



SYNTHESIS OF CLIMATE FINANCE LITERATURE REPORT TO THE DBSA

DNA Report



environmental affairs

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**Synthesis of Climate Finance
Literature Report to the DBSA**

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Foreword

From 3 to 6 March 2009, South Africans from all spheres of life came together for the national Climate Change Summit 2009 in Midrand to initiate a consultative process to develop the South African Climate Change Response Policy. Although the Summit yielded wide-ranging consensus on a number of proposed climate change responses, it also identified various areas of divergence that required further discussion. With this, the Summit agreed, amongst others, that the National Climate Change Response Policy will be developed through a participatory, multi-stakeholder, consultative and iterative process and that issues raised during the Climate Change Summit 2009 must be addressed in a transparent manner and fed into the policy development process.

During the participatory, multi-stakeholder, consultative and iterative policy development process initiated at the Summit, certain specific issues appeared to be raised again and again in various policy development stakeholder engagements. These recurring areas of concern and/or uncertainty included: Climate Finance; Human Resources and Technology; Adaptation; Mitigation; and Governance.

In keeping with the Summit decisions and with a view to informing and enriching the debates around these issues, the Department of Environmental Affairs commissioned focussed research into these focus areas and used the findings of this research to focus and inform discussions in key stakeholder workshops on each of the topics in February and March 2011.

Although the independent research and findings contained in this publication do not necessarily represent the views, opinions and/or position of Government, the department believes that this research is an important addition to the evolving climate change discourse. Hence, the department is happy to make this work publicly available and accessible.

With this, I would like to thank everyone who contributed to the research papers presented in this book as well as everyone who contributed to the various stakeholder workshops on the topics covered by this research.

Finally, I would also like to thank our German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) partners and their local agent, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), for their generous support for this research and its publication.

Peter Lukey

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TABLE OF CONTENTS

ABBREVIATIONS	6
1 INTRODUCTION	9
2 THE DEFINITION OF CLIMATE FINANCE	10
3 SOURCES OF CLIMATE FINANCE	12
3.1 Financing flows under the UNFCCC	2
3.2 UNFCCC Climate Finance Mechanisms and Funds	14
3.3 Other Multilateral Climate Change Funds	17
3.4 Bilateral Climate Financing	22
3.5 Multilateral Development Banks	26
3.6 Own-Country Financing	27
3.7 Private Financing	28
3.8 Quantifying Total Climate Finance Flows	38
4 CLIMATE FINANCE INSTRUMENTS	39
5 CURRENT CLIMATE FINANCE ISSUES	42
5.1 Adaptation and Mitigation	42
5.2 Additionality	42
5.3 Monitoring, reporting and verifying of Climate Finance	44
5.4 Potential for New Institutions	47
6 CLIMATE FINANCE BEST PRACTICE	52
6.1 Policy, Regulatory and Institutional Conditions	52
6.2 Targeting the Risk-Reward Balance	52
6.3 Mainstreaming: Aligning Domestic Expenditure to Avoid Stranded Assets	54
7 SOUTH AFRICAN CONTEXT	56
7.1 Overview	56
7.2 Selected Sources of Local Climate Finance	56
7.3 Current External Climate Finance Flows	59
7.4 Overarching framework	62

8 CONCLUSION AND RECCOMENDATIONS	64
8.1 Flexibility	65
8.2 Minimal Transaction Costs	65
8.3 Efficiency	65
9 REFERENCES	66
APPENDIX A: FURTHER RESEARCH REQUIRED	70

