

# The Little Climate Finance Book

A guide to financing  
options for forests  
and climate change.



In collaboration with:

OVERSEAS DEVELOPMENT  
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CD containing the full proposals, a library of climate finance  
resources, and translations into Español, Français, Português.



The Global Canopy Programme is an alliance of 37 scientific institutions in 19 countries, which lead the world in forest canopy research, education and conservation. Today, our three main programmes - in science, policy and finance aim to define and explore the range and economic value of forest ecosystem services and to share our findings with decision-makers in government and finance.

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Special thanks to: Bert Metz, Ralph Ashton, Peter Lockley, Doug Boucher, Mark Lutes, Emily Brickell, Thomas Spencer, Jane Wilkinson, Anna Creed, Tanja Havermann, Eric Knight, Eric Usher and Andre Stochinol.

The Little Climate Finance Book is available in French, Spanish and Portuguese. The GCP would additionally like to thank Denise Galzagorri, Edward Davey, Natalia Perez, Joana Setzer and Maria Fernanda Gebara Abifadel for their help in translating this publication.

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This is the first edition of the Little Climate Finance Book First Published December 2009.

Published by: Global Canopy Programme, John Krebs Field Station, Oxford OX2 8QJ, UK.

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[www.company-london.com](http://www.company-london.com)

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# LIST OF ACRONYMS

AWG-LCA	Ad Hoc Working Group on Long-term Cooperative Action under the Convention
AAU	Assigned Amount Unit
AFOLU	Agriculture, Forestry and Other Land Use
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
COP	Conference of the Parties
CSO	Civil society organization
DAC	Development Assistance Committee
DAF	Development Adjustment Factor
DFID	Department for International Development
ER	Emission Reduction
ERU	Emission Reduction Unit
FCPF	Forest Carbon Partnership Facility
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse gas
GNP	Gross National Product
HFLD	High Forest Low Deforestation
IIED	International Institute for Environment and Development
IPCC	Inter Governmental Panel on Climate Change
IPES	International Payments for Ecosystem Services
LDCs	Least Developed Countries
LULUCF	Land Use, Land Use Change and Forestry
MDB	Multilateral Development Bank
MDG	Millennium Development Goal
MRV	Measurable, Reportable, Verifiable
NAMA	Nationally Appropriate Mitigation Action
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PES	Payments for Ecosystem Services
PPP	Purchasing power parity
REDD	Reducing Emissions from Deforestation and Degradation
RER	Reference Emission Rate
RMU	Removal Unit
RS	Reference Scenario
SBSTA	Subsidiary Body on Scientific and Technical Advice
SDR	Special Drawing Rights
SIDS	Small Island Developing States
SFM	Sustainable Forest Management
UNFCCC	United Nations Framework Convention on Climate Change
WBCSD	World Business Council for Sustainable Development
WEF	World Economic Forum

This publication has been produced by:

Global Canopy Programme (GCP)



In collaboration with:

Overseas Development Institute (ODI)



Oxford Institute for Energy Studies (OIES)



Australian National University (ANU)



## ACKNOWLEDGEMENTS

We are especially grateful to Lord James Russell and to Lord Robin Russell and the Benindi Fund, for making production of this book possible. The editorial costs were supported by the Ashden Trust.

The core costs of the Global Canopy Programme are supported entirely by voluntary donations from foundations including The Rufford Maurice Laing Foundation, The Waterloo Foundation, The John Ellerman Foundation, The Millichope Foundation, CHK Charities, Ernest Kleinwort Charitable Trust and donations from individuals. We thank all of them for this valuable support.

This publication is funded in part by the Gordon and Betty Moore Foundation.

The Gordon and Betty Moore Foundation, established in 2000, seeks to advance environmental conservation and cutting-edge scientific research around the world and improve the quality of life in the San Francisco Bay Area. For more information, visit [www.moore.org](http://www.moore.org).

We are continually aiming to improve the Little Climate Finance Book and your feedback is welcome.

Please send comments to Charlie Parker  
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## CLIMATE FINANCE UNDERSTANDING IS A MUST

*The Little REDD Book gave me a jump-start when the Norwegian sponsored REDD program was initiated. When I heard that the Little Climate Finance Book was ready for launching, a hope for a wider understanding of the essence of financing, especially through cap and trade systems, was raised. The climate challenge is substantial, and predictable climate finance is essential in the search for a much-needed global solution. I would like to draw attention to a few observations.*

*Firstly, the only variable that has climate impact in a closed cap and trade system is the total, aggregate cap – not each individual cap. This aggregate is the total sum of allowances admitted into the system for a specified period. It is this sum alone that decides the emissions, and it is this sum alone that sets the carbon price. Interestingly enough, with some few worthy exceptions, when caps are discussed, the debate is not about the sum, but about the distribution of permits at the national level, and quotas or AAUs (Assigned Amount Units) on the international level. When the cap is set however, the distribution of permits or AAUs is solely a question of income distribution and has no climate effect. Normally income distribution questions are handled by economic and finance ministries and not by climate negotiators.*

*The second observation is the misrepresentation of the obligations that create the system; namely the obligation to surrender emission allowances. In the English language this obligation has not yet been named. The concept is simply that the participating emitter (country or entity) has to surrender (at a specified time) allowances equal to its own emissions. The types of legal permits have to be specified in each system. In Kyoto they are called AAUs, CERs (Certified Emission Reductions) and ERUs (Emissions Reduction Units).*

*The third observation is that when legislating cap and trade systems, nationally or internationally, assets are created. Most allowances are distributed free of charge. These assets have therefore not been given fair attention since their value has not fully materialized. In a global system, set for a 2° world, the total value of assets would be around USD 3, 000 billion annually. In the Kyoto protocol, countries were given their AAUs, almost in proportional to their emissions in 1990, free of charge. Since the assets within this regime were given away for free, the Norwegian climate finance proposal, to retain and sell a small percentage of these allowances for a common purpose in a new climate regime, has been characterised as revolutionary, unacceptable, innovative and so forth.*

*The suggestion of international auctioning has needlessly raised new legal queries and worries. Clearly, selling does not give rise to new legal issues that are not present when allocating for free. Furthermore, there is a persistent perception that the scope for mischief is larger when allowances are turned into money than when they are allocated in any other fashion. Thus, some are sceptical, but friends of the Norwegian financial proposal find it an easy and elegant way to generate predictable, new, and additional funding. In any case, good governance is a necessary requirement in order to get reliable and predictable money, even for the best of causes.*

*Climate finance understanding is a must. However, the proliferation of vocabulary in this field has blocked many peoples access to the simplicity of these systems. The Little Climate Finance Book is a helpful guide through this jungle of words and abbreviations, as well as a welcome tool for the insider.*

**Leif Ervik**  
Director General  
Ministry of Finance  
Norway  
November 2009

*The impacts of climate change are already being felt in many developing countries, yet these countries have not been the primary cause of it. The necessary actions to halt climate change and the ways in which nations, such as my own, can be a part of the overall solution are becoming clearer. What requires further clarification is how these actions should be financed, who should shoulder the responsibility and who should receive the benefits.*

*Deep cuts from industrialised nations are vital, but they are not enough; these countries must also bear their historical responsibility for causing climate change by providing adequate, predictable and sustainable finance for developing countries. Climate finance will give urgent support needed by the developing world to take immediate steps to move on to a low-carbon development pathway. It can also enable the most vulnerable countries including the least developed countries and small island developing states to adapt to the effects of climate change.*

*The proposals and analysis contained within this book serve as a guide to the options that are on the table. Coming from a richly forested country – and one that has played a leading role in efforts to bring reducing emissions from deforestation into the international climate agenda – it gives me particular pleasure to see the analysis of financing options for REDD+. The Little Climate Finance Book offers a timely reminder of the speed with which collaborative work among nations to design REDD+ has moved, and the urgency with which we must put these mechanisms into action.*

*Curbing deforestation offers an immediate opportunity for developing countries to tackle climate change, but to achieve this, countries such as my own will need support from developed countries. This will require a flexible, phased approach using a range of financing options including voluntary contributions, proposals such as that of Norway to auction allowances, and carbon market mechanisms. All of these sources of finance are needed to fund actions ranging from capacity building and policy design, through to national implementation that delivers measurable, additional and permanent emissions reductions.*

*It is critical that REDD+ engages indigenous peoples and local communities in the planning, design and implementation stages, and that the benefits of REDD+ are shared equitably across these forest dependent communities. Our precious forests provide essential natural capital upon which so many in the world depend for their livelihoods; they are also a vital resource that will help rural and forest-dependent populations to cope with the impacts of climate change. It will be in all our interests to see that the ecosystem services they provide are maintained for generations to come.*

*Needless to say, financing REDD+ alone will not suffice, but increasingly the international community has recognised that without a solution to deforestation there will be no solution to climate change. We cannot afford to let that happen. Fostering dialogue and understanding on financing options to tackle climate change is an essential step to building the trust that will help deliver a comprehensive climate agreement.*

**Sir Michael Somare**  
Prime Minister  
Papua New Guinea  
November 2009

## WHY FORESTS NEED FINANCING NOW

*Forests offer a one-time opportunity to mitigate and adapt to climate change. Approximately 20% of the emissions reductions needed by 2020 to prevent global temperatures rising above 20C can be achieved by reducing emissions from deforestation and degradation, conserving forest carbon stocks and enhancing forest carbon stocks through afforestation and reforestation.*

*Tropical forests are 'eco-utilities' providing ecosystem services worth around US\$3-5 trillion annually, including and beyond the carbon cycle. They underpin food and energy security and cool the land surface by pumping moisture and transferring heat at local to global scales. In addition, tropical forests deliver a globally deployed natural carbon capture and storage service, removing approximately 1 billion tonnes of carbon from the atmosphere annually – for free.*

*Forests also directly or indirectly support the livelihoods of 1.4 billion people. Maintaining the resilience of this ecosystem is a major opportunity for forest owning nations to adapt to climate change. Poorer nations will not be able to do this without adequate and predictable financing at scale to move to an alternative low carbon development path. Equitable, transparent and effective distribution of funds for these purposes, taking into account the needs of indigenous and local peoples will be crucial to its success.*

*Forests are a rapidly diminishing resource and financing for forests now offers an opportunity unparalleled within the UN climate change negotiations. The Little Climate Finance Book and its companion volume, the Little REDD Book are, I hope, a contribution towards this process.*

**Andrew W. Mitchell**  
Founder & Director  
Global Canopy Programme

## HOW DOES THE LITTLE CLIMATE FINANCE BOOK HELP?

The Little Climate Finance Book has been developed collaboratively with key expert partners from inter-governmental (IGOs) and non-governmental organisations (NGOs). The book draws upon recent work undertaken by the Overseas Development Institute (ODI), Oxford Institute for Energy Studies (OIES), Meridian Institute, United Nations Environment Program (UNEP), Project Catalyst and others.

These organisations have highlighted that the scale of financing needed to tackle climate change is far greater than the current level of commitment from developed countries. To address this issue a range of options have been put forward under the United Nations, by governments and by NGOs to scale up climate finance. Developing countries will not only bear the brunt of climate change but they will also play an important role in the global solution. It is essential that the international community, while recognising their 'common but differentiated responsibilities and respective capabilities' to tackle climate change, agrees a mechanism that will meet the needs of all countries.

The aim of the Little Climate Finance Book is to help key stakeholders including governments, NGOs, the private sector, indigenous peoples and local communities to compare existing and future proposals for climate finance in a consistent way. To do this, the Little Climate Finance book introduces an overarching framework that organises options for international financial mechanisms under three main headings: revenue generation, delivery and institutional arrangements. These modules can be thought of as independent building blocks that can be arranged in a 'mix and match' approach, choosing the most suitable options from each module to create a more effective, efficient, and equitable financial system.

To allow assessment and comparison of the various options within each module we present a set of common criteria, derived from core principles that have emerged within the climate change negotiations and the considerable background work by NGOs, IGOs and policy makers. These criteria have been presented graphically using icons that are introduced within each section and shown on the inside back cover for quick reference.

As a non-partisan analysis, the Little Climate Finance Book does not favour one proposal over another. We do hope, however, that our work will aid understanding and encourage dialogue, and we ask you to send us your comments and suggestions so that we can continue to develop this resource.





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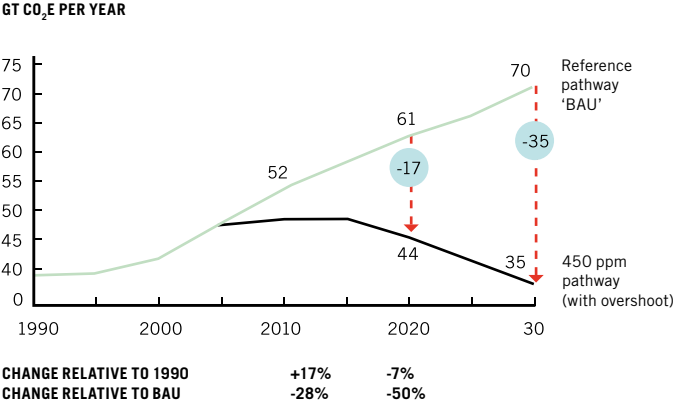
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# **UNDERSTANDING FINANCING**

## THE NEED FOR CLIMATE FINANCE ...

If we are to avoid the dangerous impacts of climate change we must limit global mean temperature increase to 2°C above pre-industrial levels. This means stabilising atmospheric greenhouse gas (GHG) concentrations below 450ppm carbon dioxide equivalent (CO<sub>2</sub>e) (IPCC, 2007). To achieve this target we need to start now to decarbonise the global economy. In absolute terms, this means a reduction in annual global emissions of 17 billion tonnes by 2020 and 35 billion tonnes by 2030 (Project Catalyst, 2009). Putting this into context, global GHG emissions in 2005 were 49 billion tonnes CO<sub>2</sub>e and they are projected to rise under business as usual (BAU) scenarios to 61 billion tonnes in 2020 and 70 billion tonnes in 2030. For us to meet these targets we will need to raise finance at scale for climate change mitigation in developed and developing countries.

**Figure 1.** Emissions reductions required for a 450ppm pathway  
Adapted from  
McKinsey Global GHG Abatement Cost Curve v2.0; Houghton; IEA; US EPA; den Elzen, van Vuuren; Project Catalyst analysis



Developed countries will also need to cover the costs of adaptation to the effects of climate change in developing countries. Even if financing for mitigation succeeds in limiting global warming to 2°C above pre-industrial levels, developing countries will still face climate change impacts such as sea level rise, changes in precipitation and the increased occurrence of extreme weather events. Developing countries will therefore need additional financing to adapt to their changing environment.

## FORESTS AND CLIMATE CHANGE

Emissions from deforestation account for around 17% of global GHG emissions, more than the entire transport sector (IPCC, 2007). An agreement is currently being negotiated under the United Nations Framework Convention on Climate Change (UNFCCC), to include reducing emissions from deforestation and forest degradation (REDD+) in a future climate change regime.

The term REDD+ defined under paragraph 1 b iii) of the Bali Action Plan refers to “*reducing emissions from deforestation and forest degradation ... and enhancement of forest carbon stocks in developing countries*”. Forests are therefore acknowledged as both a source and a sink of carbon emissions (see page 174 for a Glossary of Terms). This potential of forests to act as both a source and a sink means that activities under REDD+ account for around 22% of global mitigation potential. Looking specifically at developing countries, where the majority of these emissions occur, REDD+ accounts for 39% of total abatement. Forests will therefore be an essential component of developing countries efforts to combat climate change.

Forests also play a crucial role in developing countries' ability to adapt to the impacts of climate change. Forests provide vital ecosystem services (ES) such as rainfall recycling that are especially important from a climate change adaptation perspective (Trivedi et al.). Tropical rainforests also directly support the livelihoods of 90% of the 1.4 billion people living in extreme poverty (World Bank, 2004) and local communities depend on forests as a source of fuel, food, medicines and shelter. The loss of forests therefore jeopardises the livelihoods of the poor and the ability of the world's poorest to adapt to climate change.

### FINANCING REDD+

Currently the UNFCCC lacks a legally binding framework to protect tropical rainforests. Financing for forests has, therefore, typically been underfunded and poorly coordinated. The table below presents estimates of the current range of international financial mechanisms available for REDD+ activities. There is a clear shortfall in the current commitments shown here and the scale of funding required, estimated to be between USD 17-33 billion per year (see Table 4).

SOURCES	ADMINISTERED	USD BILLION	NOTES
BioCarbon Fund	World Bank	0.09	Over 4 years
Climate and Forest Initiative	Norway	2.250	Over 5 years
Congo Basin Forest Fund		0.16	
Congo Basin Forest Partnership		0.23	
Earth Fund	GEF, IFC <sup>1</sup>	0.2	
Forest Carbon Partnership Facility	World Bank	0.4	Pledged
Forest Investment Program	World Bank	0.35	Pledged
International Climate Initiative	Germany	0.09	Pledged
International Environmental Transformation Fund	UK	0.11	
International Forest Carbon Initiative	Australia	0.18	Pledged
Rainforest Fund	Norway	0.2	
UN REDD Program	UNDP	0.05	Pledged and deposited
Voluntary Carbon Market		0.04	Volume traded, 2007
<b>TOTAL</b>		<b>4.12</b>	

**Table 1.** Sources of finance for REDD+. Source: (Angelsen et al., 2009), (World Bank, 2009b) and [www.climatefundsupdate.org](http://www.climatefundsupdate.org)  
1. The International Finance Corporation (IFC) is a member of the World Bank Group. See <http://www.ifc.org/about>



## ... IN DEVELOPING COUNTRIES

The majority of mitigation potential lies in developing countries: Of the 17 billion tonnes of emissions reductions required in 2020, 70% is achievable in developing countries (Project Catalyst, 2009)<sup>2</sup>. Given the limited ability of developing countries to finance domestic mitigation, this will therefore require large scale financing from developed countries to allow developing countries to meet the costs of climate change mitigation.

The *impacts* of climate change are also felt the most strongly in developing countries and it is the poorest countries - in particular the poorest communities within those countries - that are least equipped to adapt to the effects of climate change. Finance at scale will therefore also be required in developing countries to help implement urgent adaptation actions that build their resilience to climate change.

This book focuses on international climate finance and the flows of finance that are required to allow developing countries to mitigate and adapt to climate change.

Financing REDD+ will be an essential part of this deal since forests account for nearly 40% of developing country mitigation potential and can play a crucial role in developing countries' ability to adapt to climate change (see page 17). The different options for financing REDD+ are also more advanced than other elements of the Copenhagen agreement. The thinking on financing of REDD+ has been advanced by NGOs, IGOs and Parties to the UNFCCC.

Originally when developing the Little Climate Finance Book, the GCP sought only to understand the range of options that have been put forward for Financing REDD+. It soon became apparent, however, that the options for financing REDD+ are also applicable for other mitigation and adaptation actions. Although some proposals have been put forward specifically to finance REDD+ or adaptation, many proposals do not distinguish how climate finance should be used or propose that finance could be used for a range of actions. This publication therefore presents all of the options that have been put forward for financing climate change activities in developing countries.

<sup>2</sup>. This figure assumes that developed countries achieve their full abatement potential up to a marginal cost of USD 90/tCO<sub>2</sub>.

## THE COSTS OF CLIMATE CHANGE

Various estimates exist for the costs of climate change mitigation and adaptation. Although synergies exist between these two activities, especially through conserving tropical forests (see page 17), the costs of mitigation and adaptation actions are often dealt with independently. Table 2 shows the range of estimates that have been put forward by various institutions for mitigation and adaptation financing in developing countries.

	2010 – 2020	2030	SOURCE
<b>MITIGATION</b>			
UNFCCC		92 – 97	(UNFCCC, 2007a)
McKinsey and Co.	80 – 120		(Project Catalyst, 2009)
European Commission	140		(European Commission, 2009)
<b>ADAPTATION</b>			
UNFCCC		27 – 66	(UNFCCC, 2007a)
McKinsey and Co.	30 – 68		(Project Catalyst, 2009)
World Bank	9 – 41		(World Bank, 2009b)

**Table 2.** Estimates for international mitigation and adaptation funding in developing countries (USD billions).

Estimating the costs of adaptation financing has been harder to predict. This is partly because the costs of adaptation are less well understood and because the impacts of climate change are more variable in nature (UNFCCC, 2007a). A study by IIED has shown that current figures may underestimate the costs of adaptation as they only include partial assessment of the impacts of climate change and use an inappropriate benchmark for current levels of investment.

Current estimates all agree that the scale of financing required for climate change mitigation and adaptation in developing countries is of the order of *hundreds of billions* of USD. The range of estimates presented in Table 2 above will be used throughout this publication. Developing countries will need between USD 80 - 140 billion to finance mitigation activities and USD 10 - 70 to adapt to the impacts of climate change.

Although the scale of financing required is high, studies such as the Stern Review and The Economics of Ecosystems and Biodiversity (TEEB) have demonstrated that the costs of inaction by far outweigh the costs of action (Stern, 2006, Sukhdev, 2008). Lord Stern highlighted that the benefits of stabilising GHG

concentrations at 550 ppm CO<sub>2</sub>e between now and 2050 instead of a BAU trajectory would have a net present value of USD 2.5 trillion and the TEEB report showed that the net present value of services from forest ecosystems that are lost each year amounts to between USD 2-5 trillion. It is therefore in both our economic and social interests to act now instead of delaying.

THE CURRENT SCALE OF FINANCING: MIND THE GAP

Whilst there is an urgent need for large-scale climate financing to allow developing countries to mitigate and adapt to climate change, there is a large gap in the current scale of climate finance. Table 3 shows the current sources of international financing for both mitigation and adaptation. These values are total amounts and not annualised in any way.

**Table 3.** Current sources and scales of international financing for climate change mitigation and adaptation. Source: (World Bank, 2009b) and www.climatefundsupdates.org

3. Climate Investment fund excluding REDD and adaptation funds, namely the Forest Investment Programme and Pilot Program for Climate Resilience respectively.

4. Mitigation component only for Cool Earth Partnership and International Climate Initiative.

5. The Pilot Programme for Climate Resilience of the Climate Investment Funds.

6. Figures in Table 3 show total amounts pledged over a 3 - 5 year period. Annualised amounts will be therefore be around USD 8 billion per year compared to a required estimate of USD 80 - 140 billion annually.

SOURCES	IMPLEMENTER	USD BILLION	NOTES
MITIGATION			
UNFCCC			
Clean Development Mechanism		18	Potential delivery by 2012
GEF Trust Fund	GEF	2.4	Disbursed
MULTILATERAL			
Climate Investment Funds <sup>3</sup>	World Bank	5.6	Pledged 2009–2012
Forest Carbon Partnership Facility	World Bank	0.4	USD 160 million disbursed
Carbon Partnership Facility	World Bank	0.5	USD 140 million disbursed
BILATERAL <sup>4</sup>			
Cool Earth Partnership	Japan	8	Pledged 2008–2012
Climate and Forest Initiative	Norway	2.3	
International Climate Initiative	Germany	0.6	USD 347 million disbursed
International Forest Carbon Initiative	Australia	0.2	Pledged 2007–2012
TOTAL MITIGATION		38	
ADAPTATION			
UNFCCC			
GEF	GEF	0.4	USD 130 million disburs
Adaptation Fund	AFB	0.3-0.6	Estimated 2008-2012
MULTILATERAL			
Climate Investment Funds <sup>5</sup>	World Bank	0.6	Pledged
BILATERAL			
Cool Earth Partnership	Japan	2	Pledged 2008 - 2012
International Climate Initiative	Germany	0.2	
TOTAL ADAPTATION		3.8	
TOTAL		41.8	

Whilst the table above is not an exhaustive list of all climate-related finance, it demonstrates that the current scale of finance (~ USD 8 billion per annum) is an order of magnitude lower than even the conservative estimates for the amount required by developing countries(USD 90 - 210 billion) (see Table 2)<sup>6</sup>.

THE COSTS OF REDD+

Estimates for the scale of funding required for REDD+ will depend on the type of activity being funded. One approach to break down funding activities is to group REDD+ actions into three phases (see page 105): Capacity building; Implementation of national policies and measures; and full-scale implementation.

An estimate for Phase 1, which includes capacity building activities, ranges between USD 340 million-2.3 billion over 5 years for 25 tropical forest owning nations. The costs of Phase 2, including the implementation of policies and measures, are estimated to be USD 4 billion over 5 years for 40 nations. These estimates are highly uncertain, however, as they are based on historical financing that reflects the availability of funds rather than actual requirements (Angelsen et al., 2009).

Assessments of the costs of Phase 3, the full-scale implementation of REDD+, are generally based on opportunity costs that a country will face by not deforesting an area of land. These models aim to estimate the foregone revenue a developing country would otherwise receive in the absence of a REDD+ mechanism. Opportunity cost models have been criticised, however, for their inability to account for other factors such as development objectives and the use of alternative methods for reducing deforestation including the removal of agricultural subsidies, moratoria on road construction and increased capacity to enforce forestry laws (Busch et al., 2009). A range of estimates exists using these models across different targets and timeframes and are shown in Table 4 below.

TARGET	SCALE (USD BILLION/YR)	SOURCE
DEFORESTATION 25% REDUCTION by 2015 (USD 22-37 over 5 years)	4-7	IWG-IFR (2009)
DEFORESTATION 50% REDUCTION by 2030 (65% reduction)	10.4	Blaser & Robledo (2007)
by 2030	17-33	Eliasch Review (2008)
by 2030	17.2-28	Kindermann, et al. (2008)
by 2020	22.5-37.5	European Commission (2008)
by 2025	33.5	Obersteiner et al. (2006)
DEFORESTATION ELIMINATION in 8 countries	5-10	Greig Gran (2008) (Stern Review)
by 2030	12.2	Blaser & Robledo (2007)
top 20 countries (95% reduction)	30	Strassburg, et al. (2008)
by 2100	25-185	Sathaye et al. (2007)

Table 4. Estimates of the scale of financing for Phase 3: Full-scale REDD+ implementation

The largest contributors to international climate finance are the CDM and GEF operated under the UNFCCC, the CIFs operated by the World Bank and the various bilateral initiatives. Adaptation financing is grossly underfunded with total pledges to date amounting to just USD 3.8 billion, of which only USD 130 million has been disbursed. Whilst some of these mechanisms can be scaled up, there is a clear and urgent need within the international community to bring new and innovative sources of finance online to fill the gap in international climate financing.

## THE STORY SO FAR...

At its thirteenth session in Bali in 2007, the Conference of the Parties (COP) decided under the Bali Action Plan that a comprehensive approach to enable the full, effective and sustained implementation of the Convention should include, inter alia:

*“Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation [including] improved access to adequate, predictable and sustainable financial resources”*

To facilitate negotiations on the elements contained within the Bali Action Plan the COP launched the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) that is scheduled to complete its work and report back at COP 15 in December 2009. Over the intervening two years Parties have submitted a range of proposals under the AWG-LCA under paragraph 1 (e) of the Bali Action Plan to address *“enhanced action on the provision of financial resources and investment”* (UNFCCC, 2007b).

At AWG-LCA 7 in Bangkok in September 2009, the Parties further established six contact groups under the AWG-LCA corresponding to the individual elements contained in paragraph 1 of the Bali Action Plan<sup>7</sup>. Discussions on finance have taken place under the contact group on *enhanced action on the provision of financial resources and investment* (hereafter ‘contact group on finance’). Negotiations under this group have centered on three key elements of a financial mechanism, namely, the **generation** of resources, **delivery** of financial resources, and the governance of **institutional arrangements**<sup>8</sup>. The structure of this book is accordingly structured under these three overarching elements.

7. The six groups are: a **shared vision** for long-term cooperative action; enhanced action on **adaptation** and its associated means of implementation; enhanced action on mitigation and its associated means of implementation; enhanced action on provision of **financial resources and investment**; enhanced action on **development and transfer of technology**; enhanced action on **capacity-building**. The first five groups correspond to paragraphs 1 (a) to 1 (e) of the Bali Action Plan with the cross-cutting issue of capacity building meriting a separate contact group.

8. Taken from Non-papers No. 54 under the contact group on enhanced action on the provision of financial resources and investment and are available at [http://unfccc.int/files/kyoto\\_protocol/application/pdf/54fin61109.pdf](http://unfccc.int/files/kyoto_protocol/application/pdf/54fin61109.pdf) and the Non-paper on common elements presented at AWG-LCA 6 in Bonn in August available at [http://unfccc.int/files/meetings/ad\\_hoc\\_working\\_groups/lca/application/pdf/finance140809.pdf](http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/finance140809.pdf).

## BEYOND ODA

Official development assistance (ODA) is defined as official financing from general budgetary expenditure given by national governments to developing countries to promote and implement development. The use of ODA for climate change, particularly in relation to adaptation finance, is controversial due to concerns over the additionality of finance.

If climate finance is to be additional, it must generate revenue over and above existing and committed volumes of ODA, to ensure that neither the goals of development aid nor those of climate finance are compromised. At present, with the exception of the CDM and the Kyoto Protocol's Adaptation Fund (financed through a 2% levy on CDM proceeds) most international climate change funding instruments are classified as ODA.

There is much debate within the UNFCCC and in other international forums over whether international public finance under a future climate agreement should be separate from ODA or at least additional to the 0.7% target (as a number of developing countries argue), or whether ODA has a legitimate role to play in meeting future climate finance commitments (as argued by some developed countries).

There are strong links between adaptation and development, from both a theoretical and a financial perspective. Development is an essential component of adaptation as it enhances resilience and increases capacity. More often than not, adaptation to climate change will be carried out alongside development interventions. Lord Nicholas Stern argues that funding for development and for adaptation should be complementary, given that ‘adaptation is essentially development in a more hostile climate’<sup>9</sup>. Failure to address both of these goals in an integrated way could mean that some development efforts result in new infrastructure that is not ‘climate-proofed’. Efforts should be made, therefore, to streamline adaptation finance with ODA, while avoiding displacement of current ODA streams essential for development.

