a_r5_c2 €	Q5a_r5_c3 €
Strategic Priority on Adaptation (UNFCCC)	Q5a_r6_c1 €	Q5a_r6_c2 €	Q5a_r6_c3 €
Special Climate Change Fund (UNFCCC)	Q5a_r7_c1 €	Q5a_r7_c2 €	Q5a_r7_c3 €
Adaptation Fund (UNFCCC/Kyoto Protocol)	Q5a_r8_c1 €	Q5a_r8_c2 €	Q5a_r8_c3 €
Millenium Development Goals Achievement Fund (Spain, UNDP)	Q5a_r9_c1 €	Q5a_r9_c2 €	Q5a_r9_c3 €
Pilot Program for Climate Resilience (World Bank)	Q5a_r10_c1 €	Q5a_r10_c2 €	Q5a_r10_c3 €
Caribbean Catastrophe Risk Insurance Facility (CCRIF)	Q5a_r11_c1 €	Q5a_r11_c2 €	Q5a_r11_c3 €
Weather Index Insurances (private sector and investment banks)	Q5a_r12_c1 €	Q5a_r12_c2 €	Q5a_r12_c3 €
Climate Change Initiative (Rockefeller)	Q5a_r13_c1 €	Q5a_r13_c2 €	Q5a_r13_c3 €
other Q5a_r14_other: <input type="text"/>	Q5a_r14_c1 €	Q5a_r14_c2 €	Q5a_r14_c3 €
other Q5a_r15_other: <input type="text"/>	Q5a_r15_c1 €	Q5a_r15_c2 €	Q5a_r15_c3 €

Q5b

7b. Comments (optional, max 300 characters)

Next

Q6a

8a. Considering the criteria you value most, of the newly proposed mechanisms shown below, which are according to you the 3 overall most promising mechanisms, and the 3 overall least promising mechanisms

	most promising mechanism	least promising mechanism	I am not familiar with this mechanism
SDRs for adaptation projects	<input type="radio"/> Q6a_r1_c1 €	<input type="radio"/> Q6a_r1_c2 €	<input type="radio"/> Q6a_r1_c3 €
Munich Climate Insurance Initiative	<input type="radio"/> Q6a_r2_c1 €	<input type="radio"/> Q6a_r2_c2 €	<input type="radio"/> Q6a_r2_c3 €
Global Climate Financing Mechanism	<input type="radio"/> Q6a_r3_c1 €	<input type="radio"/> Q6a_r3_c2 €	<input type="radio"/> Q6a_r3_c3 €
Carbon Auction Levy Funding	<input type="radio"/> Q6a_r4_c1 €	<input type="radio"/> Q6a_r4_c2 €	<input type="radio"/> Q6a_r4_c3 €
Adaptation Levy on Int'l Emissions Trading	<input type="radio"/> Q6a_r5_c1 €	<input type="radio"/> Q6a_r5_c2 €	<input type="radio"/> Q6a_r5_c3 €
Tuvalu Adaptation Blueprint	<input type="radio"/> Q6a_r6_c1 €	<input type="radio"/> Q6a_r6_c2 €	<input type="radio"/> Q6a_r6_c3 €
Int'l Air Travel Adaptation Levy	<input type="radio"/> Q6a_r7_c1 €	<input type="radio"/> Q6a_r7_c2 €	<input type="radio"/> Q6a_r7_c3 €
Int'l Maritime Emission Reduction Scheme	<input type="radio"/> Q6a_r8_c1 €	<input type="radio"/> Q6a_r8_c2 €	<input type="radio"/> Q6a_r8_c3 €
Tobin currency transaction tax	<input type="radio"/> Q6a_r9_c1 €	<input type="radio"/> Q6a_r9_c2 €	<input type="radio"/> Q6a_r9_c3 €
Oxfam Adaptation Finance Index	<input type="radio"/> Q6a_r10_c1 €	<input type="radio"/> Q6a_r10_c2 €	<input type="radio"/> Q6a_r10_c3 €
Mexican Multilateral CC Fund proposal	<input type="radio"/> Q6a_r11_c1 €	<input type="radio"/> Q6a_r11_c2 €	<input type="radio"/> Q6a_r11_c3 €
Swiss Global Carbon Adaptation Tax proposal	<input type="radio"/> Q6a_r12_c1 €	<input type="radio"/> Q6a_r12_c2 €	<input type="radio"/> Q6a_r12_c3 €
Brazilian Non-compliance proposal	<input type="radio"/> Q6a_r13_c1 €	<input type="radio"/> Q6a_r13_c2 €	<input type="radio"/> Q6a_r13_c3 €
Chinese 0.5% GDP Levy proposal	<input type="radio"/> Q6a_r14_c1 €	<input type="radio"/> Q6a_r14_c2 €	<input type="radio"/> Q6a_r14_c3 €
Carribean Catastrophe Risk Insurance Facility	<input type="radio"/> Q6a_r15_c1 €	<input type="radio"/> Q6a_r15_c2 €	<input type="radio"/> Q6a_r15_c3 €
Norwegian proposal Adatation Levy on International Emissions Trading	<input type="radio"/> Q6a_r16_c1 €	<input type="radio"/> Q6a_r16_c2 €	<input type="radio"/> Q6a_r16_c3 €
Other <input type="text"/> Q6a_r17_other	<input type="radio"/> Q6a_r17_c1 €	<input type="radio"/> Q6a_r17_c2 €	<input type="radio"/> Q6a_r17_c3 €
Other <input type="text"/> Q6a_r18_other	<input type="radio"/> Q6a_r18_c1 €	<input type="radio"/> Q6a_r18_c2 €	<input type="radio"/> Q6a_r18_c3 €

Q6b

8b. Comments (optional, max 300 characters)

Next

Caddit

NEW MECHANISMS (15 questions)

The following questions consider five newly proposed financial mechanisms that are considered as interesting by the steering committee of this project. Please evaluate these mechanisms on a list of criteria. Please check the PDF file attached to the invitation email for descriptions of the mechanisms.

Additionality

9a. How do the mechanisms score on the criterium 'additionality'? Here 'Additional' refers to above the 0.7% of the GDP for Official Development Assistance, and 'New' refers to separate from existing funds.

	Both new and additional	New, but not additional	Neither new nor additional	I do not know
Caribbean Catastrophe Risk Insurance Facility	<input type="radio"/> Caddit_r1	<input type="radio"/> Caddit_r1	<input type="radio"/> Caddit_r1	<input type="radio"/> Caddit_r1
Norwegian Proposal Adaptation levy on International Emissions Trading	<input type="radio"/> Caddit_r2	<input type="radio"/> Caddit_r2	<input type="radio"/> Caddit_r2	<input type="radio"/> Caddit_r2
Modified Tuvalu Adaptation Blueprint	<input type="radio"/> Caddit_r3	<input type="radio"/> Caddit_r3	<input type="radio"/> Caddit_r3	<input type="radio"/> Caddit_r3
IATAL and IMERS - Bunker Fuel levies	<input type="radio"/> Caddit_r4	<input type="radio"/> Caddit_r4	<input type="radio"/> Caddit_r4	<input type="radio"/> Caddit_r4
Swiss Global Carbon Adaptation Tax proposal	<input type="radio"/> Caddit_r5	<input type="radio"/> Caddit_r5	<input type="radio"/> Caddit_r5	<input type="radio"/> Caddit_r5

CadditOpen

9b. Comments (optional, max 300 characters)

Next

Fairness

According to the Bali Action Plan, the contribution of a country should be linked to the Polluter Pays Principle and a country's capacity to pay.

10. Polluter Pays Principle: Do the following mechanisms allow countries to provide resources in proportion to their contribution to climate change?

	the opposite: polluters pay less	indifferent, contribution depends on other factors	there is some positive relationship with their contribution	yes, polluters pay proportionally to their contribution	too much, polluters pay more	I do not know
Caribbean Catastrophe Risk Insurance Facility	Cfairness_r1	Cfairness_r1	Cfairness_r1	Cfairness_r1	Cfairness_r1	Cfairness_r1
Norwegian Proposal Adaptation levy on International Emissions Trading	Cfairness_r2	Cfairness_r2	Cfairness_r2	Cfairness_r2	Cfairness_r2	Cfairness_r2
Modified Tuvalu Adaptation Blueprint	Cfairness_r3	Cfairness_r3	Cfairness_r3	Cfairness_r3	Cfairness_r3	Cfairness_r3
IATAL and IMERS - Bunker Fuel levies	Cfairness_r4	Cfairness_r4	Cfairness_r4	Cfairness_r4	Cfairness_r4	Cfairness_r4
Swiss Global Carbon Adaptation Tax proposal	Cfairness_r5	Cfairness_r5	Cfairness_r5	Cfairness_r5	Cfairness_r5	Cfairness_r5