9. Taken from a UK Department for International Development (DFID) conference on the future of international development <http://www.lse.ac.uk/collections/granthamInstitute/pressReleases/Stern%20International%20development%20speech%209%20Mar09.doc>



# **THE OVERARCHING FRAMEWORK**

# THE BUILDING BLOCKS

The diagram below presents a framework for understanding international financial mechanisms<sup>10</sup>. The framework is comprised of three basic modules:

**Generation** (How is finance raised?)

**Delivery** (How is finance delivered?)

**Institutional Arrangements** (How are decisions made?)

Individually, these modules represent a discrete area of the financial system and when combined they describe the overall framework for how an international financial system might work. Each of these elements has a normative component, i.e. 'how should the mechanism work?' and a mechanistic component, i.e. 'how will the mechanism work?' (see Figure 2). Throughout this document there will be questions related to 'how *should*' or 'how *shall*' a certain mechanism work (normative) and questions of 'how *would*' or 'how *will*' a certain mechanism work (mechanistic) given its specific design. These normative and mechanistic dimensions are discussed in more detail in the individual sections of the book.

## MIX AND MATCH OPTIONS

This book is divided into three sections to correspond with the three modules shown above. Each section will provide an analysis and summary of the various proposals that have been put forward under each module.

The proposals presented within one module potentially impose constraints on options in other modules. For example, the use of a market mechanism under revenue generation would be incompatible with a grant for delivery of finance. When viewing the proposals as a group, however, there are a number of different 'mix and match' options; for example, the decision to use the auctioning of allowances to generate revenue can, broadly speaking, be addressed separately from the question of whether to use grants or concessional loans to deliver finance.

To provide a quick reference to the different modules of the framework, the colours for the three modules shown above are used throughout this guide, **green will always signify generation, blue: delivery and brown: institutional arrangements**. Additionally, where **forests and REDD** are being discussed these pages will be **red** so that they can be easily referenced.

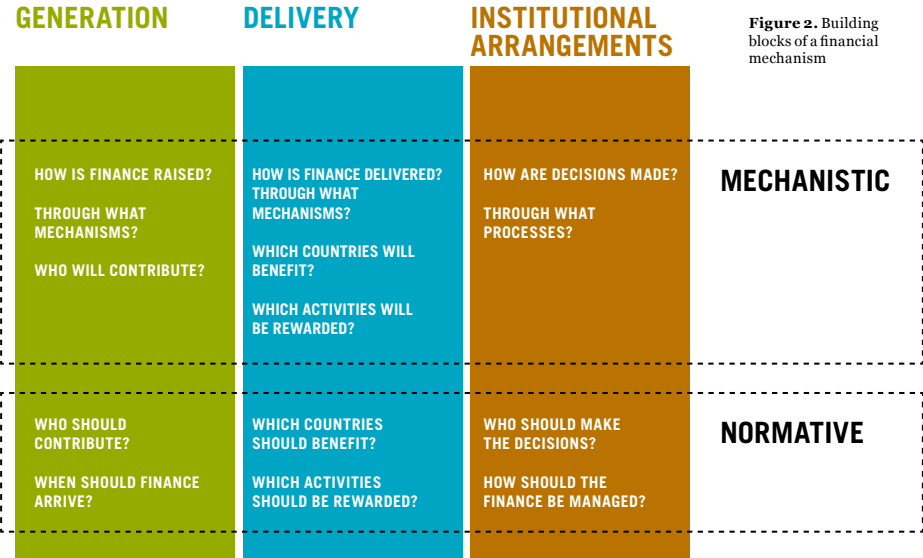


Figure 2. Building blocks of a financial mechanism

<sup>10</sup>. Developed in conjunction with the Overseas Development Institute (ODI), Oxford Institute for Energy Studies (OIES and the Australian National University (ANU)

# GENERATION

THE



## UNDERSTANDING GENERATION

The first module in the framework examines the range of options that have been put forward to generate international finance for climate change mitigation and adaptation. The question of how money is raised receives significant attention within international negotiations and domestic political decision-making. This is partly due to the current underfunding of mitigation and adaptation activities in relation to the commitments laid out under the Convention, and also due to the need to find innovative solutions in light of the current financial downturn faced by developed and developing countries.

### THE STATE OF PLAY

With the exception of the Clean Development Mechanism (CDM) and the Adaptation Fund<sup>1</sup> the majority of international public climate finance is generated through national voluntary contributions or official development assistance (ODA)<sup>2</sup>. As discussed above the current scale of finance, around USD 8 billion per annum, is insufficient to meet the estimated USD 80 - 210 billion needed by developing countries to mitigate and adapt to the effects of climate change. There is therefore an urgent need for the international community to develop new and innovative sources of finance to address the ‘gap’ in international climate financing.

### A BRIEF HISTORY

The Convention lays out clear responsibilities for developed countries to provide financial resources for developing country mitigation and adaptation activities. Article 4.3 of the Convention states that:

*“The developed country Parties and other developed Parties included in Annex II shall provide new and additional financial resources [and] ... such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of implementing measures that are covered by paragraph 1 of this Article”*

This commitment was reiterated under paragraph 1 (e) of the Bali Action Plan, which requires:

*“Enhanced action on the provision of financial resources and investment [including] Improved access to adequate, predictable and sustainable financial resources and financial and technical support, and the provision of new and additional resources, including official and concessional funding for developing country Parties”*

### PRINCIPLES

The contact group on finance has had before it a series of non-papers that have formed the basis of negotiations on revenue generation<sup>3</sup>. From these discussions a set of common principles have emerged including the principles of adequacy, predictability, sustainability, equity and ‘common but differentiated responsibilities and respective capabilities’ and measurability<sup>4</sup>.

1. The adaptation fund generates finance through a levy on the issuance of Certified Emissions Reductions.

2. Foreign direct investment and domestic finance also provide significant sources of finance but are considered outside of the commitments required by developed countries under the Convention and are therefore not discussed here.

3. Non-papers No. 34 and 54 are relevant to the contact group on enhanced action on the provision of financial resources and investment and are available at [http://unfccc.int/files/kyoto\\_protocol/application/pdf/54f661109.pdf](http://unfccc.int/files/kyoto_protocol/application/pdf/54f661109.pdf)

4. Taken from the latest non-paper No. 54, as well as the Non-paper on common elements presented at AWG-LCA 6 in Bonn in August available at [http://unfccc.int/files/meetings/ad\\_hoc\\_working\\_groups/lca/application/pdf/finance140809.pdf](http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/finance140809.pdf).

GENERATION FRAMEWORK

CRITERIA

The diagram below presents a framework to analyse and understand the different proposals that have been put forward for revenue generation. The framework comprises five revenue generation criteria that have been derived from the principles of adequacy, predictability, sustainability, equity and measurability outlined above. The criteria are as follow:

**Scale:** How much money will be raised?

**Timeframe:** Over what period?

**Level:** At what level?

**Source:** Where will revenue be generated?

**Contribution:** Who will pay? Who should pay?

Using these criteria allows us to compare individual proposals and to collectively see areas of convergence or divergence. We can also use the criteria to assess how closely the revenue generation proposals align with the principles outlined above.

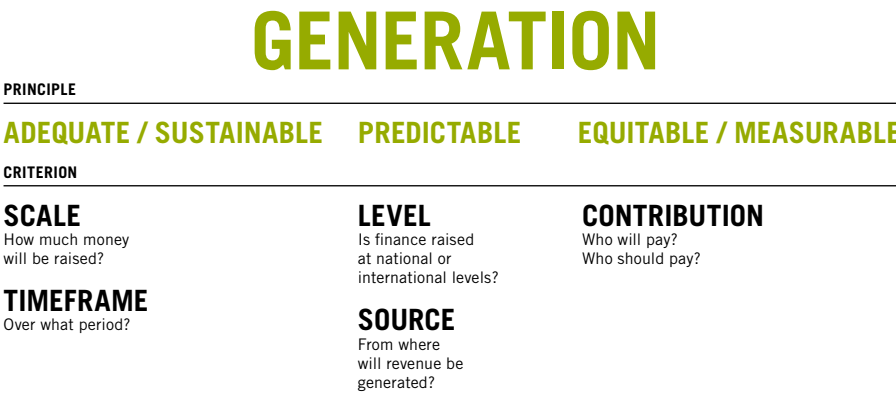
As shown in Figure 2, there are two ways in which we can view revenue generation proposals. The first consideration for these proposals is the normative question of ‘who should pay’ for climate change mitigation and adaptation. The question of who should pay under the Convention is commonly interpreted through the concept of ‘*common but differentiated responsibilities and respective capabilities*’ (see page 40).

The second dimension to revenue generation proposals is the mechanistic question of ‘how revenue is generated’ under a given mechanism based on its specific design. There will also be important distributional implications within the mechanistic dimension of revenue generation, leading to the question of ‘who would pay?’ under a given mechanism (see Figure 2).

The proposals for revenue generation are accordingly presented in two sections: ‘Contribution Frameworks’ presents proposals that address the purely normative issue of ‘who should pay’ and ‘Generation Mechanisms’ presents proposals that are primarily mechanistic but nonetheless have distributive implications.

The following pages provide an explanation of these criteria in relation to the principles outlined above and show how these criteria can be used to understand proposals for revenue generation.

Figure 3. A framework for understanding revenue generation



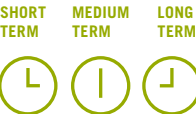
SCALE

The first step in understanding revenue generation options is to know how much money will be raised by a given mechanism. The scale presents an estimate of how much revenue the mechanism will generate on an annual basis.

Options: Numeric Value in billions of USD

An essential requirement of any revenue generation mechanism is its ability to deliver *adequate* financing for climate change mitigation and adaptation in developing countries. Whilst it is unlikely that any one of these revenue generation options will be adequate to meet all the mitigation and adaptation needs of the developing world, the focus should be on how to maximize the amount of funding possible, using a combination of mechanisms (Brown et al., 2009).

The concept of scale is linked to the questions of when money will become available and how predictable the source of finance will be. These questions will be addressed in the timeframe and level components of this framework respectively.



TIMEFRAME

The timeframe refers to the period when financing from a mechanism is likely to be made available.

Options: Short-term (<2012), Medium-term (2012-2020), Long-term (>2020)

Financial resources can be delivered in the short-, medium- or the long-term, defined here as 2010-2012, 2013-2020 and 2021 and beyond respectively. These periods have been chosen in line with the expected future commitment periods under the UNFCCC.

The availability of funds over different timeframes is strongly related to the suitability of these funds for climate change action. Certain activities such as capacity building and demonstration projects will require upfront finance in the short term, whereas other actions such as the implementation of national policies and measures or a fully integrated carbon market might not be

required at scale until after 2012. This concept has been captured under REDD as the ‘phased approach’ (see page 105). This approach, however, is applicable to other sectors and themes within the climate change agenda.

As discussed under the scale criterion, it is unlikely that any one mechanism proposed here would be sufficient to deliver the scale of financing required across all three timeframes. It will be essential though, that financial sources and timeframes are matched to delivery needs so that adequate financing is available in a timely manner for developing countries to act on climate change.

LEVEL

The level describes whether revenue will be generated and held either nationally or internationally.

Options: National, International

Revenue can either be generated at the national level through domestic policy and frameworks or at the international level using internationally agreed mechanisms. An important consideration for the predictability of financial resources will be where this revenue is managed and controlled.

Revenue generated at the national level is often considered to be an unpredictable source of international finance due to the ‘domestic revenue’ problem (see page 36). Whilst revenue generation at the international-level is, in theory, a simple solution to the domestic revenue problem, it faces political challenges, as contributing countries have historically preferred to maintain visibility and control over their contribution to international finance (Müller and Gomez-Echeverri, 2009).

The level at which revenue is generated is not the only consideration for the predictability of the funding source. The use of carbon markets and market-linked options are often seen as a further way to increase predictability of revenue generation. These options are discussed in the source criterion.



# THE ‘DOMESTIC REVENUE’ PROBLEM

The domestic revenue problem arises when money that is intended for international purposes enters national-level budgets. Due largely to the competing concerns of other national interests, domestic revenue is less likely to be transferred to international causes as it is seen to be nationally owned (Doornbosch and Knight, 2008, Müller, 2008). Although governments can set aside<sup>5</sup> revenue that is generated nationally for international purposes, this funding is still unpredictable as both national policies and national circumstances can change.

A potential solution to the domestic revenue problem is to use ‘off-budget’ funding streams (Müller and Gomez-Echeverri, 2009). An example of off-budget financing is national lotteries. Although finance generated by national lotteries is intended for public use it is not technically owned by the government and it is therefore essential that it remains outside of national budgets. Keeping lottery money ‘off-budget’ makes it relatively simple later on, for governments to disburse this revenue for its intended use. This approach could be used for national-level revenue generated for international climate finance. Another solution to the domestic revenue problem would be for finance to be generated at the regional or international level. As discussed above, though, this approach faces political challenges.

5. The terms hypothecation or earmarking are often used to refer to this process of setting aside revenue for a given purpose.

# SOURCE

The source criterion refers to the type of economic instrument that the mechanism uses to generate revenue.

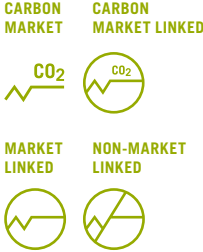
**Options: Carbon Market, Carbon Market Linked, Market Linked, Non-Market Linked.**

Proposals for economic instruments can broadly be grouped into four categories. These groups have been chosen due to their varying implications for the predictability and adequacy of revenue streams.

**Carbon markets** can be interpreted in many ways in different contexts. In terms of revenue generation, this book uses the term to refer to national cap and trade systems in developed countries where offsets can be imported to meet national targets. Revenue is generated in this mechanism through the demand for offsets at a given price, which should be the average cost of abatement in developed countries.

**Carbon market-linked** mechanisms raise revenue indirectly through the carbon market. This distinction has been made for two reasons: Firstly, it is important to know which mechanisms rely on the existence of a fully functioning cap and trade system; and secondly, the predictability of funding from carbon market-linked mechanisms will be dependent on the stability and size of the overall carbon market. This is particularly important for carbon market-linked mechanisms that require a monetization of allowances through the sale of these allowances in national or international carbon markets (UNFCCC, 2008a).

The third category used here, **market-linked** mechanisms, refers to proposals that generate revenue through a tax or levy on a market other than the carbon market. The markets that are levied are still in general related to the principle of equity through the concepts of ‘*responsibility*’ and ‘*capability*’ outlined on page 40. Some market-linked mechanisms are linked to GHG emissions, e.g. a levy on maritime or aviation fuels or a carbon tax, and therefore satisfy the polluter pays principle and the ‘*responsibility*’ component of equity. Others mechanisms are linked to financial flows, such as a currency transaction tax, and are therefore more





weighted to the ‘*capability*’ component of equity. This aspect of market-linked mechanisms highlights how the design of mechanistic proposals can be linked with the normative component of revenue generation (see Figure 2). In general, market linked mechanisms will generate less revenue as the size of the market decreases. This is an important consideration for mechanisms such as the carbon tax or taxes on emissions, where emissions are forecast to decrease over time.

**Non-market** mechanisms generate revenue through mechanisms that are not linked to markets. Options under this category can relate to a range of normative burden-sharing principles and the predictability of these mechanisms will vary; some mechanisms use one-off payments, such as the proposal for a donation of Special Drawing Rights (SDRs), whereas others propose continuous levies, e.g. a tax on sovereign wealth funds.

Any revenue generated directly from carbon markets will be used exclusively for mitigation. Carbon-market linked, market-linked, and non-market market mechanisms can be used either for mitigation or adaptation. The thematic focus of the finance is discussed in the delivery section.

Both market-linked and non-market linked mechanisms will face barriers to implementation under the UNFCCC as these revenue sources are both beyond the political jurisdiction and mandate of the COP and are often governed by independent international organisations or national governments.

## CONTRIBUTION

The contribution criterion describes ‘who will pay’ under a given mechanism.

### Options: Pie chart showing distribution of payments as a % of total payment

The contribution or ‘burden-sharing’ of payment is a central to the design of an international financial mechanism. The contribution criterion uses a pie chart to show the percentage of the total burden that the US, EU, the rest of Annex I and Non-Annex I countries would contribute under a given

mechanism. As outlined on page 40 there a multitude of ways in which ‘*responsibility*’ and ‘*capability*’ can be interpreted under the convention. GHG emissions and GDP have been used as proxies for ‘*responsibility*’ and ‘*capability*’ but the choice of application and weighting of these metrics will have implications for the distribution of commitments across countries.

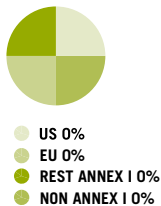
It is important to note that the contribution criterion discussed here can be interpreted both normatively and mechanistically (see Figure 2).

The normative question of ‘who *should* pay’ for climate change mitigation and adaptation is framed in terms of ‘*responsibility*’ and ‘*capability*’ under the Convention (see page 40). Certain proposals, such as the G77+ China and the Mexican proposals seek primarily to answer the normative component of burden sharing rather than specifying a mechanism for *how* revenue would be generated<sup>6</sup>.

The remainder of the proposals outlined here are primarily mechanistic but will nonetheless have implicit distributional implications<sup>7</sup>. For these proposals, the contribution criteria will evaluate mechanisms on a purely mechanistic basis to show ‘who *will* pay’ under a given revenue generation mechanism based on its underlying assumptions and structure. It will be important to understand, however, even at a mechanistic level, the distributive implications of revenue generation mechanisms.

6. For example, the G77 + China proposal states that Annex I Parties should contribute between 0.5 - 1% of their GNP, and indicates a strong preference for public funds, but does not further specify how the revenue should be generated. The Mexican proposal in addition to creating a normative framework, suggests various mechanisms by which revenue could be generated including the international auctioning of allowances.

7. For example, the Swiss proposal specifies a CO<sub>2</sub> tax applied to all countries with an exemption for those below 1.5t CO<sub>2</sub>e per capita.



# EQUITY IN REVENUE GENERATION

Parties in general have made it clear that they see the principle of *'common but differentiated responsibilities and respective capabilities'* as central to the concept of equitable distribution of financial resources (including revenue generation, delivery and institutional arrangements). Whilst there appears to be some consensus that Parties' obligations to contribute to revenue generation should be differentiated at least partially according to their *responsibility for causing* and *capability to address* climate change, there is disagreement over how *'responsibility'* and *'capability'* should be defined and distributed, and what role (if any) developing countries should play in revenue generation.

## INTERPRETATION OF 'RESPONSIBILITY'

Responsibility is usually interpreted as a party's proportional contribution to the problem of climate change (measured in terms of cumulative emissions or contribution to temperature increase), but countries' responsibilities may differ depending on how the parameters for responsibility are set. One key question is whether to base the timeframe for responsibility on: (i) total cumulative emissions since industrialisation (around 1750) (see Figure 4); (ii) emissions from 1990 onwards (on the basis that all parties should have known about the role of emissions in causing climate change by the time of the first IPCC report); (iii) current emissions (see Figure 5) (European Commission, 2009); or (iv) another agreed intermediate point. A further question is whether calculations of responsibility should exclude a minimum level of emissions based either on (i) the earth's capacity to absorb some emissions harmlessly, or (ii) a 'subsistence' level of emissions required by each person to maintain a minimum standard of living (Dellink et al., 2009, Shue, 1993, Müller et al., 2009).

FIGURE 4  
TOTAL CUMULATIVE EMISSIONS  
BY REGION SINCE 1850



US 30%  
EU 27%  
REST ANNEX I 19%  
NON ANNEX I 24%

FIGURE 5  
CURRENT EMISSIONS  
BY REGION (2007)



US 21%  
EU 14%  
REST ANNEX I 17%  
NON ANNEX I 48%

Source: Climate Analysis Indicators Tool (CAIT) Version 6.0.  
(Washington, DC: World Resources Institute, 2009).

## INTERPRETATION OF 'CAPABILITY'

The type of capability most relevant to climate change financing is likely to be the capability to pay rather than to mitigate domestically, particularly where international emissions trading is possible (Pendleton and Retallack, 2009). Thus capability could be measured according to indicators such as GDP (see Figure 6) or assessed financial contributions to the UN (Dellink et al., 2009). More nuanced approaches to measuring capability also take into account income inequality within each country (which may be masked by average GDP per capita measures), for example by measuring a country's capability according to GDP above a minimum per capita income threshold (see Figure 7) (Baer et al., 2008).

## COMBINING 'RESPONSIBILITY' AND 'CAPABILITY'

An overall arrangement for burden-sharing or equity under the Convention could be determined according to an index combining measures of responsibility and capability (Baer et al., 2008, European Commission, 2009), with the two measures either being

FIGURE 6  
CURRENT GDP BY REGION  
(2007)



US 24%  
EU 31%  
REST ANNEX I 19%  
NON ANNEX I 27%

Source: World Bank,  
World Development Indicators

FIGURE 7  
INCOME ABOVE A DEVELOP-  
MENT THRESHOLD (2010)



US 30%  
EU 29%  
REST ANNEX I 17%  
NON ANNEX I 24%

Source: (Baer et al., 2008)

weighted equally or given different weightings. The choice of weighting of these elements is highly politicised and has been the focus of much debate. In general, however, mechanisms that place an emphasis on cumulative emissions (and/or make some allowance for 'subsistence' emissions) will place a greater burden on developed countries (see Figure 4) and those that focus on current emissions will place a greater burden on developing countries (see Figure 5) (World Bank, 2009b).

Most burden-sharing frameworks show that developed countries would bear the majority of the burden (Dellink et al., 2009, Müller et al., 2009). In most of these scenarios, the EU and US and the rest of Annex I countries each account for around a third of developed countries' total share<sup>8</sup>.

8. Developed countries are those listed in Annex I of the Convention and developing countries are Parties not listed in Annex I of the Convention (Non-Annex I Parties). Annex II Parties consist of the OECD members of Annex I Parties, not including Economies In Transition (EIT) that have a financial obligation under the Convention. See page 174 for a full Glossary of Terms.  
9. Article 4.3 of the Convention only explicitly refers to financial obligations from developed (Annex II) countries. Similarly, Article 4.7 establishes a link between financial commitments from developed countries and developing countries' ability to implement their commitments under the Convention.

10. The 'Bali firewall' refers to the delineation between paragraph 1(b)(i) of the Bali Action plan, which outlines developed country 'nationally appropriate mitigation commitments', and paragraph 1(b)(ii), which refers to developing country 'nationally appropriate mitigation actions ... supported and enabled by technology, financing and capacity-building...'

# ROLE OF DEVELOPING COUNTRIES IN REVENUE GENERATION

Whilst there is relatively wide agreement that developed countries should take the lead on financing, and that the Least Developed Countries should not be required to take on any financial burdens, there is substantial disagreement over whether the Convention's current definitions of developed and developing country Parties accurately reflect relevant distinctions in responsibility and capability to finance climate change mitigation and adaptation.

Certain developed country Parties have argued in their submissions that the rapid growth in GDP and GHG emissions of certain 'advanced' developing countries since the drafting of the Convention in 1992 points in favour of their now making some financial contribution. Developing country Parties, argue that this is in breach of the Convention<sup>9</sup> and the 'Bali firewall' (Rajamani, 2009)<sup>10</sup>.

The lack of consensus on the interpretation of burden sharing under the Convention is one of the most significant disagreements in current negotiations and a resolution of this issue is critical if a successor to Kyoto is to be agreed and ratified before the second commitment period begins in 2013.

# GENERATION PROPOSALS

20–30  
USD bn



- US 36%
- EU 25%
- REST ANNEX I 23%
- NON ANNEX I 16%

#### TIMEFRAME



#### LEVEL



#### SOURCE



## A GUIDE TO REVENUE GENERATION PROPOSALS

The following pages present a guide to twenty-eight revenue generation proposals currently on the table using the analytical framework presented above. Each proposal is represented graphically using the icons shown overleaf. These icons represent the main options from the analytical framework, and have been grouped into their respective criteria.

The icons will be presented to the left of each proposal in an 'icon bar' shown here on the left. Not all proposals aim to define all of the criteria of the framework. To simplify matters, all icons in the icon bar will be greyed out by default and only the options that are explicitly proposed in the submissions will be highlighted in colour.

The example shown on the left indicates that the scale of this hypothetical proposal is USD 20 - 30 billion per year of which the US would contribute 36%, the EU 25%, the rest of Annex I countries 23%, and Non Annex I countries 16%. The time frame is in the short- and medium-term and the finance is raised at the international level through a market-linked mechanism.

## KEY TO GENERATION ICONS

### TIMEFRAME

SHORT-TERM    MEDIUM-TERM    LONG TERM



### LEVEL

NATIONAL    INTERNATIONAL



### SOURCE

CARBON MARKET    CARBON MARKET-LINKED    MARKET-LINKED    NON MARKET-LINKED





220–440  
USD bn



● US 33%  
● EU 42%  
● REST ANNEX I 26%  
● NON ANNEX I 0%

TIMEFRAME



LEVEL



SOURCE



GROUP OF 77 AND CHINA (G77 + CHINA)

25 AUG 08, FCCC/AWGLCA/2008/MISC.2/ADD.1

The G77 + China propose an effective financial mechanism under the COP. Funding should be ‘new and additional’ i.e. over and above existing ODA commitments. Any funding pledged outside of the UNFCCC will not be regarded as a fulfilment of commitments by developed countries under Article 4.3 of the Convention. It should be ensured that funding is predictable and timely.

To address quantified financial commitments by developed countries to provide adequate and predictable funding for mitigation and adaptation, the proposed level of the new funding is between 0.5 - 1% of the GNP of Annex I Parties, equivalent to between USD 220 - 440 billion.

The G77 + China do not provide a mechanism for how these funds shall be raised other than to say that the major source of funds would be from the public sector.

MEXICO

13 AUG 08, FCCC/AWGLCA/2008/MISC.2

Mexico proposes a World Climate Change Fund or Green Fund to scale-up funds for mitigation and adaptation actions. It is expected that all countries contribute to the Green Fund in strict accordance with the principle of *common but differentiated responsibilities and respective capabilities* where a differentiation of ‘responsibilities’ and ‘capabilities’ could be determined through the use of three simple indicators:

- Greenhouse gas emissions.
- Population.
- Gross Domestic Product (GDP).

Methods for ascertaining the contributions from different countries could be based on a combination of these simple indicators using an objective formula that would be periodically subject to review.

In determining contributions based on *GHG emissions*, three options are possible: Disregard cumulative emissions and use only current emissions; use cumulative emissions since 1750 (i.e. emissions that have contributed to increasing temperatures); use cumulative emissions since 1990 or 1992 - a general benchmark for the UNFCCC. In considering *equity*, not only total emissions but also *per capita* emissions should be taken into account. The climate regime must induce a progressive convergence of *per capita* emissions in order to be equitable. A country’s economic *capacity* to tackle climate change could be represented through either an indicator such as GDP *per capita*, or purely as GDP. As with several other factors, it would be more equitable that those with greater capacity make a larger contribution.

Mexico suggests that several revenue generation mechanisms could be used to mobilize new financial resources that would not put excessive pressure on public financing. Two potential options are the auctioning of allowances in domestic cap and trade systems, or a tax on aviation. Mexico suggests that contributions should amount to at least USD 10 billion per annum in the initial start up phase increasing to USD 95 billion by 2030<sup>11</sup>.

10–95  
USD bn



● US 36%  
● EU 25%  
● REST ANNEX I 23%  
● NON ANNEX I 16%

TIMEFRAME



LEVEL



SOURCE



11. The figure of USD 50 billion shown in the icon bar is taken as an average between the initial USD 10 billion and the USD 95 billion that would be reached in 2030.

USD bn



- US 26%
- EU 33%
- REST ANNEX I 18%
- NON ANNEX I 23%

TIMEFRAME



LEVEL



SOURCE



12. The GDR states emphatically that the development threshold is not an 'extreme poverty' line, which is typically defined to be so low (USD 1 - 2 a day) as to be more properly called a 'destitution line'.

13. The global poverty line is about USD 16 per day per person (PPP adjusted).

# GREENHOUSE DEVELOPMENT RIGHTS (GDR)

01 NOV 2008

The Greenhouse Development Rights (GDR) is a framework designed to protect the right to sustainable human development in developing countries, even as it drives rapid global emission reductions. It proceeds in the only possible way, by operationalizing the principles of equity and 'common but differentiated responsibilities and respective capabilities'.

As a first step, the GDR framework defines a 'development threshold' as a level of welfare below which people are not expected to share the costs of the climate transition<sup>12</sup>. People below this threshold are taken as having development as their proper priority. In any case, the approximately 70 % of the global population below the development threshold are responsible for only about 15% of all cumulative emissions and have little capability to invest in solving it. The level where a development threshold would best be set is clearly a matter for debate. The GDR uses USD 20 per person per day (USD 7,500 per person per year) a figure 25% higher than the global poverty line<sup>13</sup>. Once a development threshold has been defined, the GDR creates similar definitions for capacity and responsibility that can then be used to calculate the fraction of the global climate burden that should fall to any given country. A nation's aggregate capacity is defined as the sum of all individual income, excluding income below the threshold. Responsibility, by which we mean contribution to the climate problem, is similarly defined as cumulative emissions since 1990, excluding emissions that correspond to consumption below the development threshold.