Capacity

11. Capacity: Do the following mechanisms allow countries to provide resources in proportion to their capacity?

	the opposite, low income countries contribute more than their relative capacity	indifferent, contribution depends on other factors	there is some positive relationship between contribution and capacity	yes, the contribution is proportional to the country's capacity	high income countries pay more than their relative capacity	I do not know
Caribbean Catastrophe Risk Insurance Facility	Ccapac_r1	Ccapac_r1	Ccapac_r1	Ccapac_r1	Ccapac_r1	Ccapac_r1
Norwegian Proposal Adaptation levy on International Emissions Trading	Ccapac_r2	Ccapac_r2	Ccapac_r2	Ccapac_r2	Ccapac_r2	Ccapac_r2
Modified Tuvalu Adaptation Blueprint	Ccapac_r3	Ccapac_r3	Ccapac_r3	Ccapac_r3	Ccapac_r3	Ccapac_r3
IATAL and IMERS - Bunker Fuel levies	Ccapac_r4	Ccapac_r4	Ccapac_r4	Ccapac_r4	Ccapac_r4	Ccapac_r4
Swiss Global Carbon Adaptation Tax proposal	Ccapac_r5	Ccapac_r5	Ccapac_r5	Ccapac_r5	Ccapac_r5	Ccapac_r5

Fairness2

12a. Please take the answers you gave to the two previous questions into account, and rank the mechanisms on their fairness.

1 is the most fair, 5 the least fair (or most unfair)

- Caribbean Catastrophe Risk Insurance Facility
- Norwegian Proposal Adaptation levy on International Emissions Trading
- Modified Tuvalu Adaptation Blueprint
- IATAL and IMERS - Bunker Fuel levies
- Swiss Global Carbon Adaptation Tax proposal

Comments

12b. Comments (optional, max 300 characters)

Next

C repay

Repayment

13a. Please rank your preferences on whether a fund for adaptation projects in developing countries should be a loan, an insurance, or a grant.

1 is the most preferable, 5 the least.

- Loans at very low or no interest
- Other loans
- Insurances
- Grants
- Conditional grant

C repay2

13b. Please explain your ranking (max. 500 characters):

C predict

Predictability

14. Will the revenues of the mechanisms be predictable in terms of accuracy?

	Accuracy with which the revenues can be predicted					
	<25%	<50%	>50%	>75%	>95%	I do not know
Caribbean Catastrophe Risk Insurance Facility	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Norwegian Proposal Adaptation levy on International Emissions Trading	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Modified Tuvalu Adaptation Blueprint	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
IATAL and IMERS - Bunker Fuel levies	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Swiss Global Carbon Adaptation Tax proposal	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Next

Cpredict2

15. How will the revenues change over time?

	Over time, the revenues are likely to:		
	decrease	stay more or less the same	increase
Caribbean Catastrophe Risk Insurance Facility	Cpredict2_r1	Cpredict2_r1	Cpredict2_r1
Norwegian Proposal Adaptation levy on International Emissions Trading	Cpredict2_r2	Cpredict2_r2	Cpredict2_r2
Modified Tuvalu Adaptation Blueprint	Cpredict2_r3	Cpredict2_r3	Cpredict2_r3
IATAL and IMERS - Bunker Fuel levies	Cpredict2_r4	Cpredict2_r4	Cpredict2_r4
Swiss Global Carbon Adaptation Tax proposal	Cpredict2_r5	Cpredict2_r5	Cpredict2_r5

N.B. Revenues can change because e.g. bunker fuel levies provide incentives for limiting international transport.

Ceconomic

Economic consistency

16a. Does implementation of the mechanism fit within current economic thinking or will it cause market distortion?