These measures of capacity and responsibility are then combined into a single indicator of obligation, called a 'Responsibility Capacity Index' (RCI). This calculation is done for all Parties to the UNFCCC, based on country-specific income, income distribution, and emissions data. Looking at data for 2010 they show that the United States is the nation with the largest share (33.1%) of the global burden; the European Union follows with a 25.7% share; China, despite being relatively poor, is large enough to have a rather significant 5.5% share, which puts it even with the much smaller but much richer country of Germany; India, also large but much poorer, falls far behind China with a mere 0.55 share of the global burden.





15–45  
USD bn



#### TIMEFRAME



#### LEVEL



#### SOURCE



14. The assumption of 25% reductions is much tighter than currently proposed levels of 10–16% below 1990 levels.

15. These estimates refer to the volume of abatement financed and not the absolute revenue generated, which would include any rents captured through the carbon market.

## PRIVATE COMPLIANCE MARKET

Under a private compliance market revenue is generated through the purchase of emissions reductions in developing countries, known as offsets, to meet private sector compliance targets in developed countries. The Clean Development Mechanism (CDM) – established under the Kyoto Protocol – is an example of a private compliance market. The concept applied here, however, applies to any domestic or regional emissions trading scheme (ETS) that allows the purchase of emissions reductions from developing countries.

The amount of financing available for developing countries under a private compliance market will depend on several factors. The strictness of the overall cap for developed countries will be the largest single driver of demand for abatement in developing countries. Other factors will be the share of national emissions that are capped under an ETS; the tightness of the domestic cap; the quantity of offsets that can be imported into an ETS; and any discounting applied to offsets (see page 109). As with other carbon market and carbon market linked mechanisms, the treatment of the surplus of allowances from the first commitment period will also play an important role in the demand for developing country offsets (see page 53).

Projections for the demand for offsets under Phase III of the EU-ETS are around 200 million tonnes per year, and the Waxman-Markey bill would allow a maximum of 1.5 billion tonnes of offsets per year at a discount of 5:4 (see overleaf). Assuming developed country emissions are capped at 25% below 1990 levels, and 70% of national emissions are under domestic caps<sup>14</sup>, carbon markets could finance between USD 15–45 billion of developing country abatement per year (Project Catalyst, 2009)<sup>15</sup>.

Whilst private compliance markets will provide large transfers of revenue to developing countries there is some debate as to whether private compliance market finance should contribute to developed country's financial commitments (Clifton, 2009).

## THE EU AND US DEMAND FOR REDD+

### EUROPEAN UNION

The European Parliament and Council, in Directive 2009/29/EC, decided that it would continue to exclude forest carbon in Phase III of the EU-ETS<sup>16</sup>. There is, however, a provision within the EU Directive, known as Article 28, that would allow “the use of additional project types” within the EU-ETS pending an agreement at the international level. Phase III of the EU-ETS proposes that at least 50% of allowances will be auctioned in 2013 rising to 70–80% in 2020 potentially raising USD 38–60 billion annually (Capoor and Ambrosi, 2008). The Directive also recommends that at least 50% of the revenue from auctioning of allowances should go towards climate change activities including “measures to avoid deforestation, in particular in Least Developed Countries”. The Directive, however, demonstrates the lack of predictability with national-level mechanisms, as there is no requirement for revenues generated from auctions to be used for climate change efforts (see page 36)<sup>17</sup>.

### UNITED STATES

The American Clean Energy and Security Act (ACESA), often referred to as the Waxman-Markey bill was passed by the US House of Representatives in May 2009 (Union of Concerned Scientists, 2009). Under the bill, capped industries would be allowed to purchase up to 2 billion tCO<sub>2</sub> annually through offsets to meet domestic reduction targets. Half of these offsets would come from uncapped domestic sources with the other half supplied from international REDD+ projects.

Should the supply of domestic offsets fall short of its limit, international offsets can increase to 1.5 billion tCO<sub>2</sub> (equivalent to 1.875 billion tCO<sub>2</sub> before discounting). Depending on the price of CO<sub>2</sub> and the demand for offsets under the US cap and trade system this could generate up to USD.

The Waxman-Markey bill contains two further mechanisms to finance REDD. The first is a ‘set-aside’ or auctioning of allowances that would fund capacity building and pilot projects<sup>18</sup>. The percentage of allowances set-aside would begin at 5%, dropping to 3% in 2026 and 2% in 2031 (Marchal and Galharret, 2009)<sup>19</sup>. It is expected that the auctioning process could generate up to USD 3 billion a year in 2013 rising to over USD 5 billion in 2020 and then declining (Union of Concerned Scientists, 2009). The final provision for forests within the bill is the replenishment of the Strategic Reserve. The Strategic Reserve is a price-limiting mechanism whereby a proportion of allowances are held to be auctioned should the market prices exceed a certain threshold. It is not anticipated that the Reserve will be used on a frequent basis but should an auction of allowances be required to lower the market price, the Strategic Reserve is replenished through the purchase of international offset credits issued for reduced deforestation activities.

16. Directive 2009/29/EC is an amendment to Directive 2003/87/EC to improve and extend the EU ETS.

17. The EU legislation states that 50% of revenue should be earmarked towards climate change finance and there is no stipulation of how much should go to international efforts.

18. Procedures for set-asides are outlined in section 781 of the ACESA.

19. The percentages shown here are percentage of allowances under the cap.

USD bn



- US 0%
- EU 0%
- REST ANNEX I 0%
- NON ANNEX I 0%

TIMEFRAME



LEVEL



SOURCE



GOVERNMENT COMPLIANCE MARKET

Government compliance markets are defined here as the purchase of offsets by developed country governments. The purchase of offsets by governments is not considered an additional source of revenue as it would still require governments to generate revenue at the national level (Project Catalyst, 2009). Government compliance markets are therefore, simply a way of channelling public funds from the national level into the international climate finance system. Revenue could be generated at the national level in a variety of ways to finance the government purchase of offsets.

The scale of finance generated through government compliance markets will depend on factors similar to those outlined for private compliance markets. The demand for offsets will be driven by the overall level of ambition of developed country targets or caps, the percentage of emissions covered by the ETS and again the ability of developed countries to use emissions reductions carried over from the first compliance period of the KP (see page 59).

The predictability of government compliance markets could be improved by stabilising the demand of government buyers for offsets. A key issue in the first compliance period has been that governments have waited until the end of the Kyoto Protocol compliance period to purchase any significant amount of offsets (Romani, 2009). This could be improved by agreeing in advance the need to comply with interim targets and not only the caps agreed for the end of the period.

THE 'AAU OVERHANG'

There will be an estimated 7-10 billion tonnes of surplus Assigned Amount Units (AAUs)<sup>20</sup>, mostly due to the economic restructuring of Russia and the Ukraine in the 1990s, at the end of the first compliance period of the Kyoto Protocol (Korppoo and Spencer, 2009). To put this into perspective, the EU's total annual emissions are less than 4 billion tonnes per annum; the surplus would be enough to cover a 20% reduction in European emissions by 2020<sup>21</sup>. If these AAUs are carried over into the second compliance period, they could have significant implications for the environmental integrity of targets, comparability of effort and the potential demand for developing country mitigation. The question remains, therefore, of what should be done with the 'AAU overhang' to ensure that the effectiveness of an agreement in Copenhagen is not undermined.

The process of ensuring environmental integrity in the purchase of surplus AAUs, which are essentially 'hot air', is often referred to as 'greening' and the European Bank for Reconstruction and Development (EBRD) has published a guide for how to green AAUs (European Bank for Reconstruction and Development, 2009). This process essentially requires that any revenues from AAU sales should be earmarked for additional environmental activities within the host country. In the absence of international regulation, however, and due to the issues surrounding national level revenue generation outlined on page 36, the purchase of surplus AAUs has already begun without any evidence of greening. It is unlikely anyway that greening could be achieved on a scale large enough to address the whole surplus.

Even if the AAU overhang is greened but governments or private compliance buyers are still able to purchase these AAUs at prices below their marginal abatement cost (MAC) it will have significant implications on proposals for revenue generation that rely on the demand for international AAUs such as the International Auctioning of allowances or government compliance markets. Another suggestion for how the surplus of AAUs can be dealt with is the creation of a tax on the purchase of surplus AAUs (Whitesell and Vanamali, 2009). This would serve both as a source of revenue for mitigation or adaptation and a disincentive for developed country purchasers of AAUs. Other options include higher targets for Annex I countries in the second commitment period, a cancellation of AAUs, or limitations on the carry-over of AAUs (Korppoo and Spencer, 2009).

20. See page 174 for a Glossary of Terms.

21. The EU's emissions over the period the period 2012-2020 will be around 31 billion tonnes. A 20% reduction is equivalent to 6 billion tonnes over that period.



8–30  
USD bn



TIMEFRAME



LEVEL



SOURCE



22. The UK auctions are held by the Debt Management Office (DMO), and follow procedures based on the DMO's process for gilt auctions based on Bloomberg's Auction System (taken from <http://www.dmo.gov.uk/index.aspx?page=ETS/AuctionInfo>).

NATIONAL AUCTIONING OF ALLOWANCES

Revenue can be generated through the auction of national emissions allowances by a developed country government to private sector emitters within domestic carbon markets (ETS). The process for selling or auctioning allowances can vary and several options have been proposed under national or regional ETSs<sup>22</sup>. The key feature of this mechanism is that it would require national, private sector compliance buyers to pay for their allowances instead of being allocated them for free.

There are many reasons both economically and environmentally why auctioning of allowances is preferable to giving them away. With auctioning, there will be an intrinsic price associated with allowances which would create less of an incentive for industries to sell-off allowances to raise short-term profits as witnessed recently in the EU-ETS (Capoor and Ambrosi, 2008). Auctioning allowances also generates national fiscal revenues that can be earmarked for further climate change actions. As with all national mechanisms, however, the hypothecation of these revenues for international climate change action will be difficult to regulate or enforce (see page 36).

The scale of revenue from national auctions will depend on several factors including the demand for allowances within the ETS, the percentage of allowances auctioned, and the percentage of revenues allocated to international climate finance. As discussed above, if tight caps are not set for developed countries and an surplus of AAUs are brought over to the second commitment period (see page 53) the revenue generated from this mechanisms will be low.

Assuming 10 - 15% of total allowances are set aside for international climate finance, national auctioning of allowances could raise between USD 8 - 30 billion annually. Based on current proposals, however, including the Waxman -Markey Bill, it is likely that only 7 - 8% of allowances will be set aside for international abatement and adaptation efforts, which would generate as little as USD 6 - 8 billion per year (Project Catalyst, 2009)

LEVY ON CERTIFIED EMISSIONS REDUCTIONS

Although the revenue generation mechanisms presented here focus on finance generated in developed countries, innovative financial instruments are also being developed in developing countries. This mechanism is based on the share of proceeds concept but is worth mentioning separately as it operates at the national level and is implemented in the originating (developing) country.

Under this mechanism the benefits derived from a CDM project through the transfer of emission credits are shared by the national government and the enterprise that implemented the project<sup>23</sup>. This revenue could then, in theory, be used for domestic mitigation or adaptation activities in the host country. Recognising that certain activities have intrinsically higher rents than others and to promote certain project types over others, variable levies can be applied. Table 5, below shows the current levies implemented in the People's Republic of China's under the National Coordination Committee on Climate Change (NCCCC).

The scale of revenue from a tax on the issuance of CERs will depend on the demand for market-based offsets. It is worth noting that a tax on emissions reductions is a fiscal disincentive for investment, that is the demand for CERs from private investors and market buyers will be less as the tax increases. The levies would therefore either need to be reduced or the revenues generated through the mechanism are likely to diminish over time.

PROJECT TYPE	HFC	PFC	N2O	PRIORITY AREAS	FORESTRY
LEVY AS % OF THE CER PRICE	65 %	65 %	30 %	2 %	2 %

Estimates for the scale of finance that can be generated from a levy on CERs are between USD 0.3 - 2.3 billion annually<sup>24</sup>. Whilst this revenue is generated in a developing country, this revenue will still be subject to the domestic revenue problem, as the revenue will pass through the developing country budget (see page 36). The predictability of this finance will therefore depend on developing country national priorities.

0.3–2.3  
USD bn



TIMEFRAME



LEVEL



SOURCE



Table 5. Taxation of CERs from different types of CDM projects in China  
Source: NCCCC adapted from (GTZ, 2008)

23. Much of this proposal is built on the existing levy in the People's Republic of China on the transfer of CERs.

24. Based on a 2% and 5% levy on the low- and high-end estimates for private compliance market finance respectively.

16  
USD bn



US 42%  
EU 22%  
REST ANNEX I 19%  
NON ANNEX I 17%

#### TIMEFRAME



#### LEVEL



#### SOURCE



## CARBON TAX

03 OCT 2008, FCCC/AWGLCA/2008/MISC.5

This carbon tax proposal put forward by Switzerland places a uniform global levy on carbon of USD 2 per tCO<sub>2</sub> on all fossil fuel emissions with a basic tax exemption of 1.5t CO<sub>2</sub>e per capita, to relieve least developed countries. The effect of this tax would be equivalent to a burden of about 0.5 US cents/litre on liquid fuel.

Switzerland proposes that a proportion of the total revenue generated from the tax be used for domestic action and the remainder would be channelled to a multilateral fund. The percentage contribution to the fund would vary for different country types, with higher income countries contributing a larger percentage. Using indicative figures put forward in the proposal, the carbon tax might generate USD 40 billion of which USD 25 billion would be used for domestic mitigation and USD 16 billion would be contributed towards a multilateral fund<sup>25</sup>.

As a carbon tax is linked to the consumption of fossil fuels it should provide a sustainable source of finance. If the carbon tax operates at the national level, however, steps will need to be taken to ensure that this revenue is not captured by national governments (see page 36).

Switzerland also proposes a mechanism for the allocation of finance from a multilateral fund whereby the revenues from the multilateral fund would flow back only to medium and low-income countries. This would therefore make developing countries net recipients of climate finance. The Swiss proposal for the allocation of finance is discussed in the delivery chapter.

<sup>25</sup> The distribution of payments shows only contributions to the multilateral fund. There would, however, be an implicit contribution towards domestic action from developing countries with the carbon tax.

## SPECIAL DRAWING RIGHTS

The special drawing right (SDR) is an international asset created by the International Monetary Fund (IMF) that member countries can exchange for hard currency<sup>26</sup>. Generally SDRs are issued at times when additional liquidity is needed and are issued to countries in proportion to their quota share at the IMF. Since the quota is roughly the same as the size of a country's GDP, developed countries currently hold the majority of SDRs.

In 2002, George Soros and Joseph Stiglitz proposed that the IMF authorize a new form of SDRs to meet a share of the finance needed for the United Nations Millennium Development Goals (MDGs). Under the proposal, the IMF would allocate new SDRs to all member countries under the assumption that developed countries, who do not need the additional liquidity, would donate their portion of SDRs to meet specific international MDGs. A modification of this proposal might be envisaged for climate mitigation and adaptation financing (UNFCCC, 2007).

The proposal could be implemented in two stages. Firstly, a special one-time allocation of 21.5 billion SDRs that was proposed and approved by the IMF board in 1997 could be donated for up front finance<sup>27</sup>. The second stage would be an annual issuance of SDRs, of which some would be donated to international climate finance<sup>18</sup>. The predictability of finance from SDRs is likely to be unstable, as evidenced under the one time allocation approved in 1997<sup>19</sup>. Although the SDR is an international asset, the revenue once allocated is nationally owned. Earmarking this revenue for international purposes will therefore be subject to similar constraints to revenue that is raised nationally.

The scale of finance from SDRs will depend on the volume of SDRs issued annually, the percentage of SDRs that are contributed to an international climate fund and the countries that contribute to the fund. Assuming USD 50 billion is issued annually, and all countries (including Non Annex I countries) contribute 5% of their SDRs to an international fund for monetization such a mechanism could raise between USD 5 - 7 annually<sup>27</sup>. The contributions from Parties would be roughly in line with GDP and would therefore reflect the 'capability' of Parties to finance climate change (see page 40).

5-7  
USD bn



US 14%  
EU 30%  
REST ANNEX I 23%  
NON ANNEX I 33%

#### TIMEFRAME



#### LEVEL



#### SOURCE



<sup>26</sup> For more information on SDRs see <http://www.brettonwoodsproject.org/art-564135>.

<sup>27</sup> This figure assumes USD 0.5 - 2.5 billion would be generated annually plus up front financing of USD 33 billion spread over 10 years at a discount rate of 5%.

3  
USD bn

## TIMEFRAME



## LEVEL



## SOURCE



## OFFICIAL DEVELOPMENT ASSISTANCE (ODA)

Official development assistance (ODA) is defined as flows of finance to countries and territories on the Development Assistance Committee (DAC) List of ODA Recipients<sup>28</sup> and to multilateral development institutions. Finance should be provided by official agencies, including state and local governments, or by their executive agencies; and should promote the economic development and welfare of developing countries as its main objective. The delivery of ODA must be concessional in character and convey a grant element of at least 25% (OECD, 2008).

Simply put, ODA is voluntary, official financing from general budgetary expenditure given by national governments to developing countries to promote and implement development.

The current scale of ODA is about USD 150 billion per year (Zadek, 2009), less than half of the targets laid out under the Monterrey Consensus of 0.7% of GNI (~ USD 300 billion) (Müller, 2008). Of this USD 3 billion, around 2% is currently being channelled to finance mitigation and adaptation in developing countries (World Bank, 2009b)<sup>29</sup>. These investments are currently being channelled through multilateral funds such as those managed by the Global Environment Facility (GEF) or bilateral contributions such as the Norwegian Climate and Forest Initiative (see Table 3 and Table 4 for a list of current climate funds).

It is generally accepted that ODA will not be able to deliver the scale of finance required for international adaptation and mitigation activities and there are serious risks that ODA diverted for climate change objectives will take away from essential development needs. The revenues from ODA are also unpredictable: ODA by definition is voluntary and comes directly from national fiscal budgets, and as with other national revenue generation options, ODA will therefore be subject to the domestic revenue problem (see page 36).

<sup>28</sup>. Available at <http://www.oecd.org/dac/stats/daclist>

<sup>29</sup>. ODA for mitigation between 2000 and 2007 was about USD 19 billion (equivalent to USD 3 per annum)

## TARGETS, OFFSETS AND FINANCE

If we are to avoid the dangerous impacts of climate change we must limit global mean temperature increase to 2°C above pre-industrial levels. To achieve this goal we need to begin now to decarbonise the global economy. The IPCC recommends that developed countries need to reduce their emissions by 25 - 40% below 1990 levels by 2020 (IPCC, 2007). More recent evidence shows that only reductions at the high end of this range will be sufficient to avoid the worst impacts of climate change. Developed country targets are currently between 10- 16% below 1990 levels, which is dangerously inconsistent with their commitment to the 2°C target.

The success of many of the financing mechanisms summarized here is also dependent on a strong commitment by developed countries; weak targets will have significant implications for the scale of finance that developing countries will receive through these mechanisms. Revenue generated through a carbon market is directly related to the quantity of emissions reductions, or offsets, that are purchased from developing countries. Carbon markets are unlikely to generate a steady supply of finance for developing countries if the overall cap on the carbon market is low. Finance generated through carbon-market linked mechanisms is also dependent on the overall demand for emissions reductions. If allowances are freely available under a domestic cap it is unlikely that there will be any demand for allowances sold through an auctioning process. Likewise the scale of revenue generated from a transfer or issuance of allowances under a 'share of proceeds' mechanism will be directly affected by the demand for allowances.

The recent report by Project Catalyst highlights that to achieve a 2°C target will require a reduction of 17 Gt in global emissions below

business as usual levels by 2020 (Project Catalyst, 2009). Of this total 5 Gt can be achieved through domestic mitigation in developed countries by implementing all measures costing up to USD 90/tCO<sub>2</sub> and 3 Gt can be achieved in developing countries at negative costs (and can therefore be assumed to be self financed). This leaves 9 Gt of abatement that is physically located in developing countries at a cost of up to USD 45/tCO<sub>2</sub> that needs to be financed through an international mechanism (of which the vast majority will come from developed countries). But where will the 9 Gt of emissions reductions be accounted? If developed countries pay for these emissions reductions then they could be accounted for under developed country mitigation targets. If the reverse is true, and developing countries finance a part of the 9 Gt as domestic abatement then these would go towards their low carbon development plans, or 'no-lose' targets. Many developing countries argue, though, that developed countries should not be able to use emissions reductions from developing countries to avoid making much needed domestic reductions in developed nations.

One potential solution to this conundrum is to create a dual target system in which developed country targets are clearly delineated between domestic and international mitigation commitments. For example, if Annex I Parties commit to a 40% reduction in emissions below 1990 levels by 2020 they would be required to say how much of this abatement would be met domestically (e.g. 30%) and how much could be met through international measures (e.g. 10%). Developed countries would also need to state how much additional finance they would provide, over and above their international commitment to meet domestic targets, to finance developing country mitigation.

9–35  
USD bn



US 38%  
EU 27%  
REST ANNEX I 35%  
NON ANNEX I 0%

#### TIMEFRAME



#### LEVEL



#### SOURCE



30. Adapted to include allowances from the US over the same commitment period.

31. The scale and contribution shown in the icon bar assumes all Annex I countries including the US would participate in the auction. The lower end range is based on a 2% auction at USD 30/tCO<sub>2</sub>, and the upper end assumes a 5% auction at a carbon price of USD 45/tCO<sub>2</sub>.

## INTERNATIONAL AUCTIONING OF ALLOWANCES

14 AUG 2008, FCCC/AWGLCA/2008/MISC.2

Assigned amount units (AAUs) are tradable units derived from an Annex I Party's emissions target under the Kyoto Protocol (see page 174 for a Glossary of Terms). They may be counted by Annex I Parties towards compliance with their emissions target and are equal to equivalent to 1 tCO<sub>2</sub>e. Norway has proposed that the auctioning of such allowances, which are currently allocated for free under the Kyoto Protocol, could provide a new and additional source of funding for mitigation and adaptation activities in developing countries.

Under this mechanism, a percentage of allowances could be withheld from national quota allocations and auctioned via an appropriate international institution. The auction process could be open to both Annex I governments with national or regional commitments and private compliance buyers with obligations under a national cap and trade system.

The scale of financing through auctioning will depend on the total allocation under the second commitment period of the Kyoto Protocol as well as the availability and costs of offset credits and other international allowances. Estimates based on current emissions targets suggest that around 120 billion AAUs will be created for the 8-year commitment period up to 2020, equivalent to around 15 billion AAUs per year (Whitesell and Vanamali, 2009)<sup>30</sup>. Assuming the allowances are auctioned at USD 30 - 45/tCO<sub>2</sub>, approximately USD 4.5 - 7 billion of revenue could be generated per year for every percent of AAUs that are allocated for auctioning<sup>31</sup>.

As discussed above, the demand for AAUs will be influenced by the surplus of AAUs from the first compliance period (see page 53). To safeguard against perverse outcomes, whereby Annex I countries meet their compliance target through the purchase of 'hot air', AAUs for auctioning could be distinguished from the AAUs allocated to individual countries, as the latter may be less marketable because of particular country brands (Whitesell and Vanamali, 2009). In addition, if Parties expect that a percentage of their AAUs will be withheld for auctioning, it may have the effect that they seek less stringent emission commitments for the post-2012 period (UNFCCC, 2008a).

## EXTENDING THE SHARE OF PROCEEDS

13 OCT 2008, FCCC/TP/2008/6

In accordance with Article 12 of the Kyoto Protocol, 2% of the certified emission reductions (CERs) issued for a CDM project are set aside to meet the costs of adaptation. It has been proposed that the 'share of proceeds', which currently only applies to the CDM, be extended to other mechanisms under the Kyoto Protocol, namely Joint Implementation (JI) and emissions trading. The share of proceeds can be applied in two ways, either as a percentage of the relevant Kyoto units as with the current CDM levy for adaptation, or as a monetary levy on each relevant Kyoto unit such as the levy on issuance of CERs for administrative costs<sup>32</sup>. The current levy on the CDM is expected to generate around USD 80 to 600 million over the first commitment period.

Two options have been put forward to extend the share of proceeds to JI and emissions trading (UNFCCC, 2008a). Firstly, an extension of the share of proceeds could be implemented by levying the transfer of AAUs, removal units (RMUs) or emission reduction units (ERUs) from the issuing Party to another Party (see the Glossary of Terms for further definitions). The levy could apply either to the first international transfer of these units or to all international transfers or domestic transfers of the units. A share of proceeds on transfers of allowances could generate between USD 0.3-2.3 billion (UNFCCC, 2008a).

An alternative approach would be to levy a share of proceeds on the issuance of AAUs and RMUs. This option would cover both emissions trading and JI, since ERUs are issued by converting existing AAUs and RMUs (UNFCCC, 2008a). Applying a share of proceeds to the issuance of ERUs would amount to double taxing, since the share of proceeds would have already been levied on the AAUs or RMUs when they were issued. Assuming Parties agree to a 25-40% reduction in AAUs for the second commitment period, a 2% levy on the issuance of AAUs could raise between USD 3.5 - 7.0 billion per year (UNFCCC, 2008a).

The percentages chosen here are for illustrative purposes only; it has also been proposed that the CDM levy should be increased to 3-5% to raise further funds for adaptation. Increasing the share of proceeds in both approaches would increase the scale of revenue that could be generated through this mechanism.

3.5–7  
USD bn



US 0%  
EU 0%  
REST ANNEX I 0%  
NON ANNEX I 0%

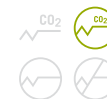
#### TIMEFRAME



#### LEVEL



#### SOURCE



32. Using a percentage share of proceeds would require a subsequent monetisation of allowances by the international fund, as would be the case with the CDM levy for the adaptation fund. This is discussed in detail in UNFCCC document FCCC/TP/2008/6

7–50  
USD bn



● US 0%  
● EU 0%  
● REST ANNEX I 0%  
● NON ANNEX I 0%

TIMEFRAME



LEVEL



SOURCE



33. This proposal was put forward in the recent CCAP analysis of Norway's proposal to auction assigned amount units.

34. The scale of finance shown in the icon bar assumes a range of USD 1 - 5 per AAU and an AAU overhang of 7 - 10 billion allowances and that all allowances in the overhang are purchased at this price.

LEVY ON SURPLUS ASSIGNED AMOUNT UNITS  
11 SEP 2009

Another option for raising funds would be the collection of issuance fees on the carryover of excess Assigned Amount Units (AAUs) from the Kyoto period (Whitesell and Vanamali, 2009)<sup>33</sup>. A number of countries have found themselves with large surpluses of AAUs after the first commitment period of the Kyoto Protocol due to lower-than-expected economic growth (see page 53). The 'AAU overhang' could have significant implications for the environmental integrity of targets, the potential demand for developing country mitigation and would also weaken demand for proposals such as Norway's international auctioning of allowances.

One possible way to address this issue would be to assess a fee on each AAU that is carried over from the current commitment period into the second commitment period. Like an issuance fee discussed above, a carryover fee would apply only once. A country could carry an unlimited number of AAUs from 2012 into the next period as long as it paid the carryover fees. Later transfers of those banked AAUs would not be subject to any fees.

The scale of financing through an issuance fee on surplus AAUs will depend on the same factors as other carbon market linked mechanisms, i.e. the total allocation under the second commitment period as well as the availability and costs of offset credits and other international allowances. This mechanism would generate between USD 7 - 10 billion for every dollar applied to surplus AAUs from the first commitment period<sup>34</sup>. The fee would need to be well below the market price of carbon and also below the marginal cost of reducing carbon emissions.

As discussed on page 53, however, if the 'AAU overhang' is carried over into the second commitment period, significant measures will need to be taken to ensure that developed country targets are sufficiently ambitious to ensure overall climate integrity and a high demand for emissions reductions in developing countries.

INTERNATIONAL AVIATION EMISSION TRADING SCHEME  
09 JUN 2009

The Aviation Global Deal (AGD) Group proposes a global sectoral Emissions Trading System (ETS) for aviation that is integrated with a post-2012 UNFCCC agreement. International aviation would, effectively, be treated as a separate 'country', with its own allocation of AAUs and targets for 2020. The AGD Group propose a range for the sector between 0 - 20% below 2005 levels with a long term target to reduce emissions by 50 - 80% by 2050 compared to 2005 levels.

Under the proposed mechanism, individual air carriers would surrender their allowances in proportion to the carbon content of their annual fuel purchases. Allowances would be mostly allocated for free but a small percentage would be withheld and auctioned to generate revenue for climate change activities in developing countries. Supplemental credits could also be purchased through the Kyoto Protocol's flexibility mechanisms.

A sectoral cap and trade market, as proposed here, would have similar properties to a private compliance market discussed above. That is, the strictness of the overall cap and the amount of offsets that are allowed under the cap will determine the predictability of international finance. Unlike a national auctioning mechanism auctioning of allowances under an international sectoral ETS will not be subject to the domestic revenue problem and revenue generated through auctions should provide a sustainable and predictable source of finance for international climate finance.

A sectoral cap and trade market for aviation could generate between USD1.4 - 14.0 billion per annum depending on the strictness of emissions targets and the level of auctioning<sup>35</sup>.

1.4–14  
USD bn



● US 41%  
● EU 22%  
● REST ANNEX I 14%  
● NON ANNEX I 23%

TIMEFRAME



LEVEL



SOURCE



35. This range assumes at the low end that 15% of allowances are auctioned at a price of USD 30/tCO<sub>2</sub> and at the high end a full auctioning of allowances at USD 45/tCO<sub>2</sub>.



0.9–9  
USD bn



● US 0%  
● EU 0%  
● REST ANNEX I 0%  
● NON ANNEX I 0%

#### TIMEFRAME



#### LEVEL



#### SOURCE



**36.** Assuming auctioning of 15 % of all allowances at USD 30/tCO<sub>2</sub> at the lower end and full auctioning of allowances at USD 45t/CO<sub>2</sub> at the upper end and historic EU emissions are equal to 216 Mt CO<sub>2</sub> and targets are set at 5% below these historic emissions.

## EUROPEAN AVIATION EMISSION TRADING SCHEME

13 JAN 2009

While the EU's total emissions fell by 3 % from 1990 to 2002, emissions from international aviation increased by almost 70 %. The EU has accordingly released an amendment to Directive 2003/87/EC in January to including emissions from aviation activities in the EU-ETS. The EU proposes that aircraft operators (e.g. British Airways or Air France) would be responsible for complying with the obligations imposed by this Directive. To avoid competitive distortion and to improve environmental effectiveness, all flights arriving at and departing from the EU should be included from 2012. The Community hopes that the scheme may serve as a model for the use of global aviation ETS.

Under the mechanism the aviation sector will be capped and a proportion of allowances will be allocated by auction in accordance with rules to be developed by the Commission. Revenues generated from the auctioning of allowances should be used for mitigation and adaptation activities domestically and internationally. The Directive states in particular that the proceeds of auctioning should be used to fund contributions to the Global Energy Efficiency and Renewable Energy Fund, and measures to avoid deforestation and facilitate adaptation in developing countries.

The EU has estimated that total revenues from a European aviation ETS would be between USD 0.9 - 9 billion after 2012 (European Commission, 2009)<sup>36</sup>. As the EU proposal is an extension of EU-ETS to include the aviation sector, it will have similar outcomes for the predictability and scale of finance as those outlined under national market mechanisms. Furthermore, as the auctioning of any allowances will take place at the national-level, it will be difficult to ensure that this money is set-aside for international purposes (see page 36).

Aircraft operators would also be allowed to meet a percentage of their obligations using Kyoto Units from the CDM and JI, namely certified emission reductions (CERs) and emission reduction units (ERUs) to surrender allowances up to a harmonised limit. The use of CERs and ERUs would be subject to complementarity limits specified by Member States.

## INTERNATIONAL MARITIME EMISSION TRADING SCHEME

08 MAY 2009, PC 59/4/25, MEPC 59/4/26

Submitted under the Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) by France, Germany and Norway, this mechanism proposes a global sectoral Emission Trading Scheme (ETS) for shipping. The mechanism would establish a cap, based on total emissions from the sector and a target period within the legal instrument of the mechanism.

Ships as the legally responsible entity would need to surrender allowances for their emissions. Allowances can be acquired from within the sector, from compatible ETSs in other sectors, or from project-based mechanisms such as the CDM. The auctioning of a percentage of allowances is suggested due to expected high complexities of free allocation in the shipping sector, as well as a lack of data and experiences learnt from the EU ETS. In addition, auctioning would avoid the generation of windfall profits and would not create market distortions between newcomers and incumbents.

Using indicative figures from a recent European Commission communication, this proposal could generate between USD 3 - 34 billion annually from 2012 (European Commission, 2009)<sup>37</sup>. As discussed above, the creation of a global sectoral ETS for shipping would have similar properties to a private compliance market. That is the scale and predictability of finance will be determined by factors such as the strictness of the overall cap and the amount of offsets that are allowed under the cap. As outlined under the international aviation ETS, any revenue generated through auctions would not be subject to the domestic revenue problem and should therefore provide a sustainable and predictable source of finance that could be used either within the maritime sector or for further mitigation and adaptation in developing countries.

An international body, e.g. new division of the IMO, agreed upon by the Parties to the legal instrument will administer the scheme for shipping. Through this body the Parties will distribute allowances, manage allowance registries for ships and monitor compliance. Flag States will enforce compliance with the scheme for ships flying their flag.

3–34  
USD bn



● US 0%  
● EU 0%  
● REST ANNEX I 0%  
● NON ANNEX I 0%

#### TIMEFRAME



#### LEVEL



#### SOURCE



**37.** Based on a 15 - 100% auction of allowances at a carbon price between USD 30 - 45 t/CO<sub>2</sub> and a 5% reduction below 2005 levels in international maritime emissions.

8–20  
USD bn



#### TIMEFRAME



#### LEVEL



#### SOURCE



**38.** The air ticket solidarity levy raises money for HIV/AIDS treatment in developing countries. Since 2004, eight countries have implemented it.

## INTERNATIONAL AIR PASSENGER ADAPTATION LEVY (IAPAL)

12 DEC 2008, TRA/GEN/123 E

Put forward by the Maldives on behalf of the group of Least Developed Countries (LDCs), the International Air Passenger Adaptation Levy (IAPAL) proposes a small charge on passengers on international flights differentiated with respect to the class of travel. The revenue of the levy is suggested to go to the Kyoto Protocol Adaptation Fund.

The level and travel class differentiation of the levy is based on a tried and tested formula of the French solidarity levy to combat HIV/AIDS<sup>38</sup>, and would be equivalent to USD 6 per economy trip, and USD 60 per business/first class trip. The levy would be collected by airlines from their passengers at the point of sale and transferred by the airline to a dedicated international fund. The fund would compensate the airlines for any reasonable administrative costs incurred in the course of collection.

This mechanism is expected to generate between USD 8 - 20 billion per annum in the first five years of operation and considerably more in the longer-term. Given the very low sensitivity of international air travel demand to price the drop in demand due to the increase in price of tickets is expected to be around 0.5%; an order of magnitude less than the expected growth of air travel of 5.1% per annum. It can therefore be expected that revenue generated through this mechanism will be both predictable and sustainable. Given the small decrease in demand and the considerable benefits of the funds raised, the proposed levy will have substantial positive effects on the development of the poorest and most vulnerable countries and communities.

## LEVY ON MARITIME BUNKER FUELS

09 APR 2009, MEPC 59/4/5

Submitted under the Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) by Denmark, this mechanism proposes an International Fund for Greenhouse Gas Emissions from Ships. The mechanism would require all ships above 400 billion tonnes in international trade to pay a levy on fuel (called GHG contributions) established at a given cost per tonne of fuel bunkered into an international fund.

Revenues from the fund would be used to finance mitigation and adaptation activities in developing countries - in particular in the most vulnerable developing countries, and research and development projects on more energy efficient ships. The emissions reductions generated from mitigation activities are to be used as offsets within the mechanism.

The actual size of the initial GHG contributions would be a political decision. The level of subsequent GHG contributions would be based on a comparison between the net GHG emissions from shipping<sup>39</sup> and an agreed sectoral target. By making such a comparison every four years, a connection between the emission target and actual GHG emissions is ensured.

The mechanism could be expected to generate between USD 1.5 - 9 billion given a 1-5% levy on bunker fuel<sup>40</sup>. The effect of imposing a carbon price on shipping is estimated to increase the costs of imports by less than 1% (WWF, 2008). The revenue generated through this mechanism can therefore be expected to provide a predictable and sustainable source of finance.

1.5–9  
USD bn



#### TIMEFRAME



#### LEVEL



#### SOURCE



**39.** Net GHG emissions would be calculated as the gross emissions from shipping over a given period minus any emissions reductions (offsets) delivered through the GHG fund.

**40.** Taken from data presented in the MEPC proposal using bunker fuel consumption data from 2007 and a price of bunker fuel of USD 550 per tonne.





20–30  
USD bn



US 24%  
EU 56%  
REST ANNEX I 20%  
NON ANNEX I 0%

#### TIMEFRAME



#### LEVEL



#### SOURCE



<sup>41</sup> Emissions from shipping are around 870 million tonnes of CO<sub>2</sub> each year. A 16.2% share of emissions (based on imports by value) would add around 140 million tonnes of CO<sub>2</sub> to the US's annual CO<sub>2</sub> budget equivalent to 2.4% of US annual emissions.

<sup>42</sup> Assuming a levy of USD 30–45/tCO<sub>2</sub>.

## INTERNATIONAL MARITIME EMISSIONS REDUCTION SCHEME (IMERS)

01 MAY 2007

Submitted to the UNFCCC by Nigeria and Liberia, the International Maritime Emission Reduction Scheme (IMERS) is a hybrid mechanism that introduces both a levy and a cap on emissions from international maritime transport. It is therefore called a 'cap-and-charge' scheme and is an alternative to a cap-and-trade mechanism.

The levy would be applied to all ships irrespective of flag and would be collected centrally thereby avoiding any problems associated with nationally raised revenue. The levy would be set at the rolling average carbon market price and would apply to a ship's total CO<sub>2</sub> emissions calculated from fuel consumption. In line with the UNFCCC principle of 'common but differentiated responsibilities' developing countries would be entitled to a refund calculated annually in proportion to its share of worldwide imports, although a developing country could, in theory, voluntarily decide to forego all of, or a part of its refund. Revenue generated through the mechanism would be allocated to adaptation activities, REDD+ and technology improvements in the shipping sector.

In addition to the levy, maritime emissions would also be accounted for under developed country national emissions targets, thereby creating an implicit cap. The percentage of emissions assigned to Annex I Parties would be based on the country's share of global imports by value. For example, the US accounts for 16.2% of global imports by value and would therefore be responsible for 16.2% of global maritime emissions<sup>41</sup>. The Conference of Parties to the UNFCCC could replace the use of global imports by value with another measure when such information becomes available.

Given that developed countries import approximately 70% of global goods, this mechanism would raise between USD 20–30 billion in 2013, after refunds to developing countries have been issued<sup>42</sup>. The impact of the levy is expected to be minimal; even with no improvements to transport efficiency, the scheme would result in an increase of only 0.1% in the price of imported goods to developed countries (equivalent to an extra USD 1 for every USD 1,000). As with other market-linked mechanisms, therefore, this mechanism is likely to generate a sustainable and predictable source of finance.

## LEVY ON INTERNATIONAL AVIATION AND MARITIME TRANSPORT

08 DEC 2007, FCCC/CP/2007/MISC.2, FCCC/KP/CMP/2007/MISC.3

Tuvalu proposes a new burden sharing mechanism using a levy on international aviation and maritime transport<sup>43</sup>. The mechanism is intended to finance adaptation through the Special Climate Change Fund (SCCF) and the Least Developed Countries (LDC) Fund. The levy would be differentiated across Parties: There would be a 0.01% levy on international airfares and maritime transport freight charges operated by Annex II nationals and a 0.001% levy on operations by Non Annex I nationals. Exemptions would apply to all flights and maritime freight to and from LDCs and SIDS (irrespective of whether the airlines or freight are owned by Annex II or Non Annex I nationals). A special levy collection authority would need to be established which would operate under the guidance of the COP, in collaboration with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO).

Using the figures given above, the scale of funding that could be generated from a levy on aviation and maritime transport is only likely to generate around USD 40 million per annum. For the contribution from this mechanism to be meaningful, the levies would have to be increased by a factor of around 100 to 1% and 0.1% for Annex II and non-Annex I nationals respectively (Müller, 2008). This would lead to revenue of around USD 4 billion per annum.

4  
USD bn



US 0%  
EU 0%  
REST ANNEX I 0%  
NON ANNEX I 0%

#### TIMEFRAME



#### LEVEL



#### SOURCE



<sup>43</sup> Tuvalu also proposes that a burden sharing mechanism similar to the Mexican Proposal could be used to generate finance for adaptation. Contributions could be calculated using a formula that accounts for the level of GHG emissions per country since 1990 and a GDP rating.

38  
USD bn



US 1%  
EU 2%  
REST ANNEX I 18%  
NON ANNEX I 79%

TIMEFRAME



LEVEL



SOURCE



**Table 6.** Countries with the largest sovereign wealth funds  
Source: <http://www.swfinstitute.org/funds.php>, updated October 2009, World Bank WDI, CIA World Fact Book

SOVEREIGN WEALTH FUNDS

Sovereign wealth funds are government owned investment funds that are funded by foreign exchange earnings. Sovereign wealth funds are used by governments to maximize long term growth and stability, as opposed to foreign exchange reserves which provide short-term currency stabilization and liquidity management (Balin, 2008). Sovereign wealth funds worldwide currently hold around \$3.8 trillion worldwide and have been derived from earnings through either natural resource extraction (i.e. oil and gas) or the transfer of foreign exchange reserves and sovereign debt disbursement (Pendleton and Retallack, 2009).

The countries holding the largest sovereign wealth funds are shown below and account for 78% of the total assets held in these funds. As these assets are often derived from oil exports they tend to occur in countries with high GDP per capita. China is an exception, however, and its assets are linked primarily to foreign exchange reserves of which China holds USD 1.9 trillion.

The mechanism proposed here would apply a tax on these funds as a source of finance for international climate change mitigation and adaptation actions (Pendleton and Retallack, 2009). Placing a 1% tax on these funds would have the potential to raise USD 38 billion. As shown in Table 6 above, a tax on sovereign wealth funds would, however, place a large burden on a small number of countries. Whilst a tax on sovereign wealth funds would likely raise revenue at the international level, it is unclear how such a tax might be agreed upon, given the high degree of contribution from such a small number of countries. A more politically acceptable alternative to a tax might be an investment of sovereign wealth funds into an international fund as discussed below under the proposal for foreign exchange reserves.

COUNTRY	ASSETS (USD BILLION)	GDP / CAPITA (USD ,000)	INCEPTION ORIGIN	
China	927.1	3,260		Non-Commodity
United Arab Emirates	738.9	40,400	1976	Oil
Norway	445	94,350	1990	Oil
Saudi Arabia	436.3	18,970		Oil
Singapore	369.5	37,600	1981	Non-Commodity
<b>TOTAL</b>	<b>3298.1</b>			

FOREIGN EXCHANGE RESERVES

Foreign exchange reserves are the foreign currency deposits and bonds held by central banks and monetary authorities for short-term currency stabilization and liquidity management. Global foreign exchange reserves in 2008 totalled USD 6.9 trillion, with China holding the largest assets, worth around USD 1.9 trillion. Currently, most foreign exchange reserves hold government, mainly US, treasury bills with low yield and significant exchange risk. Given the large reserves-to-GDP ratio of many developing countries, the current investment strategies could be costing these countries between 1.5-2% of GDP each year (Asian Development Bank, 2007).

This proposal suggests an investment of a small part of national foreign exchange reserves in a fund for mitigation activities that provide a small rate of return. With an appropriate mix of investments it should be possible to both maintain the original value of the investment and earn a small return (UNFCCC, 2007a). Liquidity is an important consideration for foreign exchange reserves, so only a small fraction of reserves, say 5%, could prudently be contributed to such funds. Voluntary allocation of up to 5% of global for reserves would provide capital of USD 350 billion. This would be the equivalent of between USD 9 - 34 billion annually<sup>44</sup>.

As discussed above under sovereign wealth funds, an investment of foreign exchange reserves would place a higher burden for mitigation financing on non-Annex I countries and furthermore the contribution would come from only a few countries. To reduce the burden on contributing countries, sovereign wealth funds and foreign exchange reserves could be used to finance activities that have an implicit return on investment (this is discussed further under delivery mechanisms).

9–34  
USD bn



US 1%  
EU 12%  
REST ANNEX I 26%  
NON ANNEX I 61%

TIMEFRAME



LEVEL



SOURCE



<sup>44</sup>. Assuming 1% - 5% of reserves are used annually over 10 years, with a discount rate of 5%.



<1  
USD bn



#### TIMEFRAME



#### LEVEL



#### SOURCE



## DEBT SWAP PROGRAMMES

Under debt swap programmes contributing countries agree to cancel a portion of the (non-performing) debt obligation of a developing country in exchange for an investment in beneficial development projects in that developing country. Debt swaps are attractive for developing countries (debtors) because it allows them the possibility to relieve a portion of their debt that they are unlikely to ever repay in full. Debt swaps have already been used to finance environmental conservation and health projects in developing countries (Doornbosch and Knight, 2008).

Debt swaps will generate finance in local currencies and will therefore be inappropriate for the import of clean technologies (UNFCCC, 2007a). Where other sources of finance can be found, however, debt swap proceeds could be used to cover local operating costs including salaries or locally produced technologies.

Although debt swap programmes are likely to be able to provide short-term finance, as they do not necessarily require new institutional arrangements, the mechanism would be an unstable source of public finance over the longer run. As developing countries progress economically there will be less incentive for developed countries to relieve their debt (Doornbosch and Knight, 2008).

It is difficult to assess the level of finance that might be generated through debt swap programmes. Factors that will influence the scale of debt swap programmes are the levels of debt in developing countries, and international political will to cancel a portion of these debts. The contributions will likely come from those countries that own a largest portion of developing world debt.

## CASE STUDY: THE ACEH REDD+ DEBT FOR NATURE SWAP

The U.S. Government announced in June 2009 that it would cancel nearly USD 30 million of debt payments owed by Indonesia in return for increased protection of Sumatra's forests, in a deal supported by Conservation International. The swap means that the Government of Indonesia will pay the nearly USD 30 million to a trust fund over eight years which will issue grants for critical forest conservation and restoration work in Sumatra<sup>45</sup>.

The debt for nature swap is the first ever in Indonesia under the U.S. Tropical Forest Conservation Act as well as the largest of its kind so far. It will lead to increased protection of 13 important areas of Sumatran rainforest that are home to hundreds of species of important and threatened plants and animals.

It has been made possible by a contribution of USD 20 million from the U.S. Government under the Tropical Forest Conservation Act and the commitment of USD 1 million each by Conservation International and the Indonesian Biodiversity Foundation (Yayasan Keanekaragaman Hayati Indonesia, or KEHATI) as part of the deal. Conservation International's Global Conservation Fund also helped design and negotiate the swap. Every USD 1 will bring more than USD 1.3 worth of conservation on the ground in Sumatra.

45. Information available at [http://www.conservation.org/sites/gcf/news/Pages/debt\\_for\\_nature\\_sumatra.aspx](http://www.conservation.org/sites/gcf/news/Pages/debt_for_nature_sumatra.aspx)

4–20  
USD bn



#### TIMEFRAME



#### LEVEL



#### SOURCE



46. Information on the IFF can be found at <http://www.hm-treasury.gov.uk/IFF>.

47. Bonds are typically more attractive to investors in times of financial instability as they are seen as a lower risk option than shares.

48. The high and low estimates shown in the icon bar use 1% and 5% of the EU and US market size for bonds in 2008.

## BONDS

Private sector bonds provide a way to generate upfront financing through capital markets, while allowing underwriting governments the time to generate revenues for repayment over the longer-term. Investors in bonds receive a fixed rate of return, normally as an annual coupon, plus the principal of the bond upon maturity (The Prince's Rainforests Project, 2009). Bonds typically offer a lower rate of return to investors than other forms of investment, but the investment return is more secure and are therefore often attractive to very large institutional investors such as pension funds (Persson et al., 2009).

Several proposals have been put forward for climate change bonds including the International Finance Facility (IFF), the Rainforest Bond (see overleaf), and the Global Capital Fund Mechanism (GCFM)<sup>46</sup> (Pendleton and Retallack, 2009). Under these proposals, an international body - either an existing institution such as the World Bank or a newly created entity - would issue climate change bonds guaranteed by developed country governments onto national or global private capital markets. Governments would then be responsible for payment of the coupon at fixed intervals and final repayment of the principal upon maturity (The Prince's Rainforests Project, 2009). Future repayments could come from either government pledges financed through domestic auction of allowances or other mechanisms, or from a return on investment in the delivery of finance, by investing in clean technologies or through the use of concessional loans.

The scale of finance that can be raised through bonds is significant and will be a factor of both the commitment of governments to meet the repayments of the bond and the appetite for government bonds in international capital markets<sup>47</sup>. Governments and government-backed entities issued over USD 3 trillion in bonds in 2008 of which USD 400 billion were Sovereign, Supranational and Agency Bonds as proposed here (The Prince's Rainforests Project, 2009). International private capital markets could easily digest the issuance of USD 10 billion of bonds each year (equivalent to 2.5% of the market)<sup>48</sup>.

## CASE STUDY: THE PRP'S RAINFOREST BOND

The Prince's Rainforests Project in its publication 'An Emergency Package For Tropical Forests' proposed a 'Rainforest Bond' that could be issued in one or more currencies with the backing of developed country governments and international institutions such as the World Bank (Prince's Rainforests Project, 2009). The PRP highlight four key elements in the design of a rainforest bond; credit risk, term or maturity, repayment schedule, and yield versus similar securities.

### CREDIT RISK

A Rainforest Bond would need to obtain the highest credit risk rating (AAA) from major credit rating agencies in order to access large pools of institutional investment capital. Institutions such as the World Bank and the IFC carry AAA-ratings, as do most developed country governments. A bond backed by such parties would therefore earn a similar rating.

### TERM

Bonds are issued with anything from one-year to 40-year maturities. A Rainforest Bond would probably use a term of 10 or more years, because of the financing needs of the Emergency Package and the likely demand from institutional investors.

### REPAYMENT SCHEDULE

Most bonds offer a fixed annual interest payment, or coupon, to investors. A Rainforest Bond could be designed to generate the type of repayment schedules that are most attractive to investors and to the governments backing it. The burden of interest payments can also be shifted across time by issuing multiple bonds and paying coupons out of a sinking fund.

### YIELD

A Rainforest Bond would need to offer investors a yield that is competitive to other AAA-rated fixed income securities. In 2006 the International Finance Facility for Immunization (IFFIm) sold a US\$1 billion bond (rated AAA) with an annual yield of 5.019%, 31 basis points above the benchmark five-year US Treasury bond. In 2007 the World Bank issued a 1.5 billion three-year bond that had a yield of 4.25%, five basis points above the underlying government benchmark.

17–35  
USD bn



● US 17%  
● EU 49%  
● REST ANNEX I 20%  
● NON ANNEX I 14%

TIMEFRAME



LEVEL



SOURCE



49. The high and low estimates shown in the icon bar use tax rates of 0.01% and 0.02% respectively.

50. To illustrate this point the Tobin Tax was recently proposed by Gordon Brown, Prime Minister of the UK, and was immediately rejected by the US and Canada. See <http://www.telegraph.co.uk/news/newstopping/politics/gordon-brown/6521548/Gordon-Brown-worldwide-snob-over-tax-plans.html>

CURRENCY TRANSACTION TAX (TOBIN TAX)

This mechanism, originally suggested by James Tobin, proposes a tax on wholesale currency transactions. The original purpose of the Tobin tax was to reduce foreign currency speculations (Harmeling et al., 2009). There is uncertainty within the literature, however, over whether such a tax would reduce or increase exchange rate volatility (UNFCCC, 2007a).

The scale of revenue that could be generated through a currency transaction will depend on the tax rate and how the tax will be implemented (e.g. on all transactions or end-of-day open positions) and in the estimated change in trade volumes due to introduction of the tax (UNFCCC, 2007a). There appears to be consensus within the literature that a tax rate of 0.1% or lower should be used to minimize the loss of liquidity and adverse impacts on the trade volume and market structure.

The adoption of a currency transaction tax could generate between USD 30–35 billion using tax rates of 0.02%<sup>49</sup>. Although it is widely accepted that a currency transaction tax is technically feasible, there is uncertainty around how it could be implemented and enforced (UNFCCC, 2007a). The biggest challenge for this mechanism, will be reaching a political consensus (Nissanke, 2003)<sup>50</sup>.

LEVY ON INSURANCE PREMIUMS

This mechanism discussed in ‘An Emergency Package for Tropical Forests’ proposes a levy on the catastrophe element of insurance premiums (Prince’s Rainforests Project, 2009). The insurance industry insures properties around the world against catastrophic losses arising from weather-related natural catastrophes. The frequency of natural catastrophes is growing and the severity of financial losses has been accelerating, which leads to increases in premiums as insurers react to cover their costs. Many insurers believe that climate change will cause weather-related catastrophes to become more extreme in the future. It may be appropriate, therefore, to apply a levy to the catastrophe element of premiums and earmark this revenue towards climate change mitigation to help slow this trend.

Research carried out for the Prince’s Rainforests Project (PRP) suggests that a levy of 4.5% would generate around USD 3.3 billion per annum<sup>51</sup>.

3.3  
USD bn



● US 0%  
● EU 0%  
● REST ANNEX I 0%  
● NON ANNEX I 0%

TIMEFRAME



LEVEL



SOURCE



51. It would also be possible to use a much smaller levy across all policyholders to generate the same level of contribution.

170–  
USD bn



TIMEFRAME



LEVEL



SOURCE



FOREIGN DIRECT INVESTMENT

Foreign direct investment (FDI) is a form of equity transfer by multinational corporations seeking to establish or expand operations overseas. FDI is the net inflows of investment in an enterprise operating in an economy other than that of the investor<sup>52</sup>.

Unlike mandated financial mechanisms, such as a private compliance market or proposals that levy a tax on aviation or shipping, FDI is an opportunity for voluntary private sector engagement (Persson et al., 2009). FDI will play a crucial role in international climate finance since public funds are unlikely to meet the scale of international mitigation and adaptation finance (WBCSD and WEF 2008).

UNFCCC research suggests that FDI accounts for around 10% of global investment in developing countries equivalent to around USD 170 billion per annum of which only USD 2 billion is in the least developed countries (LDCs). As an equity investment, lenders of FDI seek a higher return than most lenders, but also accept higher risks (UNFCCC, 2007a). The issue of appropriateness of different forms of finance for different themes and countries is discussed in the delivery section.

The sustainability and predictability of FDI is difficult to estimate (UNFCCC, 2007a). Any downturn in the global economy, as recently witnessed, will have an impact on the level of investment from the private sector. As developed and developing country economies shift towards low carbon growth, however, the scale of private sector investment is likely to increase.

<sup>52</sup> The investments are to acquire a lasting management interest (10 per cent or more of voting stock) and are the sum of equity capital, reinvestment of earnings, other long-term capital and short-term capital as shown in the balance of payments.

PHILANTHROPY

Although private philanthropy is unlikely to be able to deliver finance at the same scale as foreign direct investment, it can be used for activities that offer no or low returns on investment. Large philanthropic organisations, such as the Gordon and Betty Moore Foundation, David and Lucille Packard Foundation, Bill and Melinda Gates Foundation and the Rockefeller Foundation, generate revenue through an initial endowment that is managed in perpetuity (Persson et al., 2009). The finance available for charitable distribution is directly dependent on the success of the commercial investments made by the foundations, since the investment returns are then used to deliver philanthropic grants.

The scale of finance available from grants is not likely to be large. For example, in 2007 the Bill and Melinda Gates Foundation distributed in total around USD 1.9 billion in charitable grants and the Rockefeller Foundation's long-term intention is to annually supply the equivalent of around USD 225 million in grants annually (Persson et al., 2009). Although these figures represent only a sample of private sector philanthropy, they include both domestic and international contributions and go to a diverse set of priorities beyond just climate change; only a fraction of these flows are likely to go to developing countries for climate change related purposes.

As discussed above for private sector investment, the sustainability and predictability of the private sector is difficult to estimate and downturns in the global economy will impact the level of investment from the private sector.

<1  
USD bn



TIMEFRAME



LEVEL



SOURCE



# DELIVERY



## UNDERSTANDING DELIVERY

The first chapter examined the different proposals for generating international finance; this second chapter explores the different options for delivering climate finance in developing countries. As funds for developing country mitigation and adaptation are made available, the international community will need appropriate financial instruments to deliver funding on the ground, to enable and accelerate the transition to a low carbon, climate resilient world.

### THE STATE OF PLAY

Climate finance is currently delivered through an array of public and private financial instruments including grants, concessional loans, equity and the project-based delivery mechanism under the Clean Development Mechanism (CDM). Under the UNFCCC mandate, finance is delivered through the Global Environment Facility (GEF), Adaptation Fund and CDM.

Public and private sector finance can use grants, debt, equity and market-based mechanisms (such as the purchase of emission reduction credits) to deliver financial resources; the choice of these instruments will depend on how and why the revenue is being generated.

### A BRIEF HISTORY

Both the Convention and Bali Action Plan are relatively silent on the delivery of financial resources. Article 11 of the Convention simply defines:

*“A mechanism for the provision of financial resources on a grant or concessional basis, including for the transfer of technology.”*

### PRINCIPLES

A set of common principles have emerged from the submissions under paragraph 1 (e) of the Bali Action Plan including the principles of effectiveness, efficiency, equity and appropriateness<sup>1</sup>.

1. Taken from the latest non-paper No. 54, as well as the paper on common elements presented at AWG-LCA 6 in Bonn in August available at [http://unfccc.int/files/meetings/ad\\_hoc\\_working\\_groups/lca/application/pdf/finance140809.pdf](http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/finance140809.pdf).

## DELIVERY FRAMEWORK

### CRITERIA

The diagram below presents a framework that can be used to analyse and understand the different options for delivery of The framework comprises four criteria that have been derived from the principles of effectiveness, efficiency, equity and appropriateness. The criteria are as follows:

**Participation:** Which countries will/should participate?

**Theme:** What activities will/should be financed?

**Level:** At what level will revenue be delivered?

**Performance-based:** Is the provision of funding linked to emission reduction performance?

Using these criteria allows us to compare individual options and to collectively see areas of convergence or divergence. We can also use the criteria to assess the options for the delivery of finance against the principles outlined above.

As discussed above under the revenue generation section, there are two ways in which the delivery of climate finance can be viewed. The first dimension is the normative consideration of ‘which countries should receive finance?’ and ‘which activities should be financed?’ The Convention interprets the former question of entitlement or ‘distributive justice’ in terms of either needs and vulnerability or capacity and capability (see page 87). The latter question of ‘thematic balance’ receives less attention in ongoing discussions but is also relevant to the design of delivery mechanisms.