	Significant distortions to markets	Some unavoidable distortion, not very harmful	No market distortion	I do not know
Caribbean Catastrophe Risk Insurance Facility	Ceconomic_r1	Ceconomic_r1	Ceconomic_r1	Ceconomic_r1
Norwegian Proposal Adaptation levy on International Emissions Trading	Ceconomic_r2	Ceconomic_r2	Ceconomic_r2	Ceconomic_r2
Modified Tuvalu Adaptation Blueprint	Ceconomic_r3	Ceconomic_r3	Ceconomic_r3	Ceconomic_r3
IATAL and IMERS - Bunker Fuel levies	Ceconomic_r4	Ceconomic_r4	Ceconomic_r4	Ceconomic_r4
Swiss Global Carbon Adaptation Tax proposal	Ceconomic_r5	Ceconomic_r5	Ceconomic_r5	Ceconomic_r5

Ceconomic2

16b. Comments (optional; max. 400 characters)

Ctransparency

Transparency

17a. Is it possible to verify, measure and report the revenues?

	Verifying, measuring and reporting is:				
	impossible		difficult, but possible		easy
	--	-	0	+	++
Caribbean Catastrophe Risk Insurance Facility	Ctransparency_r1	Ctransparency_r1	Ctransparency_r1	Ctransparency_r1	Ctransparency_r1
Norwegian Proposal Adaptation levy on International Emissions Trading	Ctransparency_r2	Ctransparency_r2	Ctransparency_r2	Ctransparency_r2	Ctransparency_r2
Modified Tuvalu Adaptation Blueprint	Ctransparency_r3	Ctransparency_r3	Ctransparency_r3	Ctransparency_r3	Ctransparency_r3
IATAL and IMERS - Bunker Fuel levies	Ctransparency_r4	Ctransparency_r4	Ctransparency_r4	Ctransparency_r4	Ctransparency_r4
Swiss Global Carbon Adaptation Tax proposal	Ctransparency_r5	Ctransparency_r5	Ctransparency_r5	Ctransparency_r5	Ctransparency_r5

Next

transparency2

17b. Comments (optional; max. 300 characters)

transact

Transaction costs

18a. The transaction costs of the mechanism should be minimized. Can you rank the mechanisms on their perceived overall transactions costs?

(1=lowest costs, 5=highest costs)

- Caribbean Catastrophe Risk Insurance Facility
- Norwegian Proposal Adaptation levy on International Emissions Trading
- Modified Tuvalu Adaptation Blueprint
- IATAL and IMERS - Bunker Fuel levies
- Swiss Global Carbon Adaptation Tax proposal

transact2

18b. Comments (optional; maximum 200 characters)

political

Political feasibility

19. The mechanism needs to be supported by a vast majority of states. Is this likely to happen?

	The proposed mechanism:			
	will invoke severe political obstacles	is likely to face some obstacles	will be widely accepted	I do not know
Caribbean Catastrophe Risk Insurance Facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Norwegian Proposal Adaptation levy on International Emissions Trading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Modified Tuvalu Adaptation Blueprint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IATAL and IMERS - Bunker Fuel levies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Swiss Global Carbon Adaptation Tax proposal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

political2

20. Which countries or regions will be hard to persuade? (max. 150 characters)

	Countries or regions:
Caribbean Catastrophe Risk Insurance Facility	<input type="text"/>
Norwegian Proposal Adaptation levy on International Emissions Trading	<input type="text"/>
Modified Tuvalu Adaptation Blueprint	<input type="text"/>
IATAL and IMERS - Bunker Fuel levies	<input type="text"/>
Swiss Global Carbon Adaptation Tax proposal	<input type="text"/>

Next

.....
:Cinstitut:

Institutional Feasibility

21a. Are there international institutional barriers to implementation?

	Major institutional reforms are necessary to implement the mechanism	Minor institutional reforms are necessary to implement the mechanism	Institutions are both available and capable to implement the mechanisms
	-	0	+
Caribbean Catastrophe Risk Insurance Facility	:Cinstitut_r1:	:Cinstitut_r1:	:Cinstitut_r1:
Norwegian Proposal Adaptation levy on International Emissions Trading	:Cinstitut_r2:	:Cinstitut_r2:	:Cinstitut_r2:
Modified Tuvalu Adaptation Blueprint	:Cinstitut_r3:	:Cinstitut_r3:	:Cinstitut_r3:
IATAL and IMERS - Bunker Fuel levies	:Cinstitut_r4:	:Cinstitut_r4:	:Cinstitut_r4:
Swiss Global Carbon Adaptation Tax proposal	:Cinstitut_r5:	:Cinstitut_r5:	:Cinstitut_r5:

.....
:Cinstitut2:

21b. What would be the main institutional barriers? (max 500 characters)

.....
:Cindirect:

Indirect effects

22a. Do the financial mechanisms provide indirect effects concerning mitigation of climate change?