The second dimension answers the more mechanistic question of ‘how is finance delivered?’ given the specific features of a financial delivery mechanism. There will still be important distributional implications for delivery mechanisms that are discussed further under the participation and theme criteria.

The proposals for delivery are accordingly presented under two sections: ‘Allocation Frameworks’ presents options that provide normative principles and guidelines to define the allocation of resources across different countries and themes. The ‘Delivery Mechanisms’ section outlines proposals that are primarily

The following pages provide an explanation of these criteria in relation to the principles outlined above and show these criteria can be used to understand proposals for the delivery of finance<sup>2</sup>.

**Figure 8.** A framework for understanding delivery

## DELIVERY

PRINCIPLE		
EFFECTIVE / EFFICIENT	EQUITABLE	APPROPRIATE
CRITERION		
<b>LEVEL</b> At what level is finance likely to be delivered?	<b>PARTICIPATION</b> Which countries are most likely to participate?	<b>THEME</b> What type of activities are appropriate?
<b>PERFORMANCE BASED</b> Is the delivery related to performance?		

**2.** Whilst the question over whether access to funds is direct or indirect has implications for how finance is delivered, this decision is likely to be made at the institutional level and depends on whether an intermediary body is used to administer or manage the financial resources. Thus such considerations over direct/indirect access are considered under institutional arrangements.

## EQUITY IN DELIVERY

The Convention outlines several areas that should be prioritised in developing country mitigation and adaptation. Article 4.4 requires that developed country parties should 'assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects', and Article 4.8 that Parties give full consideration to financing actions necessary 'to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change'. Article 4.8 also includes a list of countries that have specific needs that are largely equivalent to various kinds of biophysical vulnerability to climate impacts, including sea level rise, water scarcity, natural disasters and urban atmospheric pollution. Article 4.9, on the other hand, requires parties to take account of the needs of LDCs, which could be seen as a criterion based on economic need, and may be associated with limited institutional capacity to address climate change (Persson et al., 2009).

## WEIGHTINGS AND TRADEOFFS

Using these factors, a mixture of vulnerability, economic need and institutional capacity could be used to determine eligibility for funding. The question of how to measure and weight these factors, however, may complicate what a fair allocation overall would be. Equity considerations may also need to be assessed in the light of other criteria such as efficiency and effectiveness. As with ODA, the efficient delivery of climate finance may be enhanced if delivery criteria are based not only according to a country's need but also to its capacity to use the finance effectively (World Bank, 2009b). This may be a particularly important consideration for financing mitigation, whereby emissions

reductions will have global benefits no matter where they are produced. In adaptation financing, on the other hand, the criterion of vulnerability is likely to play a greater role.

## THEMATIC BALANCE

The equitable allocation of finance will also be determined by the thematic balance chosen for financing activities. The balance chosen between adaptation and mitigation finance will influence which countries are likely to receive finance, with highly vulnerable countries likely to attract the former and countries with substantial low-cost emissions reduction opportunities attracting the latter, particularly if REDD is included.

## DISTRIBUTIVE IMPLICATIONS

The choice of delivery mechanism will have important implications for the distribution of finance across and within countries. The experience of the Clean Development Mechanism to date has demonstrated the need for measures to encourage greater geographical diversification of market-based mitigation finance (World Bank, 2009b). Public finance may have greater flexibility to address international inequities resulting from the distribution of market-based climate finance, but still only limited capacity to counter domestic inequalities (e.g. through social safeguards). Developing countries have argued that climate finance should be seen as entitlement based on a legal obligation to prevent and compensate for harm, rather than aid (see e.g. India's submission in UNFCCC, 2009a:41). It is argued, therefore, that climate finance should be provided in the form of grants rather than loans, and recipients alone should determine priorities for its use.



## PARTICIPATION

This criterion aims to identify the types of countries that are most likely to benefit from a given delivery mechanism.

### Options: Least Developed Countries, Developing Countries, Advanced Developing Countries

The ability of countries to receive finance from a financial mechanism is of paramount importance in the choice of delivery mechanisms. This criterion will use three groups of countries: developing countries are those Parties listed as Non-Annex I countries under the Convention<sup>3</sup>; least developed countries (LDCs) are a group of countries recognised by the UN as having the lowest indicators of income, human development and economic vulnerability<sup>4</sup>; the final category - advanced developing countries - are Parties that for reasons of either economic growth, abatement potential, or institutional capacity are the more advanced within the group of Non-Annex I countries<sup>5</sup>.

The participation criterion, discussed here, can be interpreted both normatively and mechanistically (see Figure 2). Certain proposals have been put forward to answer the normative question of 'which countries should benefit' from mitigation and adaptation finance and will be discussed under the 'allocation frameworks' section. The remainder of the proposals, which are primarily mechanistic in design, will be discussed under 'delivery mechanisms'.

These proposals, however, will still have implicit distributional implications. For example, the use of a programmatic-based market mechanism is unlikely to benefit the least developed countries given the institutional capacity needed. A further example is the use both concessional and market-rate loans. Loans often require a certain level of capacity to manage loan repayments, and are therefore better suited to countries that have higher GDP, lower levels of debt, and lower risks of economic volatility.

3. See [http://unfccc.int/parties\\_and\\_observers/parties/non\\_annex\\_i/items/2833.php](http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php) for a full list of Non-Annex I Parties

4. A list of the least developed countries is available at <http://www.unohrrls.org/en/ldc/related/62/>

5. A benchmark group could be the Major Economies Forum. Non-Annex I countries in this group are: Brazil, China, India, Indonesia, Korea, Mexico and South Africa. These groups are also Member States of the OECD or are recognized as enhanced engagement countries.

## THEME

The theme criterion describes the activities that would be appropriate to receive finance under a given delivery mechanism.

### Options: Mitigation, Adaptation, Technology Transfer, Capacity Building

Certain financial delivery tools are more appropriate for different types of climate change activities or interventions than others. Themes have been grouped into four categories within the negotiations and literature. Mitigation activities are those that address 'anthropogenic emissions by sources and removals by sinks' of greenhouse gases. Adaptation refers to measures to address the impacts of climate change. Technology transfer is defined by the UNFCCC as the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, NGOs and research/education institutions (IPCC, 2000b). Capacity building refers to assistance provided to developing countries that require certain skills or competencies for mitigating and adapting to climate change, or for general advancement of performance ability<sup>6</sup>.

As with participation the theme criterion can be viewed both normatively and mechanistically. The normative component will address the issue of thematic balance or 'which activities should be rewarded'. Again proposals that answer the normative question of 'which activities should benefit' will be summarised under 'allocation frameworks'. The mechanistic component of this criterion looks more closely at the activities that are likely to benefit under a given delivery mechanism. Some delivery mechanisms have very clear outcomes in terms of which activities might be rewarded – for example, a market approach is primarily only appropriate for activities related to delivering measureable and verifiable mitigation. Other mechanisms are less definitive, however, and the appropriateness may be contingent on other factors. The use of loans, for example, is unlikely to be appropriate for technology transfer or capacity building activities, but may apply across different mitigation and adaptation interventions depending on a series of other factors such as the financial returns likely associated with the intervention and the economic context of the recipient country.



6. The definition of capacity building used here will also include policy reform, which is a process whereby changes are made to a country's laws, regulations and institutions to address climate change.

## LEVEL

The administrative level at which finance will be delivered is an important consideration for developing countries.

### Options: National, Project

Finance for climate change mitigation can be delivered either at the project level or at the national level<sup>7</sup>. Project-based mechanisms are those where finance is delivered to either public or private entities for the implementation of individual projects within a specific location and timeframe, whereas programmatic or sectoral delivery mechanisms provide funding for longer-term coordinated planning, to programmatic delivery of funds via sector budget support or general budget support. Programmatic support typically involves the integration of financial resources into the budget of the recipient country, using the government's existing financial architecture. The level at which climate change interventions are delivered will have important implication for both the effectiveness - in terms of scale achieved, reduced risk of leakage, country ownership, and coordination with ongoing national development plans - and efficiency of climate finance. Programmatic delivery mechanisms are more likely to achieve economies of scale and are often associated with reduced transaction costs to both contributors and recipients (Schneider and Cames, 2009).

There are, however, some important advantages to project-based finance. Contributing countries are often unwilling to deliver pooled funding because of concerns of fiduciary responsibilities related to larger scale funding incorporated into recipient's national budget and the results from project-based finance can be better evaluated than programmatic approaches. Delivery mechanisms that operate at the project-level might also be the most appropriate for certain climate change interventions, particularly those related to immediate and urgent adaptation needs (Brown and Kaur). Finally, project-based finance may be more appropriate for countries lacking the institutional capacity to apply programmatic approaches to mitigation activities. National and project-based approaches can also be combined via proposals such as the 'nested approach'<sup>8</sup>. Whilst this approach has been put forward for REDD+ it could be applied to other mitigation activities.

<sup>7</sup>. National level mechanisms encompass both programmatic and sectoral mechanisms.

<sup>8</sup>. See the Little REDD Book for a summary and further information on the Nested Approach (Parker, 2008).

## PERFORMANCE-BASED

This criterion answers the question of whether or not the provision of funding is based on performance related to emission reductions<sup>9</sup>.

### Options: Performance-based, Non-Performance-based

To a certain degree, all delivery mechanisms are related to performance in the sense that there is an expected output from funding (for example, grants given in support of capacity building activities are based on the expected result that capacity will be built). Performance-based payments discussed here, however, are contingent upon the expected delivery of emission reductions or other abatement proxies and therefore help to evaluate the effectiveness of funding for mitigation. Whilst all market-based delivery mechanisms are contingent on performance, non-market mechanisms can also be performance-based. Since performance-based payments require verification of emissions reductions, payments are generally provided ex-post rather than ex-ante.

<sup>9</sup>. This criterion applies solely to financing mitigation activities.

## LEVERAGE

This criterion helps to evaluate whether a specific financial delivery mechanism can leverage additional finance for the related goal.

### Options: N/A

Financial leverage can be interpreted in two ways. The first and most commonly understood definition of leverage is the ability to encourage or raise private sector finance and typically applies only to public financing mechanisms (UNEP, 2008). A key question for public finance is how much private finance can be mobilised by a given amount of public money.

Leverage can also be defined as the ability to use resources above and beyond the initial investment, e.g. through the use of a revolving fund, whereby concessional loans are repaid and re-lent. Financial risk mitigation instruments, such as debt guarantees, also offer considerable financial leveragability.

The delivery options summarised below will have varying degrees of leverage. For example, certain carbon markets interventions will leverage more private finance than others. These differences will be discussed in the individual mechanism summaries below. The leverage criterion, however, will not be represented graphically in the icon bar.

## EFFICIENCY

The efficiency criterion applies only in the context of mitigation financing and describes how much abatement is achieved per unit cost.

### Options: N/A

Efficiency as it is defined here refers to the ability to get more tonnes of emissions reductions per dollar spent. As experience grows in the use of different delivery mechanisms, so does understanding of the relative efficiency of different financial delivery tools.

In the context of market-based mechanisms, efficiency can be viewed in two ways. As demonstrated under the Clean Development Mechanism, the market tends towards options that deliver the cheap emissions reductions, the so-called 'low-hanging fruit'. In this context the market can be described as being efficient, as emissions reductions are achieved at the lowest cost. Viewed from end to end, however, project-based mechanisms are seen to be inefficient. Although abatement is generated at lowest cost, it is sold to developed countries at the global price of carbon. As a result, the money transferred from developed countries to developing countries goes mainly to rents<sup>10</sup>. Under this type of mechanism, therefore, a market would fail to maximise emissions reductions and would therefore be inefficient. Several proposals have been put forward including reverse auctions and sectoral mechanisms that aim to overcome inefficiencies in project-based mechanisms.

Non-market mechanisms may also have different degrees of efficiency. For example, grants that are performance-based might be more efficient than non-conditional grants, and concessional loans that use a revolving fund or that leverage private finance could improve efficiency. As efficiency is not an either/or consideration, this criterion will not be represented graphically in the icon bar.

<sup>10</sup>. Rents are the profits that accrue from the difference in price between the marginal abatement cost (MAC) in developing countries and the market price for carbon (which should be the MAC in developed countries).





# **DELIVERY PROPOSALS**

# A GUIDE TO DELIVERY PROPOSALS

## PARTICIPATION



## THEME



## LEVEL



## PERFORMANCE BASED



The following pages present a guide to thirteen options for the delivery of finance using the analytical framework presented above. Each proposal is represented graphically using the icons shown overleaf. These icons represent the main options from the analytical framework, and have been grouped into their respective criteria.

The icons will be presented to the left of each proposal in an 'icon bar' shown here on the left. Not all proposals aim to define all of the criteria of the framework. To simplify matters, all icons in the icon bar will be greyed out by default and only the options that are explicitly proposed in the submissions will be highlighted in colour.

The example shown on the left hand side indicates that least developed countries would not be able to participate in this hypothetical delivery mechanism. The delivery of finance would be appropriate for mitigation activities at the national level and would be performance based.

# KEY TO DELIVERY ICONS

## PARTICIPATION

LEAST DEVELOPED COUNTRIES



DEVELOPING COUNTRIES



ADVANCED DEVELOPING COUNTRIES



## THEME

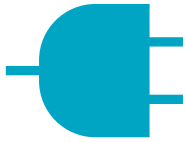
MITIGATION



ADAPTATION



TECHNOLOGY TRANSFER



CAPACITY BUILDING



## LEVEL

NATIONAL



PROJECT



## PERFORMANCE BASED



MEXICO

PARTICIPATION



THEME



LEVEL



PERFORMANCE BASED



Mexico's proposal for a World Climate Change Fund covers normative approaches for both revenue generation and delivery. The proposal outlines thematic priorities as well as some eligibility criteria for the distribution of funds. The primary purpose of the Fund would be mitigation, focusing on both 'grey' activities aimed at renewable energy and energy efficiency, and 'green' activities aimed at reducing emissions from forests and land use. Funding for adaptation and clean technology would be generated through levies (at percentages to be negotiated) on contributions to the principal Fund.

Mexico proposes that in principle, all countries, developed and developing, could benefit from the fund. Developing countries (with the exception of Least Developed Countries), however, would need to contribute to the fund in order to be eligible to receive funding. The proposal envisages that developing countries would be net recipients, since a limit (e.g. 70%) would be placed on the percentage of developed countries' contributions that could be used for domestic action. Countries that make greater contributions would be eligible to receive greater resources. To avoid geographical imbalances, a cap would be placed on the proportion of total funding that any one country could obtain (e.g. 15%). If any developing country reaches that limit and uncommitted resources still remain, however, that country may request additional resources up to a maximum of the available yearly total. The proposal lists two possible criteria for allocation of funds: funding per unit of emission reductions and funding based on a total volume of emission reductions.

THE ADAPTATION FUND'S  
ALLOCATION FRAMEWORK

As one of the principal mechanisms for adaptation finance under the current UNFCCC architecture, the Adaptation Fund's criteria for allocating international finance may set a precedent on which delivery frameworks under a future climate agreement could build (Persson et al., 2009). Parties to the Kyoto Protocol have agreed on a set of Strategic Priorities, Policies and Guidelines for adaptation programs and projects funded through the Adaptation Fund (UNFCCC, 2009b).

This document outlines the following Parties that are eligible to receive funding:

"developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change including low-lying and other small island countries, countries with low-lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification, and developing countries with fragile mountainous ecosystems"

The text outlines a further set of considerations in relation to the eligibility of Parties accessing the fund including: their level of vulnerability; the level of urgency and risks arising from delay; ensuring access to the fund in a balanced and equitable manner; and adaptive capacity to the adverse effects of climate change.

The document also provides a set of criteria for analysing individual proposals including: consistency with national sustainable development strategies; cost-effectiveness; economic, social and environmental benefits; and several other factors relating primarily to the technical or operational aspects of proposals.



SWITZERLAND

PARTICIPATION



THEME



LEVEL



PERFORMANCE BASED



Switzerland has put forward in its proposal an option for both revenue generation, through a global carbon tax and institutional arrangements through a Multilateral Adaptation Fund (MAF). The summary provided here outlines the Swiss proposal for the allocation of finance from the MAF. The MAF is allocated through two different themes namely a Prevention Pillar for climate change impact reduction and an insurance Pillar for climate impact response. The revenues of the MAF flow back to medium- and low-income countries; high-income countries do not receive any payments from the MAF<sup>11</sup>.

The resources of the Prevention Pillar are allocated on the basis of two indicators: an indicator reflecting the size of population and an indicator reflecting the relative vulnerability of the local economy to climate change. The proposal explains that an allocation based on climate change induced GDP damages alone would lead to a rather uneven distribution of revenues: countries with a low GDP, but that are highly affected by climate change in their subsistence economy would receive only low levels of funding under the Prevention Pillar. Payments from the Insurance Pillar are based on the following assumptions: Two thirds of the insurance payments are allocated on the basis of projected GDP losses, as countries with high projected GDP losses are highly vulnerable to climate change; One third of the insurance payments are allocated on the basis of population size, as highly populated areas are more vulnerable to climate change.

Using these guidelines the Swiss proposal outlines values that different countries might be expected to receive from the Insurance and Prevention pillars respectively. From the Prevention Pillar, India (25%) and China (22%) are allocated the largest sums. The rest of Non-OECD Asia (17%) and Africa (16%) would receive the next largest shares and the remaining 20% would be allocated across other developing countries. Payments from the Insurance Pillar are largely the same: China due to its higher GDP would receive slightly more (30%), and India slightly less (22%). The rest of Non-OECD Asia would be largely unchanged (20%) and Africa due to its very low GDP would receive considerably less (8%). Again, the remaining 20% would be allocated across the remaining developing country Parties.

11. The groups high-, medium- and low-income are defined as countries with per capita income greater than USD 20,000, between USD 15,000 and 20,000, and less than USD 15,000 respectively

UNITED STATES OF AMERICA

Although the US proposals under the UNFCCC do not provide explicit normative principles for the allocation of finance, the thematic windows of US domestic legislation provides some implicit guidelines on how revenue might be allocated.

Both the American Clean Energy and Security Act (ACESA) also known as the Waxman-Markey Bill, and the Clean Energy Jobs and American Power Act (CEJAPA) or Kerry-Boxer Bill, propose the auctioning (or set-aside) of a percentage of domestic allowances to generate supplemental revenue for international mitigation and adaptation activities (see page 51). The revenue generated from auctioning is allocated across three themes; namely REDD+, adaptation and clean technology.

Whist many countries including the EU member states propose auctioning, the US legislation differs as it is one of the few instruments to propose the allocation of revenue to specific financing priorities based on explicit weightings. As shown in Table 7, below, REDD would initially receive the largest component of total finance, but the percentage of allowances allocated to REDD would be progressively reduced from 2026 onwards. Funding for adaptation and clean technology on the other hand would increase from 2022 onwards with adaptation receiving the greatest proportion of international finance in 2050.

	2012	2022	2026	2030	2050
REDD	4	4	3	2	1
ADAPTATION	1	2	2	4	4
CLEAN TECHNOLOGY	1	2	2	2	2
TOTAL	6	8	6	8	7

The US legislation has been categorised here as a retained and decentralised model as decisions are made by the contributing country at the national level. In a recent submission to the AWG-LCA, the US also proposed an international consolidated fund for climate change finance<sup>12</sup>.

PARTICIPATION



THEME



LEVEL



PERFORMANCE BASED



Table 7. Percentage of total allowances allocated to REDD, Adaptation and Technology Transfer under proposed US domestic legislations. Source: [http://pdf.wri.org/wri\\_summary\\_cejapa\\_2009-10-30.pdf](http://pdf.wri.org/wri_summary_cejapa_2009-10-30.pdf)

12. See Annex IX of non-paper No. 54 for the recent submission by US for a 'Global Fund for Climate' available at [http://unfccc.int/files/kyoto\\_protocol/application/pdf/54fn61109.pdf](http://unfccc.int/files/kyoto_protocol/application/pdf/54fn61109.pdf)

## WORLD BANK

### PARTICIPATION



### THEME



### LEVEL



### PERFORMANCE BASED



In its recent World Development Report, the World Bank proposes an index to inform the allocation of adaptation finance (World Bank, 2009a). The proposed index builds on an IPCC index for vulnerability<sup>13</sup> combined with weightings for population and poverty. The final index to determine the allocation of finance would be a combination of: Central government performance; absorptive capacity; lack of social capacity; climate sensitivity; climate change exposure; population; and poverty.

Like the formula used for allocation of existing World Bank concessional funding through the International Development Association (IDA), the indicator for quality of governance would be a significant component in determining allocations for adaptation finance. ‘Social capacity’ could be measured through indicators such as inequality, depth of financial markets, ratios of young and elderly dependents to those who are working, adult literacy and female education.

The report highlights that several other factors would need to be taken into account in the allocation of resources including the internal distribution of impacts and vulnerability within large countries and the need to counterbalance the index’s potential to penalise climate-vulnerable countries with weak institutions.

<sup>13</sup>. The IPCC report sees vulnerability as a product of capacity to adapt, sensitivity to climate factors, and exposure to climate change.

## THE PHASES OF REDD+

A consensus is emerging within international climate change negotiations that REDD will pass through a series of phases that encourage countries to progress from initial capacity building activities toward achieving long-term emissions reductions in a measurable, reportable, and verifiable way. While the various phases would not need to be formalized, phases in implementation are likely to correspond to various mechanisms and initiatives providing financial support to REDD+ countries. The phases are:

### PHASE 1: NATIONAL REDD+ STRATEGY DEVELOPMENT AND CAPACITY BUILDING

In many countries, support would begin with capacity building, institutional strengthening, and the building of monitoring capacities.

### PHASE 2: IMPLEMENTATION OF NATIONAL REDD+ POLICIES AND MEASURES;

Phase 2a: The implementation of policies addressing the drivers of deforestation would create the enabling environment for REDD+. REDD+ countries could receive performance-based support triggered by the achievement of agreed indicators.

Phase 2b: As soon as countries have the relevant data and capacities, they could also adopt a national reference level that allows for the accounting for GHG benefits. During the period in which a country lacks the capacity to account for fully measured tons of GHG reductions, climate benefits could be estimated based on the basis of proxy indicators for reduced deforestation.

### PHASE 3: FULL-SCALE IMPLEMENTATION

This could rely on a results-based compensation mechanism for fully measured, reported, and verified emission reductions and removals from the forestry sector. This last phase could also receive funding through the marketing of carbon units on international carbon markets. Countries could pilot this phase by implementing sub-national activities and building MRV and project implementation capacities.

## PROJECT-LEVEL MARKET

## PARTICIPATION



## THEME



## LEVEL



## PERFORMANCE BASED



A project-based carbon market mechanism would be similar in design to the current Clean Development Mechanism (CDM) established under the Kyoto Protocol. Although the CDM was originally designed as an efficient way to achieve emissions reductions at a cheaper cost for Annex I countries, it has been criticised as an expensive way to reduce emissions in the developing world, since the price paid (currently driven by demand in the EU compliance market) is far higher than the average marginal abatement cost (MAC) (Wagner et al., 2009).

The CDM creates leverage in the private sector through a demand for emissions reductions at a fixed price. The market demand for certified emissions reductions in domestic and regional emissions trading schemes (ETSS) such as the EU-ETS allows private sector investment in developing country projects (see 59 for a discussion of Private Compliance Markets). The CDM in its current form, however, does not provide a high degree of financial leverage to encourage additional investment in climate related activities – private investors are mainly seeking the rents which can be achieved from the CDM market, and these rents are not being reinvested in the market or in other climate change activities<sup>14</sup>.

Project-based mechanisms are likely to favour countries with high mitigation potential and low project risk (Brown et al., 2009). Over 75% of emissions reductions under the CDM are from Brazil, Mexico, China and India, and less than 5% are from Africa and the Middle East (UNEP Risoe, 2009). A project-level market in its current form therefore, is unlikely to benefit LDCs. Several Parties, including the European Union, however, support the phase out of the CDM for more economically advanced developing countries and/or sectors. Many Parties have also suggested that REDD+ could begin at the project-level but would transition to nation-level accounting as data and capacities become available (Parker et al., 2008)<sup>15</sup>. Under this type of approach, LDCs would be able to participate more significantly in a project-level market.

14. Taxes can be raised on CDM credits by developing country Parties as a means of generating finance that can be reused for mitigation activities. For example the National Coordination Committee on Climate Change (NCCC) in China levies a variable tax on CERs.

15. This transition is also discussed in the Phased approach (see page 105).

## PROGRAMMATIC OR SECTORAL MARKET

Many proposals are being considered to expand the scope of GHG mitigation in developing countries. Market mechanisms are put forward in that context to create incentives for mitigation in developing countries beyond the existing Clean Development Mechanism (CDM), and to encourage mitigation at least possible cost. Several proposals that have been submitted under the UNFCCC focus on new sectoral carbon market instruments<sup>16</sup>, including a sectoral Clean Development Mechanism (CDM), a sectoral crediting mechanism based on no-lose targets, and crediting on the basis of nationally appropriate mitigation actions (NAMAs)<sup>17</sup>. Although these proposals use different institutional arrangements, crediting systems and baselines, the considerations for financial delivery tend to be similar.

Programmatic market mechanisms have been proposed to create incentives for mitigation in developing countries beyond the existing CDM, and to encourage mitigation at least possible cost. The role of sectoral mechanisms will be determined by emissions reduction targets in developed countries and the overall role of carbon markets as a means to finance mitigation activities in developing countries (Aasrud et al., 2009). Programme-level markets will also tend to favour countries with more abatement potential. Given that LDCs have lower abatement potentials (except for carbon sequestration potential in some forest-rich LDCs), they are less likely to benefit from programmatic market approaches.

Programmatic or sectoral market mechanisms would require more government involvement than project-based mechanisms, as finance is likely to be at least partially under national government control. National mechanisms would, therefore tend to apply more to countries with strong institutional capacity to implement and MRV abatement programmes. The programmatic approach is also much more likely to achieve efficiency than the current project-based options given the significant reduction of transaction costs over a project-by-project approach. Some crediting schemes are only likely to deliver finance ex-post, which would limit the upfront financial resources available to the country. These mechanisms are therefore likely to require other forms of financial delivery to help a country achieve emission reduction goals.

## PARTICIPATION



## THEME



## LEVEL



## PERFORMANCE BASED



16. There is as yet no formal definition of what 'sectoral' means; it could be all or parts of a sector (e.g. electricity plants, or only new electricity plants etc). The definition of sectoral will determine to what extent it overlaps with the scope of a programmatic crediting mechanism.

17. These proposals have been elaborated in more detail at <http://unfccc.int/resource/docs/2008/awg6/eng/info3.pdf>

PARTICIPATION



THEME



LEVEL



PERFORMANCE BASED



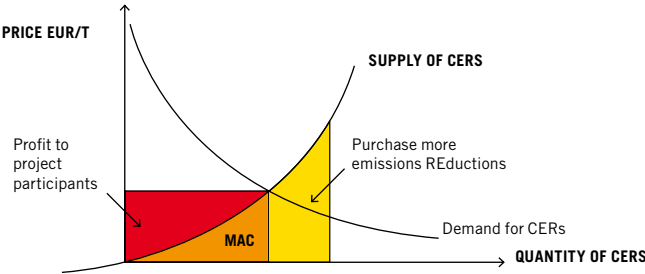
**Figure 9.** Reinvesting revenue from the area in red to the area in yellow under a reverse auction can increase efficiency in a market mechanism  
*Source: Adapted from (Hepburn and 2009)*

18. Which should be close to the average MAC of the developed country.

19. If information asymmetries prevent accurate knowledge of MACs, general information on average abatement costs across regions and technologies is available.

REVERSE AUCTION

A reverse auction is a means of delivering abatement through a project or national-level market mechanism at reduced cost. Under this proposal, emissions reductions from developing countries would be paid for at close to marginal abatement cost (MAC) by an intermediary bank or fund (aggregator). The aggregator would then sell on the emissions reductions to a developed country ETS at the market price of carbon<sup>18</sup>, and capture the spread between the two prices (Hepburn and 2009). An important feature of a reverse auction is that the funds (or rents) captured through the reverse auction process can be earmarked to purchase further emissions reductions. Reinvesting revenues allows a reverse auction to be more efficient than a market mechanism without interventions as more emissions would be delivered per unit cost (see below).



As outlined on page 36, however, if a developed or developing country government were to capture these rents, the funds would be subject to the 'domestic revenue' problem. To ensure an increase in efficiency it would be preferable for an aggregator to be either an international body or institution or a non-governmental national climate trust fund with a mandate to purchase further emissions reductions with reverse auction revenues. A reverse auction mechanism should not, in theory, place any further restrictions on the countries that might be able to participate within a market-based mechanism: If aggregation of emissions reductions is at the international level then the proposal would not require any further institutional capacity in developing countries. In reality, however, reverse auctions will likely require a certain amount of national capacity - not least of which will be the ability to produce national inventories of marginal abatement costs<sup>19</sup>.

DISCOUNTING

Market-based mechanisms can use 'discounting' whereby developed countries apply a discount to emissions reductions from developing countries (offsets) so that emitters in developed countries would need to tender more than one international offset for every tonne of compliance crediting in their home countries. For example, a developed country compliance buyer might have to buy three tonnes of offsets for every tonne of CO<sub>2</sub> emitted domestically. This option has been put forward under the American Clean Energy and Security Act, also known as the Waxman-Markey Bill which places a 5:4 discount on international REDD offsets (see page 51).

The purpose of discounting is to increase the environmental integrity of carbon market mechanisms by creating 'additional', non-tradable offsets. Under a non-discounted offset mechanism every tonne of emissions reduction imported would be cancelled out by an industrialised country emission; whereas under a

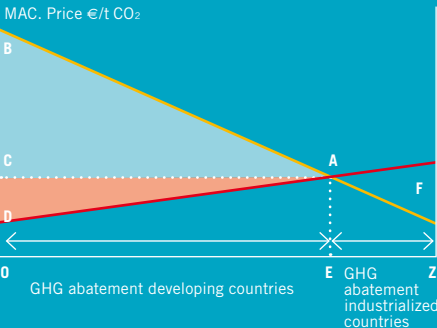
discounted offset mechanism a proportion of emissions reductions generated in developing countries would be additional to industrial emissions inasmuch as they could not be offset. Given the increase in price to fund these 'additional offsets', this model would provide an additional stimulus for developed country domestic abatement and an incentive for technology innovation. As shown in Figure 10, this mechanism would also lead to decreased rents, which translates to an increase in efficiency, as a higher percentage of finance is being delivered to generate emissions reductions.

A challenge for discounting will be that abatement costs differ significantly by sector and country and discount rates might need to be differentiated accordingly, which would be a major negotiating challenge. There is also an increased likelihood that project developers or national implementers would tend towards the least expensive abatement options or the so-called 'low-hanging fruit', an issue faced today in the current, project-based CDM market.

**Figure 10** Effect of discounting on supply and demand of offsets

WITH DISCOUNTING

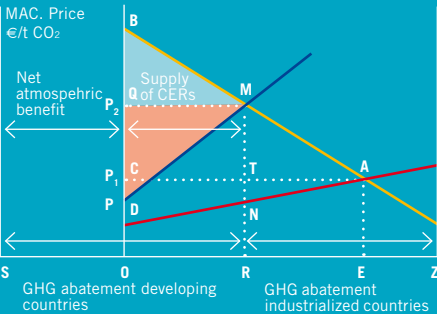
MAC DEVELOPING COUNTRIES  
MAC INDUSTRIALIZED COUNTRIES



Emission reduction commitment by industrialized countries

WITH DISCOUNTING

MAC DEVELOPING COUNTRIES  
MARGINAL CER DELIVERY COSTS  
MAC INDUSTRIALIZED COUNTRIES



Emission reduction commitment by industrialized countries

## GRANTS

## PARTICIPATION



## THEME



## LEVEL



## PERFORMANCE BASED



A grant is defined as a transfer made in cash, goods or services for which no repayment is required (OECD, 2009). Climate change payments, particularly those related to adaptation, differ from traditional official development assistance payments as they include a responsibility or obligation to pay (see page 40) (Müller, 2009). Any climate-financing package is therefore, undoubtedly going to include a substantial transfer of grants from developed to developing countries. While grants could be used for a wide array of climate change needs, there is a considerable need for resource optimization given the limited financial resources likely to be available.

The use of grants will typically be targeted towards activities that provide a public good that have no (or negative) financial returns for the recipient country. Grants are therefore, primarily used for capacity building, technology transfer and adaptation activities<sup>20</sup>. Recent research suggests that grants can also be applicable to abatement programme enablers that do not generate direct emission reductions (e.g., smart grids) (Project Catalyst, 2009). Due to the themes that are appropriate under grant-based payments, grants will play a role within all developing countries, but will be particularly important to the Least Developed Countries (LDCs) who need finance primarily for adaptation rather than mitigation activities. Close monitoring of the use of grants in poor and badly governed countries is needed, however, as grants can have a negative effect on domestic revenue generation in those countries (Odedokun, 2003).

Grants can create significant financial leverage if used for technical assistance as they can help to stimulate other financial flows. As with other forms of public intervention, grants can be delivered at either the national or project level. The delivery of public finance at the national level is preferred, however, as it allows integration with national development goals and ODA revenues.

PUBLIC V PRIVATE FINANCING  
MECHANISMS

Developing countries have emphasised under the Ad-Hoc Working Group on Long-term Cooperative Action (AWG-LCA) that the public sector is expected to play a major role in delivering climate change finance. Public expenditure is likely to deliver those climate change needs on which the rate of return is insufficient to attract private sector investment. Public financing mechanisms will therefore play a significant role in adaptation financing.

Public sector finance can be from either national or international sources and can be managed through a range of institutional arrangements including international climate specific funds under the UNFCCC, domestic, national, sectoral and/or local budgets, or via bilateral and multilateral funds<sup>21</sup>. Private sector finance includes revenue from both commercial and philanthropic sources.

Whilst the use of public financing mechanisms can have distorting effects on markets and can crowd out private sector finance, many private actors (e.g. small-farmers) do not have the resources available to cover the costs associated with mitigation and adaptation activities (Persson et al., 2009). The immediacy of the challenge will need to balance the risks of generating temporary and potentially unsustainable solutions in developing countries.

While public sector delivery is seen by many developing country Parties to be paramount, private sector finance for mitigation beyond the role of carbon markets can contribute significantly to the delivery of climate change needs. The private sector is only expected to provide investment for an economic rate of return. For anything below that rate public finance will remain critical. The public sector will also be essential in creating the enabling environment for private investment, by implementing policies encouraging private sector investment (Persson et al., 2009).

20. Capacity building includes policy reform.

21. These options are discussed in more detail in the Institutional Arrangements section.



## PERFORMANCE-BASED GRANTS

## PARTICIPATION



## THEME



## LEVEL



## PERFORMANCE BASED



Grants might also be used to cover the incremental costs of sectoral mitigation programmes with positive costs<sup>22</sup>. These grants would be performance-based, i.e. the provision of finance would be conditional on a return of emissions reductions, an emissions reduction proxy, or the implementation of policies and measures that are aimed at reducing emissions. For early action payments, or in countries where adequate monitoring, reporting and verification systems have not been put in place, these payments could be provided against an indirect measure for abatement, e.g. a reduction in hectares of deforestation (Project Catalyst, 2009).

The Informal Working Group on Interim Financing for REDD (IWG-IFR) proposes the establishment of interim performance-based incentive payments to countries that sign up to REDD activities, with payment based on either quantified emissions removals or an established proxy (see overleaf).

Performance-based grants could be implemented at either the project or national level, and are a relatively cost-efficient way of using financial resources. Performance-based grants, for example if used as payments for reduced deforestation and degradation, would hopefully be reinvested in ongoing REDD strategy implementation.

Performance based payments using a proxy for performance could be implemented in countries with relatively low capacity. Furthermore, using a phased approach, countries will be able to progress from initial capacity building activities towards activities that achieve long-term emissions reductions in a measurable, reportable, and verifiable way (see page 105).

<sup>22</sup>. Approximately 3 billion tonnes of abatement potential in developing countries is available on a cost-negative basis. As it is in developing countries' self interest to perform these activities, cost negative abatement should be primarily delivered through self-financing.

THE INFORMAL WORKING GROUP  
ON INTERIM FINANCING FOR REDD+

The Informal Working Group on Interim Finance for REDD+ (IWG-IFR) was established on April 1, 2009 at the invitation of His Royal Highness the Prince of Wales to emphasise the urgency and importance of greatly scaling up funding for tropical forests to address climate change and provide broader benefits for the world. The IWG-IFR in its recent report estimates that if financing of USD 23 - 38 billion were made available for the 2010 - 15 period for results based incentives and capability building, complementing other REDD+ efforts, a 25 per cent reduction in annual global deforestation rates may be achievable by 2015. These costs are made up of USD 20 - 35 billion for payments for emission reductions (of which USD 5 billion would go towards reduced peat-related emissions) and USD 3 billion to invest in preparatory activities. The financing need is highly sensitive to the agreed level of payments to developing forest countries per tonne of reduced or avoided emissions. Efforts on this scale could, if effective, reduce annual deforestation by about 3 million hectares per year, for an accumulated total emission reduction of 7 billion tCO<sub>2</sub>e for the period (including 1.5 billion tCO<sub>2</sub>e from peat-related emission reductions). They could also generate economic benefits for developing countries, including their indigenous peoples and local communities, conserve biodiversity, protect water supplies, and provide the longer-term UNFCCC REDD+ process with vital information and experience. Immediate action on REDD+ is a crucial part of the climate change solution. A global partnership for the interim period could have the following key features:

It should build on principles agreed under the UNFCCC, and be integrated into or incorporated by the UNFCCC agreement on REDD+ when and as appropriate, by determination of the COP.

National leadership and political will are preconditions for successful implementation of a REDD+ strategy.

Varying country circumstance should be respected through a phased approach. It should be fair, simple, and environmentally effective. Countries would have an incentive to improve the environmental integrity and transparency of results over time in order to obtain large-scale support.

In the first phase developing forest countries would receive grants to develop a REDD+ strategy. In the second phase, grant support would be provided to build capacity, while large-scale payments would be provided for demonstrated results in reducing emissions relative to an agreed reference level, as estimated by proxies for greenhouse gas emissions. This would deliver early large-scale mitigation, and, crucially, the learning at scale necessary for countries to transition into the third phase, where countries would receive payments for verified emission reductions and removals, as measured by compliance grade and transparent measurements of environmental integrity, and for the conservation of existing stocks.

Immediate action on REDD+ could contribute tremendously to countries' joint efforts to address climate change. The key elements of a simple, effective, efficient, and equitable mechanism could be set up by the end of the first quarter of 2010, based on the agreed outcome of COP 15 in Copenhagen. The IWG-IFR might, if deemed useful by countries in the light of results at Copenhagen, reconvene in early 2010 to consider further steps to facilitate immediate action on REDD+.

## PARTICIPATION



## THEME



## LEVEL



## PERFORMANCE BASED



## CONCESSIONAL DEBT

Public finance can also be delivered through concessional debt. Debt involves a transfer of finance, in this case from developed to developing countries, for which repayment by the recipient is required<sup>23</sup>. As discussed on page 87, the provision of international finance for climate change actions - particularly for adaptation financing - is seen to be a compensation or restitution owed by developed countries to developing countries. The use of loans to deliver climate finance has therefore been heavily criticised as it places a burden of payment (in the form of repayment) on developing countries (Müller, 2008). Public finance loans for climate change are therefore likely to include a high degree of concessionality, which means that the loan will be delivered at more favourable rates than private sector debt. These loans are therefore referred to as concessional or 'soft' loans.

Although a robust economic appraisal of the efficacy of loans in delivering climate change objectives has not been developed to underpin different positions on this issue, many lessons can be drawn from the use of concessional loans in the delivery of ODA. Concessional loans for development have been most suitable for investments that have some level of financial return, while still being below a threshold that would attract commercial investment<sup>24</sup>. There could, therefore, be an essential role for these loans in financing developing country mitigation activities that have a (commercially uncompetitive) return on investment, e.g. afforestation and reforestation activities<sup>25</sup>. Concessional loans could also be appropriate for financing mitigation activities that require capital-intensive investments (Project Catalyst, 2009).

To be able to participate in a mechanism that uses concessional loans, the LDCs would likely need additional support for capacity building to ensure that they have the ability to meet future financial commitments. Debt is therefore not an appropriate form of finance for LDCs as they have little capacity to repay even concessional loans. The use of concessional loans achieves both cost-efficiency and financial leverage as the initial public investment is likely to reduce the investment risks for private finance, and public resources will be repaid, and can therefore be recycled for other purposes (e.g. through the use of a revolving fund).

<sup>23</sup>. The repayment will be of the initial loan (called the principal) and any interest accrued over a fixed period of instalments.

<sup>24</sup>. Forthcoming ODI publication (Brown et. al, 2009).

<sup>25</sup>. Afforestation and reforestation activities can generate returns from sustainable forest management as demonstrated under mechanisms such as the world bank's BioCarbon Fund.

PUBLIC FINANCIAL INSTRUMENTS  
FOR MITIGATING PRIVATE SECTOR  
INVESTMENT RISKS

There are a number of other financial instruments that the public sector can use in order to help mobilise private investment. This will be particularly critical given the capital-intensive nature of many climate change interventions, both for mitigation and adaptation actions. Such instruments include debt and equity guarantees, advance market commitments (such as using public finance to fund feed-in tariffs), and financial insurance (Romani, 2009). These instruments can help to reduce financial risk perceived from private investors and in some ways reduced overall costs. The following is a summary of debt and equity guarantees.

## DEBT AND EQUITY GUARANTEES

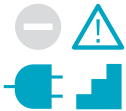
Debt and equity guarantees provide ways to mobilise upfront capital needed for many projects and programmes. Guarantees serve the purpose of reducing the financing cost of upfront investment capital through lower interest rates and reduced risk on the remaining debt (Romani, 2009). Guarantees send a signal to private investors that governments are committed to supporting climate-friendly investments. Guarantees are particularly useful for capital-heavy sectors, such as power. While all countries could theoretically use public financial instruments to mitigate private sector investment risks, the use of guarantees and insurance are particularly suitable to Middle Income Countries given that access to project finance is generally easier than in LDCs.

## PHILANTHROPIC GRANTS

### PARTICIPATION



### THEME



### LEVEL



### PERFORMANCE BASED



Private finance can be delivered in the form of grants. Grant-based payments are only likely to be delivered by philanthropic organizations, since philanthropic investment, which is not focused on commercial returns, is able to deliver finance more flexibly than commercial sources.

The use of private sector and public sector grants are closely aligned insofar as they are both suitable for investments with no or negative financial returns.

## PRIVATE SECTOR CONCESSIONAL DEBT

Debt is an instrument by which the private sector can deliver investment in climate finance. Given that developing countries have lower incomes and generally lower access to borrowing opportunities, the most attractive forms of private sector debt are those that deliver finance at lower interest rates than commercial debt (Persson et al., 2009).

Private sector concessional debt will have applications that are very similar to public sector concessional debt as discussed above. The key differences between private sector and public sector concessional debt is that the private sector is under no obligation to adopt the same funding priorities as the host country; the private sector will primarily allocate finance to projects that satisfy the financial criteria for lending. If the governance of public finance is devolved to developing countries, however, the host country can engage public finance in a more strategic way in alignment with national priorities. Although debt is not an appropriate form of finance for LDCs, private sector finance could still play an indirect role in supporting LDCs, by focusing on countries that have a greater capacity to take on debt. This would free up public finance in the form of grants to focus on LDCs. Whether this would work in practice, however, depends on several factors, including the financial architecture and disbursement criteria for public funds.

Low-interest loans are a potential form of delivery for revenue generated through bonds: The repayment schedule on a low-interest loan is one possible mechanism by which a bond issuer can make the necessary commercial return to repay the bond investor (Persson et al., 2009). It may also be possible to structure debt within an international mechanism so that borrowers in developing countries are given access to low- or no-interest loans<sup>26</sup>. If preferential rates are given to low-income countries, however, higher interest rates are needed in middle- and high-income countries accessing the same funding pool to maintain the commercial rate of return of the overall lending activity (Persson et al., 2009). Funding delivered through concessional loans, allows debt to be recycled for other uses and re-loaned to other borrowers, thereby creating financial leverage on the investment.

### PARTICIPATION



### THEME



### LEVEL



### PERFORMANCE BASED



<sup>26</sup>. This type of delivery mechanism is already being used by the International Development Association of the World Bank.



PARTICIPATION



THEME



LEVEL



PERFORMANCE BASED



EQUITY

Private sector investment can also be delivered as equity, whereby investors purchase a level of ownership within an investment or project. Equity can be delivered through the purchase of stocks and shares, or on a project basis (Persson et al., 2009).

Equity investments are most appropriate for activities that generate a profitable revenue stream (e.g. hydro-electric power plants, that generate revenue through the production of electricity or carbon projects that generate a steady flow of emissions reductions) (Persson et al., 2009). Equity finance will therefore be most applicable to mitigation activities and the use of equity in adaptation finance is likely to be low.

As with other forms of private sector finance, equity will tend towards countries with low risk, stronger financial institutions and the capacity to absorb finance. As such this mechanism is unlikely to provide considerable finance to the Least Developed Countries. As discussed above under private concessional debt, it is hard to say whether finance through private sector equity would be delivered in a strategic way, given that the private sector is under no obligation to adopt the same funding priorities as the host country, choosing instead to allocate finance to financially attractive projects.



# **INSTITUTIONAL ARRANGEMENTS**



## UNDERSTANDING INSTITUTIONAL ARRANGEMENTS

Alongside the decision on how to generate and deliver finance for climate change measures is the equally important consideration of how to structure, govern and coordinate these funds. This section explores the various institutional arrangements that have been proposed to manage the flows of international climate finance. The proposals that are covered in this analysis include both national and international institutions across developed and developing country Parties.

### THE STATE OF PLAY

There are a multitude of bilateral and multilateral institutions that have been established to channel development-related finance to developing countries. Recently, several bilateral and multilateral funds have emerged with the specific remit to channel climate finance (see page 128). With a few exceptions, the majority of these funds operate outside of the UNFCCC mandate (Brown et al., 2009). Under the UNFCCC mandate, the CDM, the GEF and the Adaptation Fund Board are the main providers of mitigation and adaptation finance. Outside of the UNFCCC process, climate finance is provided through an array of bilateral and multilateral initiatives such as Japan's Cool Earth Partnership, Norway's Climate and Forest Initiative and the World Bank's Climate Investment Funds (see Table 3).

The proliferation of funds and funding channels at the international, and national level has led to a fragmented, decentralized model in which developing countries face an array of uncoordinated funding sources. The multiplication of funds with different governance structures and approaches makes the management of these revenue streams complicated for recipient countries. Additionally, fragmentation of funding can lead to competing centres of authority and a duplication of funding efforts (Brown et al., 2009).

## A BRIEF HISTORY

Under Article 7 of the Convention the Conference of the Parties (COP) are required to:

*“Periodically examine the obligations of the Parties and the institutional arrangements under the Convention, in the light of the objective of the Convention, the experience gained in its implementation and the evolution of scientific and technological knowledge”.*

The process of review of current institutional arrangements began in Bali in 2007 with the launch of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA).

### PRINCIPLES

The finance contact group under the AWG-LCA has had before it a series of non-papers that form the basis of negotiations<sup>1</sup>. From these discussions a set of common principles have emerged that serve as a guide to the discussions on institutional arrangements. These principles include transparency, efficiency, effectiveness and the equitable and balanced representation of all parties<sup>2</sup>.

## INSTITUTIONAL ARRANGEMENTS FRAMEWORK

### CRITERIA

The diagram below presents a framework that can be used to analyse and understand the different proposals that have been put forward for institutional arrangements. The framework comprises four criteria as follows:

**Institutions:** Will new institutions be required?

**Coherence:** Will there be consolidation or fragmentation of funding streams?

**Devolution:** Who will make spending decisions?

**Approval:** Who will approve funding for projects and programmes?

Using these criteria allows us to compare individual proposals and to collectively see areas of convergence or divergence. We can also use the criteria to assess how closely the proposals for institutional arrangements align with the principles outlined above.

<sup>1</sup>. Non-papers No. 34 and 54 are relevant to the contact group on enhanced action on the provision of financial resources and investment and are available at [http://unfccc.int/files/kyoto\\_protocol/application/pdf/54fin61109.pdf](http://unfccc.int/files/kyoto_protocol/application/pdf/54fin61109.pdf)

<sup>2</sup>. Taken from the latest non-paper No. 54, as well as the paper on common elements presented at AWG-LCA 6 in Bonn in August available at [http://unfccc.int/files/meetings/ad\\_hoc\\_working\\_groups/lca/application/pdf/finance140809.pdf](http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/finance140809.pdf).

The criteria and proposals that are discussed in this section are predominantly related to the decision-making processes within the overall financial mechanism. There will inevitably be overlap, however, between this module and the normative components of revenue generation and revenue delivery. For clarity and understanding, decisions and criteria related to the generation and delivery of finance have been discussed in the previous two sections.

The following pages provide an explanation of these criteria in relation to the principles outlined above and show these criteria can be used to understand proposals for institutional arrangements.

**Figure 11.** A framework for understanding Institutional Arrangements

# INSTITUTIONAL ARRANGEMENTS

PRINCIPLE	
EFFECTIVE / EFFICIENT	EQUITABLE / TRANSPARENT
CRITERION	
<b>COHERENCE</b> Will there be consolidation or fragmentation of funding streams? Who will coordinate fragmented funding?	<b>INSTITUTIONS</b> Will new institutions be required?
<b>DEVOLUTION</b> Who will make spending decisions?	
<b>APPROVAL</b> Who will approve funding for projects and programmes?	

## INSTITUTIONS



The first criterion for institutional arrangements describes how existing institutions will play a role in a future financial mechanism.

### Options: New, Reformed

In the opening sections of this book we showed that between USD 90 - 210 billion is required if we are to limit global warming to less than 2°C above pre-industrial levels. Current institutions are not designed to deliver finance at this scale (Müller and Gomez-Echeverri, 2009) and do not typically have a governance structure that allows fair and equitable representation of developing country Parties, which leaves two alternatives: either create new institutions or reform existing ones.

Under a reformed approach, existing institutions such as the Global Environment Facility (GEF) and the World Bank would be improved or made ‘fit for purpose’. The alternative to reform is to create new and appropriate institutions to enable the principles of the Convention and the Bali Action Plan to be fulfilled. The debate around new versus reformed institutions is largely one of control. A central argument for creating new institutions is that the existing institutions such as the GEF and World Bank typically represent the views and interests of developed country Parties. Developing countries therefore see new institutional arrangements as a way to achieve equitable representation and direct access to international finance.

As with other criteria outlined here, the decision to reform existing institutions or to create new institutions is not binary. Both scenarios would require a transition period, whether it is for the establishment of new entities at international and national levels or coordination and improvement within existing institutions.

To help understanding of the different proposals that, entities or bodies that have been created under a given proposal are **highlighted in bold** throughout this section.



## COHERENCE

The second consideration for institutions is to what extent there will be consolidation of different funding streams.

### Options: Consolidated, Fragmented

As outlined in the revenue generation section, there are a multitude of proposals on the table for how revenue can be generated for international climate finance. A key question for the institutional arrangement of a financial mechanism will be whether funding streams will remain fragmented or whether they will be consolidated (see page 128).

The level of coherence of revenue streams is a spectrum, ranging from a fully consolidated fund at one end to a completely fragmented financial architecture at the other. The fully **consolidated** funding model would require all funding for international mitigation and adaptation to be channelled through a single entity that would deliver climate change finance to developing countries<sup>3</sup>. At the other end of the funding spectrum, a **fragmented** system would involve no aggregation of developed country finance and developing countries would face a multitude of distinct and uncoordinated funding streams. In reality it is likely that funding will be a combination of fragmented and consolidated funding channels.

The consolidation of funding streams both at the national and the international level is argued to be an important requirement for funding mechanisms (Müller, 2009), as it is unlikely that thematic balance and equitable distribution can be achieved in the absence of a consolidated management of these funds (see page 87).

Furthermore, the fragmentation of funding streams from contributing governments makes the management of funds in recipient countries complex and can lead to competing centres of authority and a duplication of funding efforts (Brown et al., 2009). Another serious problem with fragmented funding streams is that it has proven very difficult in the past to monitor, report and verify the flow of finance, even when carried out as part of a 'political commitment' (Müller and Gomez Echeverri, 2009).

3. Proposals for consolidated funding do not preclude the existence of other funding sources; they state, however, that finance delivered outside the consolidated fund cannot be counted against developed country commitments under the Convention.

## DEVOLUTION

A further consideration for the institutional arrangement is the choice of where and how decisions are made on the delivery of finance and who makes them.

### Options: Devolved, Retained

In general, spending decisions can either be made by recipient countries (devolved) or by contributing countries (retained). As with generation, the choice of delivery decision-making will be one of degrees; that is, some funding models will involve more or less devolution or retention of decision-making for the delivery of finance. The current financial architecture, with a few exceptions, uses a retained model in which decisions on how finance is delivered are made by contributing countries.

The subsidiarity principle encourages decisions to be made at the lowest or least centralised competent authority<sup>4</sup>. The devolution of funding decisions is vital in ensuring both national- and community-level ownership of mitigation and adaptation actions. It also provides 'direct access' to funding and leaves the option for both off-budget and on-budget funding streams.

Devolved or national-level decision-making also relieves international bodies of an otherwise unmanageable number of operational decisions related to the approval of activities and monitoring, reporting and verification (MRV) of support (Müller and Gomez-Echeverri, 2009).



4. The principle of subsidiarity is central to the ongoing UNFCCC negotiations and has been promoted by a number of Parties under the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA)

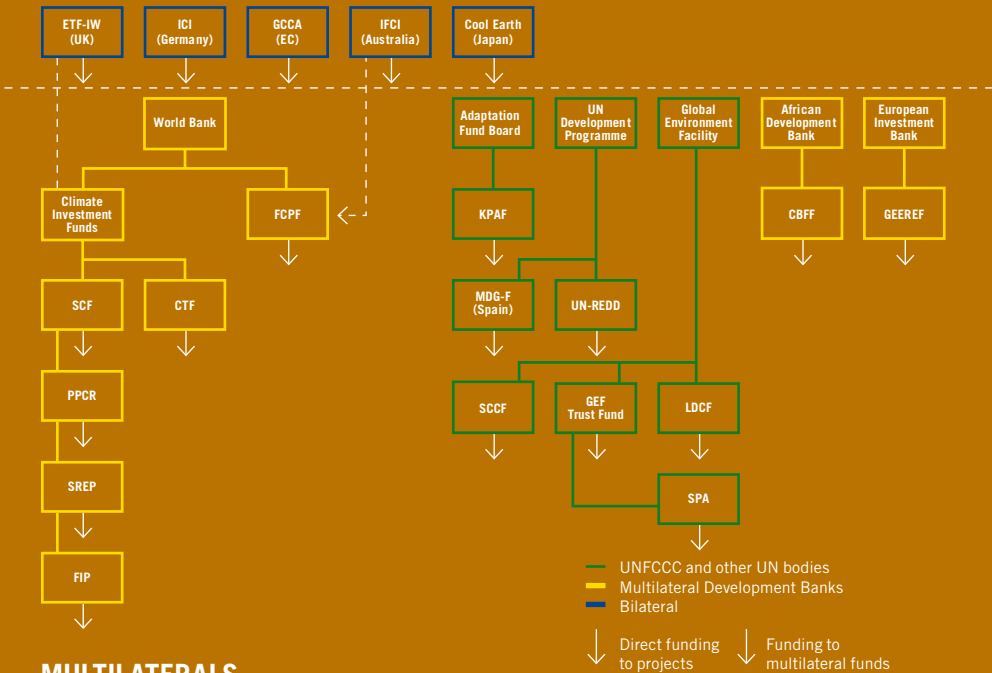


# THE FRAGMENTED LANDSCAPE OF CLIMATE CHANGE FINANCE

The diagram below summarizes the main entities in the current institutional climate change landscape. The proliferation of funds and operational entities, many of which operate outside of the UNFCCC mandate, creates challenges for transparency of financial flows and simplicity of developing country access to finance. The limited effectiveness of the existing system underpins calls for coherence in the funding streams and institutional architecture for climate change mitigation and adaptation.

- CBFF** Congo Basin Forest Fund
- CTF** Clean Technology Fund
- ETF-IW** Environmental Transformation Fund - International Window
- FCPF** Forest Carbon Partnership Facility
- FIP** Forest Investment Program
- GCCA** Global Climate Change Alliance
- GEF** The Global Environment Facility
- GEEREF** Global Energy Efficiency and Renewable Energy Fund
- ICI** International Climate Initiative
- IFCI** International Forest Carbon Initiative
- KPAF** Kyoto Protocol Adaptation Fund
- LDCF** Least Developed Countries Fund
- MDGF** Millennium Development Goals Fund
- PPCR** Pilot Program for Climate Resilience
- SCCF** Special Climate Change Fund
- SCF** Strategic Climate Fund
- SPA** Strategic Priority on Adaptation
- SREP** Scaling-Up Renewable Energy Program for Low Income Countries

## BILATERALS



## MULTILATERALS

Figure 12. The emerging architecture of international fund administration. Source: [www.climatefundsupdate.org](http://www.climatefundsupdate.org)



## APPROVAL

This final criterion describes who will approve funding for projects programmes and activities in developing countries.

### Options: Centralised, Decentralised

There are two ways in which decisions related to the approval of funding can be made: Decision-making can either be centralised, under an international body appointed by the COP or through the governing entity of a multilateral fund such as the World Bank's Climate Investment Funds; or decentralised, whereby individual contributors and/or recipients make decisions on how finance is distributed.

The status quo for international financing (with a few exceptions) is a decentralised model, in which funding approval for mitigation and adaption activities are decentralized amongst a multitude of bi- and multi-lateral 'donor' organizations. Many of the proposals put forward by developing countries also propose a decentralised model, but one where the decisions are taken by the recipients of international finance.

Under a centralised approach, decisions relating to how finance should be generated and delivered would be taken at the international level through the COP or a representative high-level body. This authority could either be under the guidance or under the authority of the COP (see overleaf).

As discussed above, under a devolved model (that could be either consolidated or fragmented), decentralised decision-making relieves international bodies of an otherwise unmanageable number of operational decisions related to the approval of funding activities (Müller and Gomez-Echeverri, 2009). An element of centralised authority will be necessary, however, for certain types of capacity building and technology-transfer activities that may be better kept at the international level (Müller, 2009).

## THE ADAPTATION FUND'S INSTITUTIONAL ARRANGEMENTS

The Adaptation Fund established by the governing body of the Kyoto Protocol in 2007 is seen by many, particularly in the developing world, as a model for an international financial mechanism.

### 'UNDER THE AUTHORITY'

At COP 13 in Bali, the COP decided that the Adaptation Fund Board (AFB) (the operating entity of the fund) shall be 'under the authority and guidance of the [COP/MOP], and shall be fully accountable to the [COP/MOP], which shall decide on its overall policies in line with relevant decisions'<sup>5</sup>. While this specifies what the COP/MOP shall decide, nothing is said about what, if anything is under the decision-making remit of the AFB. It will be important to elaborate this relationship of 'being under the authority', as this will only be acceptable to many developed countries if some clarity is reached on what this entails.