	The financial mechanisms have:				
	significant negative effects on mitigation		no effects on mitigation		significant positive effects on mitigation
	--	-	0	+	++
Caribbean Catastrophe Risk Insurance Facility	:Cindirect_r1:	:Cindirect_r1:	:Cindirect_r1:	:Cindirect_r1:	:Cindirect_r1:
Norwegian Proposal Adaptation levy on International Emissions Trading	:Cindirect_r2:	:Cindirect_r2:	:Cindirect_r2:	:Cindirect_r2:	:Cindirect_r2:
Modified Tuvalu Adaptation Blueprint	:Cindirect_r3:	:Cindirect_r3:	:Cindirect_r3:	:Cindirect_r3:	:Cindirect_r3:
IATAL and IMERS - Bunker Fuel levies	:Cindirect_r4:	:Cindirect_r4:	:Cindirect_r4:	:Cindirect_r4:	:Cindirect_r4:
Swiss Global Carbon Adaptation Tax proposal	:Cindirect_r5:	:Cindirect_r5:	:Cindirect_r5:	:Cindirect_r5:	:Cindirect_r5:

.....
:Cindirect2:

22b. Comments (optional; max. 400 characters)

.....
:Ctarget2:

Target group

23. Some funds might only reach certain target groups (e.g. small island states or the least developed countries) or sectors (e.g. the agricultural sector or the transport sector). Could this earmarking be problematic, and in what terms? (max 600 characters)

Next

Q8

CONCLUSION (2 questions)

24. Could you please indicate the importance of all the indicators we use to determine proper mechanisms?

	irrelevant 0	not very important +	important ++	very important +++	I do not know
Additionality	Q8_r1	Q8_r1	Q8_r1	Q8_r1	Q8_r1
Subsidiarity	Q8_r2	Q8_r2	Q8_r2	Q8_r2	Q8_r2
Fairness	Q8_r3	Q8_r3	Q8_r3	Q8_r3	Q8_r3
Capacity	Q8_r4	Q8_r4	Q8_r4	Q8_r4	Q8_r4
Effectiveness	Q8_r5	Q8_r5	Q8_r5	Q8_r5	Q8_r5
Repayment	Q8_r6	Q8_r6	Q8_r6	Q8_r6	Q8_r6
Predictability	Q8_r7	Q8_r7	Q8_r7	Q8_r7	Q8_r7
Economic consistency	Q8_r8	Q8_r8	Q8_r8	Q8_r8	Q8_r8
Public or private sources	Q8_r9	Q8_r9	Q8_r9	Q8_r9	Q8_r9
Transparency	Q8_r10	Q8_r10	Q8_r10	Q8_r10	Q8_r10
Transaction costs	Q8_r11	Q8_r11	Q8_r11	Q8_r11	Q8_r11
Political feasibility	Q8_r12	Q8_r12	Q8_r12	Q8_r12	Q8_r12
Institutional feasibility	Q8_r13	Q8_r13	Q8_r13	Q8_r13	Q8_r13
Indirect effects	Q8_r14	Q8_r14	Q8_r14	Q8_r14	Q8_r14
Stakeholders targeted	Q8_r15	Q8_r15	Q8_r15	Q8_r15	Q8_r15

N.B. no questions were asked on the criteria 'subsidiarity', 'effectiveness' and 'public or private resources'. However, our understanding these concepts are explained in the background material you received

Q8a

25. What is your top three of most important indicators, and why? (max 650 characters)

Next



0%  100%



Thank you very much for your cooperation

Your answers are saved on our browser and will be evaluated thoroughly by our team of researchers. A draft report on the international options for financing adaptation will be send to you for consultation before January 15.

If you have any remarks on the questionnaire, or if you like to add information or share more knowledge, please send an email to:

rob.dellink@ivm.vu.nl

with a CC to

pieter.pauw@ivm.vu.nl

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