### DEVELOPING COUNTRY REPRESENTATION

One of the innovative features of the AFB composition is that the key target groups - namely the Least Developed Countries and Small Island Developing States - are both explicitly represented. Decision-making is based on a one-member-one-vote rule, and consensus is given priority. Since developing countries have a majority within the AFB this constitutes a change to the consensus dynamics from, for example the GEF that has implicit 'donor veto' due to its mixed voting rule.

### TRANSPARENCY

The AFB procedures are also exemplary with respect to their transparency. Not only are accredited UNFCCC observers - Parties, Intergovernmental as well as Non Governmental Organisations (NGO) - allowed to attend the AFB meetings, but those who are unable to do so can also follow them through live web-casts. This ensures ownership of the AFB not just by Parties, but also by these observer stakeholders<sup>6</sup>.

### DIRECT ACCESS

Decision 1/CMP.3 stipulates that Parties shall have 'direct access' to the Adaptation Fund. This is to be operationalised by way of National Implementing Entities (NIEs) that will have to endorse all projects and programmes to be eligible for funding, and will submit proposals to the AFB. In addition, if a NIE is accredited as meeting the fiduciary standards of the Adaptation Fund, then it will also be entitled to receive funds directly. This would keep the eligible Parties, through their national entities, in control in terms of their ability to make spending decisions.

5. Decision 1/CMP.3 para. 4.

6. As discussed in ECO, Issue No.3, Volume CXVII, 31 March 2009.



# **INSTITUTIONAL ARRANGEMENTS PROPOSALS**

## A GUIDE TO INSTITUTIONAL ARRANGEMENTS

### INSTITUTIONS



### COHERENCE



### DEVOLUTION



### APPROVAL



The following pages present a guide to thirteen options for institutional arrangements using the analytical framework presented above. Each proposal is represented graphically using the icons shown overleaf. These icons represent the main options from the analytical framework, and have been grouped into their respective criteria.

The icons will be presented to the left of each proposal in an 'icon bar' shown on the left. Not all proposals aim to define all of the criteria of the framework. To simplify matters, all icons in the icon bar will be greyed out by default and only the options that are discussed in the proposal will be highlighted in colour.

The example shown on the left hand side indicates that this hypothetical proposal would use a new, consolidated fund with devolved and decentralized decision-making.

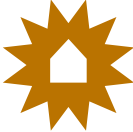
## KEY TO INSTITUTIONAL ARRANGEMENTS ICONS

### INSTITUTIONS

#### REFORMED



#### NEW



### COHERENCE

#### CONSOLIDATED



#### FRAGMENTED



### DEVOLUTION

#### DEVOLVED



#### RETAINED



### APPROVAL

#### CENTRALISED



#### DECENTRALISED



INSTITUTIONS



COHERENCE



DEVOLUTION



APPROVAL



ALLIANCE OF SMALL ISLAND DEVELOPING  
STATES (AOSIS)<sup>7</sup>

MULTI-WINDOW MECHANISM

AOSIS proposes a new multi-window mechanism to address loss and damage from climate change impacts (Multi-Window Mechanism). The purpose of the Multi-Window Mechanism is to reduce vulnerability and enhance adaptive capacity to climate risks in Small Island Developing States (SIDS), the Least Developed Countries (LDCs) and other developing countries particularly vulnerable to the adverse impacts of climate change. Recognizing that existing international financial institutions places small countries at a distinct disadvantage, AOSIS recommend that new governance arrangements are required.

The Multi-Window Mechanism follows a centralised model and would have three inter-dependent components, namely insurance, rehabilitation/compensation and risk management that would operate under the umbrella of the Convention and be housed within the UNFCCC Secretariat.

The mechanism would create the following entities:

The **Multi-Window Mechanism Board** would provide oversight and have a transparent governance structure.

The **Technical Advisory Facility** would provide advice and assistance to countries with input from relevant sectors, UN agencies and other organizations.

The **Financial Vehicle/Facility** would manage funds held by the Multi-Window Mechanism. It would be created inside the UNFCCC, but could be housed in a financial institution outside the UNFCCC.

To finance the Multi-Window Mechanism, AOSIS proposes the creation of a new consolidated **Convention Adaptation Fund** that would complement the Adaptation Fund under the Kyoto Protocol.

<sup>7</sup> The Alliance of Small Island States (AOSIS) is a coalition of some 43 low-lying and small island countries, most of which are members of the G-77, that are particularly vulnerable to sea-level rise.

GROUP OF 77 AND CHINA (G77 + CHINA)

The G77 + China proposes the operationalisation of an effective financial mechanism under the COP to enhance action on the provision of financial resources to support mitigation, adaptation and technology transfer. The mechanism would operate under the authority and guidance of the COP and will enable direct access to funding by the recipients and ensure recipient country involvement during the stages of identification, definition and implementation, rendering it truly demand driven.

The COP will appoint a **Board** that shall have an equitable and balanced representation of all Parties within a transparent and efficient system of governance and shall be assisted by a Secretariat of professional staff contracted by the Board.

The COP and Board shall establish centrally managed specialized **funds**, and **funding windows** under its governance, and a mechanism to link various funds. A **Trustee** or Trustees selected through a process of open bidding would administer the funds<sup>8</sup>. Each of the separate funds may be advised by an **expert group** or committee, which could also be supported by a **technical panel** or panels addressing specific issues of the fund.

Funding decisions are retained under this model and the G77 + China propose that the portion of funding that must be allocated to adaptation and mitigation would be decided by the Board and periodically reviewed, taking into account the historical imbalances in and the urgency of funding for adaptation<sup>9</sup>. The G77 propose a fully consolidated funding model and any funding pledged outside of the UNFCCC would not be regarded as the fulfilment of commitments by developed countries under Art. 4.3 of the Convention, and their commitments for measurable, reportable and verifiable means of implementation decided under paragraph 1b (ii) of the Bali Action Plan.

INSTITUTIONS



COHERENCE



DEVOLUTION



APPROVAL



<sup>8</sup> This could be an existing institution such as the GEF or World Bank.<sup>7</sup> The G7

<sup>9</sup> + China also propose that delivery should be primarily grant-based (particularly for adaptation), with concessional loan arrangements as appropriate.

## INDIA

## INSTITUTIONS



## COHERENCE



## DEVOLUTION



## APPROVAL



India proposes a new, consolidated **fund** to be managed by an **Executive Board**, operating under the direct supervision and authority of the COP. The Executive Board would have an equitable and balanced representation of all Parties within a transparent system of governance.

The Executive Board would ensure that all Parties have direct access to the fund in accordance with guidelines laid down by the COP on the policies, programme priorities and eligibility criteria for accessing the funds. The Executive Board may also devolve authority to **designated national funding entities** of developing country Parties to approve activities, projects, programmes for funding, subject to the guidelines and procedures approved by the COP.

The Executive Board would manage a **certification and registry system** for receiving financial resources from developed country Parties to be counted towards compliance with financial obligations under the Convention, and with approval of the COP will institute **external independent oversight** as well as internal monitoring and evaluation into the management and operation of Fund.

India proposes that the financial mechanism would have three separate funding windows aimed at mitigation, adaptation and technology cooperation. Each of the funding windows would be assisted by a dedicated team of experts in **thematic assessment units** to carry out the relevant assessments for disbursement to the designated national funding entities of the developing country Parties. The thematic assessment units would be a part of the financial mechanism and would operate under the authority of the Executive Board.

A **trustee** selected through open competitive bidding among reputed and pre-qualified institutions would administer the funds. As also stated by the G77 + China, any funding pledged outside of new financial architecture would not be regarded as the fulfilment of commitments by developed country Parties under Article 4.3 of the Convention.

## MEXICO

## WORLD CLIMATE CHANGE FUND (GREEN FUND)

Recognising that the current financial system is insufficient to support the action required in developing countries, Mexico proposes a **World Climate Change Fund** (Green Fund) as a consolidated financial scheme that complements existing mechanisms to ensure the full, sustained and effective implementation of the Convention<sup>10</sup>.

The fund would operate under the guidance of the COP through an inclusive and transparent governance scheme. To achieve a sense of collective ownership, all contributing and receiving countries, developed and developing, will participate in the governance of the mechanism<sup>11</sup>. The distribution of resources from the fund will be both retained and centralised and are determined by criteria and guidelines issued by the COP.

The fund will be operated by an **Executive Council**, constituted by a balance of representatives from all participant countries that will report annually to the COP<sup>12</sup>. The Council is comprised of **three independent counsellors**<sup>13</sup>: a scientific counsellor, a counsellor from a multilateral development bank (MDB), and a counsellor from a civil society organization (CSO). Developing countries will have the same relative weight and voice as developed countries.

The Executive Council will have **two support committees**: a scientific committee - to be established in consultation with the Intergovernmental Panel on Climate Change (IPCC) - that will issue recommendations about policies, strategies and programs that the fund can support; and a multilateral bank committee that will issue recommendations in its field of competence.

Mexico proposes that the fund should not lead to the creation of a new bureaucratic organization and the COP will decide upon an existing multilateral institution that has global and financial experience for administering the fund.

## INSTITUTIONS



## COHERENCE



## DEVOLUTION



## APPROVAL



<sup>10</sup>. Mexico's normative proposals for revenue generation and delivery are discussed separately in these sections respectively.

<sup>11</sup>. As LDCs are not required to contribute this statement, although not explicitly stated, could be interpreted to mean LDCs would not be represented in the governance of the fund.

<sup>12</sup>. As this is a financial instrument, Mexico recommends that country representatives to the fund would be from finance ministries or their equivalent.

<sup>13</sup>. It is unclear from the proposal whether Mexico intends for the counsellor to be a single individual or an entity comprised of many representatives.

INSTITUTIONS



COHERENCE



DEVOLUTION



APPROVAL



REPUBLIC OF KOREA

NAMA REGISTRY

Korea proposes the establishment of a decentralized Registry of developing countries Nationally Appropriate Mitigation Actions (NAMAs) at the UNFCCC Secretariat. The **NAMA Registry** would facilitate both the mitigation actions taken by developing countries and the financial support provided by developed countries.

Registration of NAMAs should be voluntary and once these actions are registered, they could be regarded as international actions to combat climate change. Each Party would ideally register the content of NAMAs, the kind of support needed to implement those actions and if possible the expected quantity of mitigation resulting from its NAMAs. Less developed countries could simply register the kind of NAMAs they are willing to undertake and request support for capacity building to specify their needs and to calculate the expected quantity of mitigation resulting from their NAMAs.

The NAMA registry would not require the creation of new funding institutions. The existing institutions would be coordinated through the registry to provide finance for NAMAs. Recognising the limited scale of public funds, Korea proposes that the revenue from the sale of carbon credits generated from NAMAs will function as a channel for transferring finance and technology to developing countries. The funding will therefore be fragmented under the Korean proposal.

CASE STUDY: THE AMAZON FUND

Established by the Brazilian Government, the Amazon Fund aims to reduce deforestation 80% by 2020 (relative to 1996-2005 average). Funds are held in a special account in the state-owned Brazil Development Bank (BNDES) and are replenished by donations. The Norwegian Government has committed USD 1 billion to this fund for the period to 2015, tied to annual performance against forest delivery targets.

The Amazon Fund is governed by a **Steering Committee** – with members from the Federal and Amazon State Governments, as well as from NGOs, indigenous peoples, the business sector and scientists – that defines guidelines and criteria for projects. There is a six-member **Technical Committee** verifying avoided deforestation and emissions, an **Independent Project Auditor**, and a **Trustee** (BNDES). The Fund allows for a variety of project implementers, among them the Federal and local Governments, civil society, international NGOs, and the private sector and the money is allocated to those that will achieve the best results, thus encouraging innovation.

The Amazon Fund is part of a suite of national policies that has contributed to an impressive drop in deforestation in the Brazilian Amazon. The area deforested in 2008 (1.2 million hectares) was 60% lower than in 2004 and 40% lower than the average between 1996 and 2005.



INSTITUTIONS



COHERENCE



DEVOLUTION



APPROVAL



SWITZERLAND

MULTILATERAL ADAPTATION FUND

Switzerland has proposed a global tax on carbon to generate revenue for mitigation and adaptation activities in developed and developing countries<sup>14</sup>. Under this proposal, Switzerland states that revenues generated under the carbon tax are partly channelled into a **National Climate Change Fund (NCCF)** for financing domestic climate change policies, and partly into a global consolidated **Multilateral Adaptation Fund (MAF)**<sup>15</sup>. Each country participating in the scheme would need to autonomously operate its own NCCF. This model is therefore both decentralised and devolved.

Switzerland proposes that the NCCFs should be complementary to existing project-based mechanisms operating under the GEF or the Kyoto Protocol. Possible guidelines for designing such funds could be the China CDM Fund and the Green Investment Schemes (GIS) developed between Russia and potential AAU buyers.

The MAF is to be allocated to two different themes namely a Prevention Pillar for climate change impact reduction and an insurance Pillar for climate impact response. The MAF should be managed within a clearly defined governance framework and should be complementary to other similar facilities such as the GEF trust fund, the Adaptation Fund (see page 131) and the World Bank Climate Investment Funds.

<sup>14</sup>. This proposal is summarised in the revenue generation section.

<sup>15</sup>. The percentage of revenue allocated to the fund would be differentiated according to groups of countries formed on the basis of the per capita GDP.

TUVALU

MULTILATERAL FUND FOR CLIMATE CHANGE

Tuvalu proposes a consolidated **Multilateral Fund** for Climate Change to establish, administer and deploy substantial and predictable sources of finance to support mitigation and adaptation actions. The Fund would be under the authority and guidance of the COP and be supervised by a Board. The constituency of the Board would be determined by the COP and be guided by the principle of equitable geographical representation. The secretariat of the UNFCCC would provide support for the Fund and its Board.

Tuvalu proposes that the Fund would have five discrete funding windows for mitigation, REDD, adaptation, insurance and Technology. The Board would establish **technical advisory panels** for each of the funding windows. The purpose of the technical advisory panels is to provide support to the Board by: identifying sources of funding; identifying priorities for funding; providing assistance to recipient countries in developing project proposals. The board and advisory panels constitute a centralised model for decision-making.

Contributions by all Parties would be recorded in a **contribution ledger** maintained by the secretariat and published on its website.

INSTITUTIONS



COHERENCE



DEVOLUTION



APPROVAL



## INSTITUTIONS



## COHERENCE



## DEVOLUTION



## APPROVAL



## UNITED KINGDOM (UK)

## COMPACT MODEL

The UK 'Compact Model' proposes a new delivery model that meets the needs of both contributors and recipients, can deliver at the necessary scale going forward, and recognises the different needs for mitigation and adaptation financing. Under the proposed mechanism decision-making would be devolved to the country level as much as possible. **Thematic bodies** would assess national plans submitted by national governments (working with recipient countries to improve them if necessary) and develop national allocation frameworks to determine a ceiling of finance that would be allocated to each country. In most cases these bodies will be existing institutions that have been reformed or remodelled so that they can work with the national plans effectively.

A new centralised **high-level coordination body** would be created with a balanced representation of developed and developing country Parties. The high-level body would approve national plans and provide guidance on national allocation frameworks. National mitigation plans would also be placed in a **registry** to facilitate MRV of mitigation action and the delivery of developed country support. All thematic bodies would report annually to the high-level co-ordination body on spend and progress. The high-level coordination body would also play an essential role in governing any **new funds** created for a post-2012 agreement. The body would make gross allocations to thematic bodies and would also have responsibility for deciding how best to channel money to countries, i.e. directly into national pools/budgets managed by national treasuries if financial risk allows, or into national pools managed by one of the multi-lateral banks if not.

The high-level co-ordination body would not have direct control over other financing sources, but by having responsibility for deciding which institutions to send its budget to, it could create incentives for the existing financing institutions and other contributors to allocate resources against national plans and improve ease of developing country access. This would increase the coordination and coherence of international climate financing. **A joint secretariat, independent audit function, trustee**<sup>16</sup> and a **multi-stakeholder forum** will provide support to the high-level coordination body and thematic bodies.

<sup>16</sup>. The trustee would likely be the World Bank – although any Bank with a global reach and robust financial management practises could take on this role.

## OXFORD INSTITUTE FOR ENERGY STUDIES (OIES)

## REFORMED FINANCIAL MECHANISM (RFM)

The Reformed Financial Mechanism (RFM) proposed by Benito Müller of the Oxford Institute for Energy Studies (OIES) aims to develop an institutional architecture and governance structure under the UNFCCC that addresses the main concerns of Parties as compiled in the 'Assembly Document' of the AWG-LCA and other documents since the launch of the Bali Action Plan<sup>17</sup>. At the heart of the RFM proposal is the idea of consolidation at the international and national level and decentralized funding decisions through devolution to the recipient countries.

Internationally, the institutional structure of the RFM consists of an **Executive Board**, which together with a small number of administrative units (**Thematic Assessment and Secretarial Units**) collectively provide the **Main Operating Entity** of the RFM; responsible for the disbursement of funds for allocation at the national level. Other functions, such as **internal and external audits** and evaluations, as well as that of **trustee** for the consolidated RFM fund, are outsourced.

Nationally, funding is consolidated in **Designated Funding Entities** (DFEs), with transparent governance and representation from all key national and sub-national government agencies as well as civil society representatives. There are already a number of climate change national funds and mechanisms that could serve as templates for the DFEs, such as the Bangladeshi Multi Donor Trust Fund<sup>18</sup>, the Indonesia Climate Change Trust Fund<sup>19</sup> and the Amazon Fund (see page 141).

Under the RFM, funding decisions are taken in accordance with the principle of subsidiarity. The RFM Operating Entity does not to make any decisions on the approval of funding but simply channels revenue to the DFEs to enable their funding activities. The RFM, in this way, proposes a genuine devolution of funding decisions, and not a halfway measure where such entities are only given the right to make plans but not to decide what is to be funded.

## INSTITUTIONS



## COHERENCE



## DEVOLUTION



## APPROVAL



<sup>17</sup>. The 'Assembly Document' (FCCC/AWG/LCA/2008/16/Rev.1) and other documents submitted since the Bali Action Plan can be found at <http://unfccc.int/meetings/items/4381.php>

<sup>18</sup>. The Bangladeshi Multi Donor Trust Fund is administered by the World Bank see <http://go.worldbank.org/LJ3SRV3J70>

<sup>19</sup>. UNDP has been appointed as the interim trustee for the Indonesia Climate Change Trust Fund <http://www.undp.or.id/press/view.asp?FileID=20090914-1&lang=en>



## NON-GOVERNMENTAL PROPOSALS

### INSTITUTIONS



### COHERENCE



### DEVOLUTION



### APPROVAL



## PRINCE'S RAINFORESTS PROJECT (PRP)

### TROPICAL FORESTS FACILITY

In their 2009 report 'Emergency package for tropical forests', the PRP proposes a new light, temporary global institutional framework called the 'Tropical Forests Facility' (Prince's Rainforests Project, 2009). The purpose of the Facility would be to coordinate multiple existing forest initiatives, facilitate and accelerate the transition to a long-term solution for REDD+ under the UNFCCC, whilst respecting the national sovereignty of rainforest nations – allowing them to develop and execute their own low carbon development plans.

At the international level the **Tropical Forests Facility** would be charged with negotiating agreements with rainforest nations, raising finance from developed countries, disbursing annual performance-based payments, and coordinating a global monitoring and verification system. The governance of the Facility would include representatives from rainforest nations, contributing countries, civil society, local communities and multi-lateral agencies. An idea that is being considered is to establish a new, independent **foundation**, backed by governments and perhaps supported by the World Bank as **Trustee** (along the lines of the Global Fund to Fight Aids, TB and Malaria, headquartered in Geneva).

Recognizing that REDD+ requires the involvement of all stakeholders within a country, the PRP envisages special **national funds** in each of the eligible recipient countries. These national funds could be similar in design to the Brazilian Amazon Fund and would be governed by **boards** containing central and local government representatives, as well as representatives from civil society (see page 141). The national funds would have to fulfil a number of requirements before they could participate in the scheme. For example, forest dependent peoples would have to be consulted in the creation of national low carbon development plans. There would also have to be full transparency on the use of funds, including **external audits** and an **appeal procedure** for local communities.



# COMPARATIVE ANALYSIS

# GENERATION SCALE: WHERE WILL FINANCE COME FROM?

This diagram shows the scale of funding, in USD billions, of the different revenue generation options grouped by the source of finance.

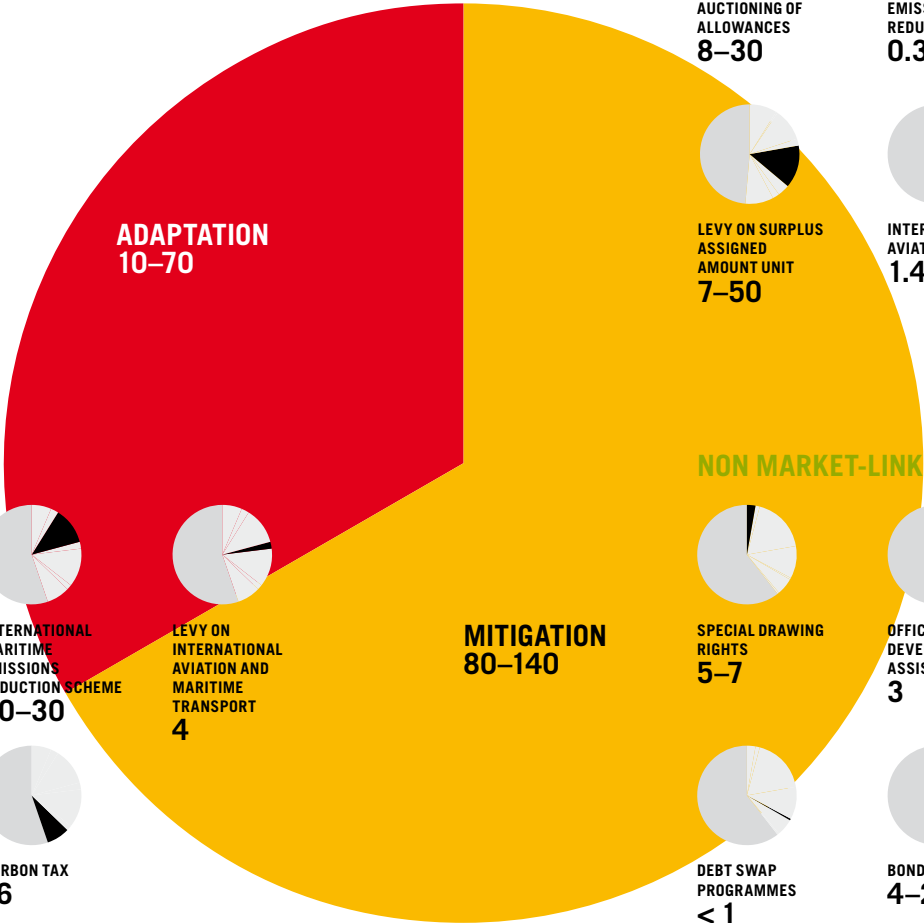
The background pie chart, in colour, indicates the total need for mitigation and adaptation finance in developing countries. The small pie chart next to each group indicates the percentage of this total need that the group could achieve.

Each revenue generation option is shown using three colours. The black segment shows the percentage of the total need that the individual option can achieve. The light gray area shows the scale that the group can achieve, and the medium gray area shows the remainder of the total need.

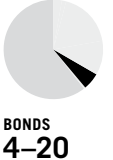
## CARBON MARKET 15-45



## MARKET-LINKED 62-117



## CARBON MARKET-LINKED 33-180





# GENERATION CONTRIBUTION: WHO WILL PAY?

The following diagram shows which countries will pay under the different proposals for revenue generation. Each proposal is represented as a pie chart showing the contributions from four main groups: the US, EU, Rest Annex I and Non Annex I.

In certain cases it is not possible to show the burden sharing across these different groups. These options are represented as a grey pie chart in this diagram.

Proposals have been grouped across the different sources of finance: carbon markets; carbon market-linked mechanisms; market-linked mechanisms; and non market-linked mechanisms.

## ALLOCATION FRAMEWORKS



**GROUP OF 77 AND CHINA (G77 + CHINA)**  
 US 33%  
 EU 42%  
 REST ANNEX I 26%  
 NON ANNEX I 0%



**MEXICO**  
 US 36%  
 EU 25%  
 REST ANNEX I 23%  
 NON ANNEX I 16%



**GREENHOUSE DEVELOPMENT RIGHTS (GDR)**  
 US 26%  
 EU 33%  
 REST ANNEX I 18%  
 NON ANNEX I 23%

## MARKET-LINKED



**CARBON TAX**  
 US 42%  
 EU 22%  
 REST ANNEX I 19%  
 NON ANNEX I 17%



**INTERNATIONAL AIR PASSENGER ADAPTATION LEVY (IAPAL)**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%

## CARBON MARKET



**PRIVATE SECTOR COMPLIANCE MARKET**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**GOVERNMENT COMPLIANCE MARKET**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%

## CARBON MARKET-LINKED



**NATIONAL AUCTIONING OF ALLOWANCES**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**LEVY ON CERTIFIED EMISSIONS REDUCTIONS**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**INTERNATIONAL AAU'S**  
 US 38%  
 EU 27%  
 REST ANNEX I 35%  
 NON ANNEX I 0%



**EXTENDED SHARE OF PROCEEDS**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**LEVY ON SURPLUS ASSIGNED AMOUNT UNITS**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**INTERNATIONAL AVIATION ETS**  
 US 41%  
 EU 22%  
 REST ANNEX I 14%  
 NON ANNEX I 23%



**EUROPEAN AVIATION ETS**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**INTERNATIONAL MARITIME ETS**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%

## NON MARKET-LINKED



**SPECIAL DRAWING RIGHTS**  
 US 14%  
 EU 30%  
 REST ANNEX I 23%  
 NON ANNEX I 33%



**OFFICIAL DEVELOPMENT ASSISTANCE (ODA)**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**SOVEREIGN WEALTH FUNDS**  
 US 1%  
 EU 2%  
 REST ANNEX I 18%  
 NON ANNEX I 79%



**FOREIGN EXCHANGE RESERVES**  
 US 1%  
 EU 12%  
 REST ANNEX I 26%  
 NON ANNEX I 61%



**DEBT SWAP PROGRAMMES**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**BONDS**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%



**PHILANTHROPY**  
 US 0%  
 EU 0%  
 REST ANNEX I 0%  
 NON ANNEX I 0%

# GENERATION WHEN WILL FINANCE BE AVAILABLE?

The diagram on the right shows the timeframe for different sources of finance. The short-, medium- and long-term are defined here as 2010-2012, 2013-2020 and 2021 and beyond. Proposals have been grouped by source.

	SHORT-TERM	MEDIUM-TERM	LONG-TERM
PRIVATE SECTOR COMPLIANCE MARKET	●	●	●
GOVERNMENT COMPLIANCE MARKET		●	●
NATIONAL AUCTIONING OF ALLOWANCES	●	●	●
LEVY ON CERTIFIED EMISSIONS REDUCTIONS	●	●	●
CARBON TAX		●	●
SPECIAL DRAWING RIGHTS		●	●
OFFICIAL DEVELOPMENT ASSISTANCE	●	●	
INTERNATIONAL AUCTIONING OF ALLOWANCES		●	●
EXTENDED SHARE OF PROCEEDS		●	●
LEVY ON SURPLUS ASSIGNED AMOUNT UNITS		●	
INTERNATIONAL AVIATION ETS		●	●
EUROPEAN AVIATION ETS	●	●	
INTERNATIONAL MARITIME ETS		●	●
INTERNATIONAL AIR PASSENGER ADAPTATION LEVY		●	●
LEVY ON MARITIME BUNKER FUELS		●	●
INTERNATIONAL MARITIME EMISSIONS REDUCTION SCHEME		●	●
LEVY ON INTERNATIONAL AVIATION AND MARITIME TRANSPORT		●	●
SOVEREIGN WEALTH FUNDS		●	●
FOREIGN EXCHANGE RESERVES		●	●
DEBT SWAP PROGRAMMES	●	●	
BONDS	●	●	
CURRENCY TRANSACTION TAX		●	●
LEVY ON INSURANCE PREMIUMS		●	●
FOREIGN DIRECT INVESTMENT	●	●	●
PHILANTHROPY	●	●	●

# GENERATION: CONCLUSIONS

## ADEQUACY/SUSTAINABILITY

There is a ‘gap’ between the current scale of finance, around USD 8 billion per annum, and the estimated USD 90 - 210 billion that is needed for mitigation and adaptation in developing countries<sup>1</sup>. A variety of mechanisms will be required to meet the required scale of financing. With the exception of the G77 proposal, which doesn’t indicate how finance should be raised, no single mechanism is able to deliver the scale of finance required for mitigation and adaptation in developing countries.

Market-linked mechanisms can generate significant amounts of revenue if appropriate policies are put in place. The scale of finance from carbon-market and carbon market-linked mechanisms will depend on several factors including the strictness of targets set in the second commitment period and the treatment of the ‘AAU overhang’.

Several revenue generation options are available in the short-term including carbon markets, national auctioning of allowances, bonds, debt swap programmes and private sector finance. Most other forms of finance require some form of international agreement and are likely to come into force under the new commitment period from 2012 onwards.

The creation of new and innovative financial mechanisms should not interfere with existing commitments to provide official development assistance (ODA) to developing countries. Private sector finance could raise significant amounts of revenue, but the sustainability and predictability of this is questionable.

## PREDICTABILITY

International revenue generation mechanisms are more likely to deliver predictable sources of finance than both national-level mechanisms (including ODA) due to the ‘domestic revenue problem’.

Market-linked mechanisms such as a levy on aviation and shipping and the currency transaction tax can also provide predictable sources of finance as the sources of revenue are expected to remain consistent over time.

<sup>1</sup>. USD 80 - 140 billion to finance mitigation activities and USD 10 - 70 to adapt to the impacts of climate change.

Levies on markets should be carefully designed to avoid distortions in both competition and the effect on supply within the market.

The predictability of funding from carbon markets and carbon market-linked mechanisms will be dependent on the targets set by developed countries and the availability of alternative sources of emissions reductions e.g. surplus allowances from the first commitment period.

To improve the predictability of revenues from the international auctioning of allowances, a 1-2 year compliance period could be used for government purchases of allowances, as Annex I Parties would only need to purchase AAUs for compliance at the end of a commitment period.

### **EQUITY/MEASURABILITY**

The decision about who should pay for climate change is at the heart of the financing debate. The question of who should pay under the Convention is commonly interpreted through the concept of 'common but differentiated responsibilities and respective capabilities'. Whilst there is general agreement that this can be interpreted as responsibility for causing and capability to address climate change, there is disagreement over how 'responsibility' and 'capability' should be defined and distributed, and what role (if any) developing countries should play in revenue generation. These decisions will need to be agreed and periodically revised at the institutional level.

Certain proposals (G77 + China, Mexico, GDR) only put forward a framework for defining the burden-sharing component of revenue generation. These proposals could be used in conjunction with any of the revenue generation mechanisms. Several proposals (G77 + China, International Auctioning of Allowances, IMERS) would explicitly not require any contribution from Non-Annex I Parties. Other proposals (Mexico, Carbon tax) would require contributions from Non-Annex I Parties, but would redistribute so that these countries are net recipients.

Some market-linked proposals are related to GHG emissions, e.g. a levy on maritime or aviation fuels or a carbon tax, and therefore satisfy the polluter pays principle and the 'responsibility' component of equity. Other market-linked mechanisms are

related to large financial flows, such as a currency transaction tax, and are more weighted to the 'capability' component of equity.

Proposals that are linked to current GHG emissions or GDP, such as the proposals for aviation and shipping, the carbon tax, and sovereign wealth funds are likely to place a higher burden on Non Annex I countries. The carbon tax proposal uses a basic tax exemption of 1.5t CO<sub>2</sub>e per capita and the GDR framework incorporates a 'development threshold' (a minimum per capita incomes) to minimise the burden for developing countries.

### **REDD+**

Forests offer a unique opportunity to enable developing countries to both mitigate and adapt to the effects of climate change. An estimated USD 20 - 40 billion per annum is required to halve deforestation by 2020 and USD 4 - 7 billion per annum is needed by 2015 to reduce deforestation by 25%.

Finance for REDD+ will need to come from a variety of sources. A 'phased approach' approach could be adopted that allocates different sources of funding to different activities. It is essential that financial resources be aligned with delivery needs so that adequate financing is available in a timely manner for developing countries to act on climate change. Funds are considered to be more appropriate for capacity-building and demonstration activities; carbon market-linked approaches, such as the auctioning of allowances, can be used to scale up the implementation of REDD+ activities; and carbon markets and carbon market-linked approaches are recognised as providing adequate, predictable and sustainable sources of finance for the performance-based phase of REDD+.

Immediate finance will be required for capacity building in developing countries that could be provided through existing, yet scaled up, voluntary contributions delivered through multilateral and international funds, or through innovative mechanisms such as the national auctioning of allowances or rainforest bonds. Revenue generation mechanisms will also be needed to finance conservation activities. The conservation of carbon stocks does not explicitly reduce emissions in developing countries and will therefore require finance from mechanisms outside of the global carbon markets. The funding of conservation activities will be essential in a long-term solution to REDD+.

# DELIVERY PARTICIPATION: WHO CAN BENEFIT?

The following diagram shows which types of country can participate under a given delivery mechanisms.

	<div> <div>LEAST DEVELOPED COUNTRIES</div> <div>DEVELOPING COUNTRIES</div> <div>ADVANCED DEVELOPING COUNTRIES</div> </div>		
PROJECT LEVEL MARKET	•	•	
PROGRAMMATIC / SECTORAL MARKET		•	•
REVERSE AUCTIONS		•	•
GRANTS	•	•	•
PERFORMANCE-BASED GRANTS	•	•	•
CONCESSIONAL LOANS		•	•
PHILANTHROPIC GRANTS	•	•	•
PRIVATE SECTOR CONCESSIONAL LOANS		•	•
EQUITY		•	•

# DELIVERY THEME: FIT FOR PURPOSE

This diagram shows which delivery mechanisms are appropriate for different themes.

	<div> <div>MITIGATION</div> <div>ADAPTATION</div> <div>TECHNOLOGY TRANSFER</div> <div>CAPACITY BUILDING</div> </div>		
PROJECT LEVEL MARKET	•		
PROGRAMMATIC / SECTORAL MARKET	•		
REVERSE AUCTIONS	•		
GRANTS		•	•
PERFORMANCE-BASED GRANTS	•		
CONCESSIONAL LOANS	•	•	
PHILANTHROPIC GRANTS		•	•
PRIVATE SECTOR CONCESSIONAL LOANS	•	•	
EQUITY	•		

## DELIVERY: CONCLUSIONS

### EFFECTIVE/EFFICIENT

Different types of carbon market mechanisms have different degrees of efficiency. Programmatic and sectoral carbon markets are likely to be more efficient than project-based carbon markets as finance can be integrated into national budgets. National level mechanisms are often associated with reduced transaction costs. Reverse auction processes are also likely to increase efficiency, as rents can be recycled to deliver further emissions reduction.

Non-carbon market mechanisms will also have different degrees of efficiency. For example, grants that are performance-based might be more efficient than non-conditional grants for mitigation activities.

### EQUITY/APPROPRIATENESS

The equitable delivery of finance across developing countries can be interpreted either in terms of need/vulnerability or capacity/capability. Finance can be allocated to the poorest and most vulnerable countries, or finance can be disbursed to countries with the greatest capacity to absorb finance and the capability to mitigate and adapt to climate change. A further consideration for the equitable delivery of finance is the allocation of finance across themes.

There will be tradeoffs between decisions to fund countries and themes. A decision could be based primarily on themes, i.e. how much finance should flow towards mitigation and adaptation, and subsequently on how much individual countries would receive. Another approach would be to firstly allocate finance to countries regardless of theme. For example LDCs and SIDS who face the most need could be allocated a portion of finance. These decisions will need to be made at the institutional level.

Certain proposals (Mexico, Switzerland, US) only put forward a framework for defining the distributive component of delivery and do not specify a mechanism for how finance should be delivered. These proposals focus on both the thematic balance of delivery and the distributive implications for different countries. Different delivery mechanisms are more appropriate for different activities.

Mitigation activities will typically use carbon market mechanisms but can also be financed through performance-based grants. Grants are an appropriate financing tool for technology transfer and capacity building activities. Adaptation can either be financed through grants, or loans delivered on a concessional basis.

The choice of delivery mechanism will also have implications for the types of country that can benefit. Loans, national-level carbon markets, and private sector equity are unlikely to be significant sources of finance for the Least Developed Countries (LDCs). Several Parties have also stated that project-level mechanisms should be phased out in developing countries with high institutional capacity in favour of programmatic and sectoral carbon markets. Project-based finance may also be more appropriate for countries lacking the institutional capacity to apply programmatic approaches to mitigation activities.

### PUBLIC V PRIVATE FINANCE

The key differences between the private sector and public sector delivery of finance is that the private sector is under no obligation to adopt the same funding priorities as the host country. Private sector investment will primarily finance projects that satisfy the financial criteria for lending rather than projects that are nationally strategic for the host country. If the governance of public finance is devolved to developing countries, the host country can engage public finance in a more strategic way in alignment with national priorities.

### REDD+

Different delivery mechanisms will be appropriate for different areas of REDD+ implementation. Capacity building and forest conservation activities, which by definition do not generate a return on investment, should be financed through grants. Activities that can generate financial returns such as afforestation, reforestation, and improvements in agricultural productivity could be financed through concessional loans. Activities that generate measurable, reportable and verifiable emissions reductions could be financed through either carbon market mechanisms or concessional loans.

The 'nested approach', which has been put forward for REDD+ to combine national and project-based approaches, could be applied to other mitigation activities.



INSTITUTIONAL ARRANGEMENTS  
COHERENCE AND DEVOLUTION:  
FUNDING AND SPENDING DECISIONS

The following diagram shows how funding and spending decisions are made for the different institutional arrangements.

The categories across the top show whether spending decisions will be devolved or retained and whether revenue streams will be consolidated or fragmented.





	DEVOLVED	RETAINED	CONSOLIDATED	FRAGMENTED
				
INDIA	•		•	
SWITZERLAND	•		•	
UK	•		•	
OIES	•		•	
PRP	•		•	
G77 + CHINA		•	•	
MEXICO		•	•	
KOREA		•		•

INSTITUTIONAL ARRANGEMENTS  
APPROVAL AND INSTITUTIONS:  
WHERE AND BY WHOM WILL DECISIONS BE MADE?

This diagram shows where decisions are made and whether new institutions are required to facilitate decision-making.

The categories across the top show whether decisions will be centralised or decentralised and whether institutions will be new or reformed.

Proposals that use both new and reformed institutions are shown in both groups.

	MITIGATION	ADAPTATION	TECHNOLOGY TRANSFER	CAPACITY BUILDING
				
MEXICO	•	•	•	
SWITZERLAND		•		
UNITED STATES OF AMERICA	•	•	•	
WORLD BANK		•		
PROJECT LEVEL MARKET	•			
PROGRAMMATIC / SECTORAL MARKET	•			
REVERSE AUCTIONS	•			
GRANTS		•	•	•
PERFORMANCE-BASED GRANTS	•			
CONCESSIONAL LOANS	•	•		
PHILANTHROPIC GRANTS		•	•	•
PRIVATE SECTOR CONCESSIONAL LOANS	•	•		
EQUITY	•			

## INSTITUTIONAL ARRANGEMENTS: CONCLUSIONS

### EFFECTIVE/EFFICIENT

If we are to deliver finance at scale, we will either need to create new institutions or reform the existing ones. The majority of proposals specify that new institutions should be created. Both Mexico and Korea believe that existing multilateral institutions should be used to manage funds.

The proliferation of funds and funding channels at the multilateral and bilateral level has led to a fragmented model in which developing countries face an array of uncoordinated funding sources.

Several options exist on how to consolidate funding sources. An improved version of business as usual would be a climate registry that matches funding sources to needs. The majority of countries have proposed an international consolidated fund to allow funds to be more effectively disbursed. Proposals that specify consolidated funding sources also emphasize devolved decision-making, and proposals that reinforce existing fragmented funding streams, such as registries, often retain spending decisions at the donor level.

Current international finance is ‘donor driven’ i.e. decisions on spending are made by contribution countries. The majority of proposals state that decisions should be devolved to developing countries to be more efficient and effective. Devolved decision-making also relieves international bodies of an otherwise unmanageable number of decisions related to the approval of and monitoring, reporting and verification (MRV) of support.

Most proposals for centralized strategic decision-making at COP level also propose the establishment of new institutions at the international level or a significant reform of existing institutions. Decentralized decision-making models rely on enhanced coordination of existing institutions

### EQUITABLE, TRANSPARENT

The debate around new versus reformed institutions is largely an issue of control. Existing institutions such as the GEF and World Bank typically represent the views of developed country Parties. Developing countries therefore see new institutional arrangements as a way to achieve equitable representation and direct access to international finance.

Coordination will be needed at the international level to ensure that the appropriate mix of activities and countries are financed and that finance doesn’t tend toward certain areas and neglect others.

The devolution of funding decisions is vital in ensuring both national- and community-level ownership of mitigation and adaptation actions.

**WHERE DO WE  
GO FROM HERE?**

*Interim Financing of REDD+ (IWG IFR) has estimated what is needed in order to achieve a reduction of seven billion tonnes of carbon dioxide equivalent from forests by 2015. As his Excellency Bharrat Jagdeo, President of Guyana, pointed out, the cost to achieve such a reduction represents 1.5 US cents per day per citizen of industrialized countries. The Little Climate Finance Book brilliantly sets out the options for generating and delivering the finance.*

*Yet every year after 2015 that we delay, the abatement potential is reduced by 3-4 billion tonnes. To deliver the abatement potential will not only take a significant increase in available resources, but an immediate scaling-up of the delivery of publically financed readiness support needed in advance of performance-based payments to leverage private sector resources.*

*A major barrier in many countries is the capacity to secure, absorb and deploy climate financing. UN-managed multi-donor trust funds, such as that for the UN-REDD Programme, are a proven option for providing rapid support for capacity building and governance strengthening in the context of clear fiduciary standards.*

*The UN-REDD Programme, a collaborative partnership between FAO, UNDP and UNEP, is currently supporting countries to undertake initial readiness measures – such as establishing carbon monitoring systems, building capacity and preparing national REDD+ strategies. Along with the Forest Carbon Partnership Facility, it has generated a real community of policy around REDD+ and is now leading the practice of implementing initial readiness.*

*While the overall price may be low - as President Jagdeo so clearly demonstrated - and generating the financial flows is possible, building the necessary capacity to effectively manage and productively use those financial flows is critical. The UN-REDD Programme provides an existing mechanism that can significantly increase support to national efforts to implement the policy measures that will bring about changes in the way forest resources are used. In turn, this will lead to emission reductions and result in the flow of REDD+ financing to forested developing countries' efforts to shift to low carbon, climate resilient economies.*

**Dr. Yemi Katerere**  
Head, UN-REDD Programme Secretariat

*As the Little REDD Book made clear, momentum has been building impressively on REDD+ since Bali, with a plethora of actors involved and many approaches being proposed. Over the last six months, a consensus seems to be emerging on the need in particular for a scaled up partnership between developed and developing countries on “urgent action” on REDD+, taking a phased and national approach to REDD+ implementation.*

*At a high-level meeting convened by HRH the Prince of Wales in November 2009, Heads of State, ministers, ambassadors and leaders of large global corporations and NGOs all firmly supported the conclusions of the recent report of the Informal Working Group on Interim Finance for REDD+ (IWG-IFR), and called for it to be included as part of the financing package for a “prompt start” in a political agreement in Copenhagen.*

*The working group report (available at [www.miljo.no/iwg](http://www.miljo.no/iwg)) concludes that a 25 per cent reduction in annual global deforestation rates could be achieved by 2015 if financing of €15-25 billion were made available for the 2010-15 period. Of this, 90% would be payments for results, leading to a total emission reduction of 7 billion tons CO<sub>2</sub> over the period. This is by far the largest and most cost-effective mitigation potential on the table in the near term. By 2020, REDD+ could potentially deliver one third of the estimated global reduction needed to limit global warming to 2 degrees. To achieve this, however, “learning at scale” will be needed.*

*The key challenge we are facing is a fundamental market failure – trees are today worth significantly more dead than alive. To succeed, REDD+ must change the economic incentives that currently favor deforestation and degradation.*

*For near term REDD+ financing to enable a genuine “prompt start” partnership, it must therefore include results-based payments as its core already in 2010. Capacity building will be important, but will not alone suffice to catalyze early action. More than 40 developing countries are already preparing REDD+-strategies and expect to be paid for results when ready. Moreover, they will only prepare seriously for and engage in difficult transformations of their economies once performance-based payments at scale are in sight.*

*The work done by the IWG-IFR has demonstrated that developing forest countries could act immediately to reduce emissions from deforestation and forest degradation. Delivering the needed € 2 billion per year in 2010-12 would be a true win-win proposition for Copenhagen.*

**Hans Brattskar**  
Ambassador  
Director, The Government of Norway's International Climate  
and Forest Initiative Secretariat, IWG-IFR

# ANNEXES



## BIBLIOGRAPHY

AASRUUD, A., BARON, R., BUCHNER, B. & MCCALL, K. (2009) Sectoral Market Mechanisms – issues for negotiation and domestic implementation. Paris, France, OECD.

ANGELSEN, A., BROWN, S., LOISEL, C., PESKETT, L., STRECK, C. & ZARIN, D. (2009) Reducing Emissions from Deforestation and Forest Degradation (REDD): An Options Assessment Report.

ASIAN DEVELOPMENT BANK (2007) Toward a New Asian Development Bank in a New Asia: Report of the Eminent Persons Group to The President of the Asian Development Bank. Manila, Asian Development Bank.

BAER, P., ATHANASIOU, T., KARTHA, S. & KEMP-BENEDICT, E. (2008) The greenhouse development rights framework: The right to development in a climate constrained world. 2nd ed. Berlin, Heinrich Böll Foundation, Christian Aid, EcoEquity and the Stockholm Environment Institute.

BALIN, B. J. (2008) Sovereign Wealth Funds: A Critical Analysis. School of Advanced International Studies. Washington DC, The Johns Hopkins University

BROWN, J. & KAUR, N. Adaptation Finance, Function and Form London, UK, Overseas Development Institute.

BROWN, J., NANASTA, D. & BIRD, N. (2009) Financing Climate Change to Support Mitigation and Adaptation Actions in Africa: Key Issues and Options for Policies and Negotiations.

BUSCH, J., STRASSBURG, B., CATTANEO, A., LUBOWSKI, R., BOLTZ, F., ASHTON, R., BRUNER, A. & RICE, R. (2009) Comparing REDD mechanism design options with an open source economic model.

CAPOOR, K. & AMBROSI, P. (2008) State and Trends of the Carbon Market 2008. Washington, D.C., World Bank.

CLIFTON, S.-J. (2009) A Dangerous Obsession: The Evidence Against Carbon Trading and for Real Solutions to Avoid a Climate Crunch. Friends of the Earth.

DELLINK, R., M. DEN ELZEN, H., AIKING, E., BERGSMA, F., BERKHOUT, T., DEKKER, T. & GUPTA, J. (2009) Sharing the burden of financing adaptation to climate change. Global Environmental Change, 19, 411-421.

DOORNBOSCH, R. & KNIGHT, E. (2008) What Role For Public Finance In International Climate Change Mitigation. OECD.

EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (2009) Manual for the Sale and Purchase of Assigned Amount Units under a Green Investment Scheme.

EUROPEAN COMMISSION (2009) Stepping up international climate finance: A European blueprint for the Copenhagen deal

FANKHAUSER, S., MARTIN, N. & PRICHARD, S. (2009) The economics of the CDM levy: Revenue potential, tax incidence and distortionary effects. Grantham Research Institute for Climate Change and the Environment.

GTZ (2008) BMU CDM-JI Initiative Country Study: China.

HARMELING, S., BALS, C., STERK, W. & WATANABE, R. (2009) Funding Sources For International Climate Policy. A Criteria-Based Analysis Of The Options Discussed Under The Unfccc. Germanwatch.

HEPBURN, C. & (2009) International carbon finance and the Clean Development Mechanism. Oxford, UK, Smith School of Enterprise and the Environment, University of Oxford.

IPCC (2000a) IPCC Special Report: Land use, Land-use Change, and Forestry. IPCC.

IPCC (2000b) Methodological and Technological issues in Technology Transfer. IN METZ, B., DAVIDSON, O. R., MARTENS, J.-W., VAN

ROOIJEN, S. N. M. & VAN WIE MCGRORY, L. (Eds.). Intergovernmental Panel on Climate Change.

IPCC (2007) IPCC Fourth Assessment Report: Climate Change 2007. Geneva, Switzerland, IPCC.

KAROUSAKIS, K. & COFFEE-MORLOT, J. (2007) Financing Mechanisms to Reduce Emissions from Deforestation: Issues in Design and Implementation. Paris Cedex 16, France, OECD.

KORPPOO, A. & SPENCER, T. (2009) The Dead Souls: How to deal with the Russian surplus? The Finnish Institute of International affairs.

MARCHAL, V. & GALHARRET, S. (2009) The Waxman-Markey bill at a glance. IDDRI.

MÜLLER, B. (2008) International Adaptation Finance: The Need for an Innovative and Strategic Approach. Oxford Institute for Energy Studies.

MÜLLER, B. (2009) Is There Room for Compromise? The debate on institutional arrangements for climate finance. Oxford Energy and Environment Comment. Oxford Institute for Energy Studies.

MÜLLER, B. (2009) Bonn Seminar On Future Financial Architecture & Governance. ECBI.

MÜLLER, B. & GOMEZ-ECHEVERRI, L. (2009) The Reformed Financial Mechanism of the UNFCCC. European Capacity Building Initiative.

MÜLLER, B., HÖHNE, N. & ELLERMAN, C. (2009) Differentiating (historic) responsibilities for climate change. Climate Policy, 9, 593-611.

NISSANKE, M. (2003) Revenue Potential of the Tobin Tax for Development Finance: A Critical Appraisal. London, School of Oriental and African Studies, University of London.

ODEDOKUN, M. O. (2003) Economics and Politics of Official Loans Versus Grants: Panoramic Issues and Empirical Evidence. Helsinki, Finland, UNU/WIDER.

OECD (2008) OECD Factsheet: Is it ODA?

OECD (2009) DAC Glossary

PAGE, E. A. (2006) Climate change, justice and future generations, Northampton, MA, Edward Elgar.

PARKER, C., MITCHELL, A., TRIVEDI, M. & MARDAS, N. (2008) The Little REDD+ Book, Oxford, GCP.

PENDLETON, A. & RETALLACK, S. (2009) Fairness in global climate change finance. London, Institute for Public Policy Research.

PERSSON, Å., KLEIN, R. J. T., SIEBERT, C. K., ATTERIDGE, A., MÜLLER, B., HOFFMAISTER, J., LAZARUS, M. & TAKAMA, T. (2009) Adaptation Finance under a Copenhagen Agreed Outcome. Research Report. Stockholm, Stockholm Environment Institute.

PRINCE'S RAINFORESTS PROJECT (2009) An Emergency Package for Tropical Forests.

PROJECT CATALYST (2009) Scaling up Climate Finance.

RAJAMANI, L. (2009) Addressing The "Post-Kyoto" Stress Disorder: Reflections On The Emerging Legal Architecture Of The Climate Regime. Centre For Policy Research Climate Initiative.

ROMANI, M. (2009) Meeting the Climate Challenge: Using Public Funds to Leverage Private Investment in Developing Countries. LSE Grantham Institute. SCHNEIDER, L. & CAMES, M. (2009) A framework for a sectoral crediting mechanism in a post-2012 climate regime. Berlin, Öko-Institut.

SHUE, H. (1993) Subsistence emissions and luxury emissions. . Law and policy, 15, 1.

STERN, N. (2006) Stern Review: The Economics of Climate Change. Cambridge, UK.

SUKHDEV, P. (2008) The economics of ecosystems and biodiversity. European Communities.

THE PRINCE'S RAINFORESTS PROJECT (2009) An Emergency Package For Tropical Forests. The Prince's Rainforests Project.

TRIVEDI, M., MITCHELL, A. W., MARDAS, N., PARKER, C., WATSON, J. E. & NOBRE, A. D. Moving from REDD to PINC: A new policy framework to fund tropical forests as global 'eco-utilities'.

UNEP (2008) Public Finance Mechanisms To Mobilise Investment In Climate Change Mitigation. United Nations Environment Programme

UNEP RISOE (2009) CDM/JI Pipeline Analysis and Database.

UNFCCC (1998) Kyoto Protocol To The United Nations Framework Convention On Climate Change. IN UNFCCC (Ed.).

UNFCCC (2007a) Investment And Financial Flows to Address Climate Change. Bonn, UNFCCC.

UNFCCC (2007b) Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007.

UNFCCC (2008a) Funding adaptation in developing countries: extending the share of proceeds used to assist in meeting the costs of adaptation; and options related to assigned amount units of Parties included in Annex 1 to the Convention. UNFCCC.

UNFCCC (2008b) Glossary of CDM Terms. UNFCCC.

UNFCCC (2009a) Ideas and proposals on the elements contained in paragraph 1 of the Bali Action Plan: Submissions from Parties Bonn, Germany, UNFCCC.

UNFCCC (2009b) The Strategic Priorities, Policies and Guidelines of the Adaptation Fund. Bonn, UNFCCC.

UNION OF CONCERNED SCIENTISTS (2009) Tropical forests in the Waxman-Markey climate bill.

WAGNER, G., KEOHANE, N., PETSONK, A. & WANG, J. (2009) Docking into a global carbon market: Clean Investment Budgets to finance low-carbon economic development. Environmental Defense Fund.

WHITESSELL, W. & VANAMALI, A. (2009) Norway's proposal to auction assigned amount units: Implementation options. Center for Clean Air Policy.

WORLD BANK (2004) Sustaining Forests: A Development Strategy. Washington, D.C., World Bank.

WORLD BANK (2009a) Development and Climate Change. World Development Report 2010. Washington, DC, World Bank.

WORLD BANK (2009b) Development and climate change. World Development Report 2010. Washington, DC, World Bank.

WWF (2008) Benefits and possible adverse impacts of market-based instruments. Marine Environment Protection Committee.

ZADEK, S. (2009) Plan B on climate: national deals, online article in Open Economy.

## GLOSSARY OF TERMS

### Afforestation

Afforestation is the direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources (UNFCCC, 2008b).

### Annex I Parties

Annex I Parties include the industrialized countries that were members of the Organisation for Economic Co-operation and Development (OECD) in 1992, plus countries with economies in transition (EIT), including the Russian Federation, the Baltic States, and several Central and Eastern European States. Annex I Parties are often referred to as developed country Parties.

### Annex II Parties

Annex II Parties consist of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Convention and to help them adapt to adverse effects of climate change. In addition, they have to 'take all practicable steps' to promote the development and transfer of environmentally friendly technologies to EIT Parties and developing countries. Funding provided by Annex II Parties is channelled mostly through the Convention's financial mechanism.

### Assigned Amount Unit

Assigned amount units (AAUs) are tradable units derived from an Annex I Party's emissions target under the Kyoto Protocol. They may be counted by Annex I Parties towards compliance with their emissions target and are equal to equivalent to 1 tCO<sub>2</sub>e (UNFCCC, 1998).

### Carbon Pool

A system that has the capacity to accumulate or release carbon. Examples of carbon pools are forest biomass, wood products, soils, and atmosphere. The units are mass (e.g., t C) (IPCC, 2000a).

### Carbon Stock

The absolute quantity of carbon held within a pool at a specified time (IPCC, 2000a).

### Certified Emission Reduction

A certified emission reduction (CER) is a trading unit in the carbon market equal to one tonne of CO<sub>2</sub> generated through a clean development mechanism project activity.

### Deforestation

Deforestation, as defined by the Marrakech Accords, is the direct human-induced conversion of forested land to non-forested land. A forest is defined as a minimum area of land of 0.05-1 hectares with tree crown cover (or equivalent stocking level) of more than 10-30% with trees with the potential to reach a minimum height of 2-5 meters at maturity in situ. Actual definitions can vary from country to country as the Kyoto Protocol permits countries to specify the precise definition within these parameters to be used for national accounting of emissions. In contrast, deforestation as defined by the FAO is 'the conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold' (Karousakis and Coffee-Morlot, 2007).

### Degradation

A definition for forest degradation has not yet been agreed upon. Forest degradation is the depletion of forest to tree crown cover at a level above 10 percent, however beyond this general

statement, the IPCC has not provided a specific definition (Karousakis and Coffee-Morlot, 2007).

### Emissions Reduction Unit

An emission reduction unit (ERU) is a trading unit in the carbon market equal to one tonne of CO<sub>2</sub> generated by a joint implementation project.

### Fungible

Being of such a nature that one part or quantity may be replaced by another equal part or quantity in the satisfaction of an obligation. Oil, wheat, and lumber are fungible commodities. Throughout this book we refer to the fungibility of a tonne of carbon dioxide equivalent (CO<sub>2</sub>e).

### Hot Air

Hot air often refers to emissions reductions that are not additional.

### Leakage

Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases (GHG) which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity (IPCC, 2000a).

### Least Developed Countries

The 49 Parties classified as least developed countries (LDCs) by the United Nations are given special consideration under the Convention on account of their limited capacity to respond to and adapt to the adverse effects of climate change.

### Non Annex I Parties

Non-Annex I Parties are those Parties not listed in Annex I of the Convention. These Parties are often referred to as developing country Parties.

### Permanence

The longevity of a carbon pool and the stability of its stocks, given the management and disturbance environment in which it occurs (IPCC, 2000a).

### Reforestation

Reforestation is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989 (UNFCCC, 2008b).

### Removal Unit

A removal unit (RMU) is a trading unit in the carbon market equal to one tonne of CO<sub>2</sub> achieved through land use, land-use change and forestry (LULUCF) activities such as reforestation.

### Sequestration

The process of increasing the carbon content of a carbon pool other than the atmosphere (UNFCCC, 2008b).

### Sink

Any process or mechanism that removes a greenhouse gas, an aerosol, or a precursor of a greenhouse gas from the atmosphere. A given pool (reservoir) can be a sink for atmospheric carbon if, during a given time interval, more carbon is flowing into it than is flowing out (IPCC, 2000a).

### Source

The opposite of a sink. A carbon pool (reservoir) can be a source of carbon to the atmosphere if less carbon is flowing into it than is flowing out of it (IPCC, 2000a).



The Little Climate Finance Book will be constantly updated online. To follow developments visit:  
**[www.littleclimatefinancebook.org](http://www.littleclimatefinancebook.org)**



### Mixed Sources

Product group from well-managed forests and other controlled sources  
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