LIST OF FIGURES

Figure 1: Pledges by country for GEF-5	15
Figure 2: Proposed resource envelope for GEF	16
Figure 3: Funds for environment and climate change thematic window, June 2010	21
Figure 4: Bilateral ODA, based on Rio Markers, 2009	24
Figure 5: Committed bilateral ODA for climate change by donor, 2009	25
Figure 6: Fast start financing pledged 2010 - 2012	25
Figure 7: Regional composition of MDB climate change financing, 2009	27
Figure 8: Global fund management industry, assets under management, 2008	29
Figure 9: Primary CDM sellers, 2009	33
Figure 10: Venture capital investments in clean energy, 2009 (US\$ billions)	36
Figure 11: Giving by US Foundations for climate change, 2000 – 2008	37
Figure 12: Financing instruments used by BFIs, 2009	40
Figure 13: Bilateral climate ODA by type of instrument, 2009	40
Figure 14: Bilateral climate ODA by type of assistance, 2009	41
Figure 15: Fast start financing pledges, climate change funding channels, 2010	42
Figure 16: Multilateral funds disbursement/expenditure by activity	43
Figure 17: Climate finance landscape	48
Figure 18: PFMs available in climate financing	53
Figure 19: Donor and multilateral funds by status	60
Figure 20: Source of donor and multilateral funds	61
Figure 21: Funding instruments used by donors and multilateral funds	61
Figure 22: Mitigation vs. adaptation funding	63
Figure 23: Ongoing and planned donor financing by category, 2009)	63



LIST OF TABLES

Table 1: Funding estimates for, and costs of, climate change	10
Table 2: Possible sources of funding by 2020	13
Table 3: Pledges to CIFs by country, as of September 2010	17
Table 4: CTF financing terms	17
Table 5: CTF investment plan balance, as of September 2010	18
Table 6: South Africa's approved projects for CTF, 2010	18
Table 7: World Bank carbon funds and facilities, 2009	19
Table 8: Sample of projects under the World Bank Carbon Funds and Facilities	20
Table 9: REDD Pledges as of February 2011	21
Table 10: Committed BFI climate finance for 2009	23
Table 11: MDB climate change financing, 2009	26
Table 12: Climate change investments from economic stimulus plans, 2009, selected countries	27
Table 13: Green bonds issued	31
Table 14: Volume and value of carbon markets, 2009	34
Table 15: FDI in three low-carbon areas, 2003 - 2009	35
Table 16: Sources of public climate finance, 2009	38
Table 17: Financing needs at different project stages	39
Table 18: CIFs pledges by financing instrument	41
Table 19: Multilateral funds disbursement/expenditure by activity	43
Table 20: Fast start financing pledges under different new and additional scenarios	44
Table 21: Key monitoring issues for climate finance	45
Table 22: Selected funds application and eligibility conditions	49
Table 23: Existing Proposed Fund mechanism and institutional designs	51
Table 24: Examples of South African private equity funds targeting low-carbon projects	58
Table 25: Implementing agencies for donor and multilateral funds, ranked according to the relative value of initiatives implemented	62

Abbreviations

°C	Degrees Celsius	DCCEE	Department of Climate Change and Energy Efficiency (Australia)
AAU	Assigned Amount Units	DCD	Development Co-operation Directorate
ADB	Asian Development Bank	DEA	Department of the Environment
AFD	French Development Agency	DFI	Development Finance Institutions
AfDB	African Development Bank	DoE	Department of Energy
AG	Auditor General	DSM	Demand Side Management
AGF	UN Secretary General's High-Level Advisory Group	EBRD	European Bank for Reconstruction and Development
BFI	Bilateral Finance Institution	EIB	European Investment Bank
BMU	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety	ERPA	Emission Reduction Purchase Agreement
CALSTRS	California State Teachers' Retirement System	ERU	Emission Reduction Unit
CBD	Convention on Biological Diversity	ETS	Emission Trading System
CCI	Climate Change Initiative	FAO	United Nations Food and Agriculture Organization
CCX	Chicago Climate Exchange	FDI	Foreign Direct Investment
CDM	Clean Development Mechanism	FIP	Forest Investment Program
CEF	Central Energy Fund	GCCA	Global Climate Change Alliance
CER	Certified Emission Reductions	GDP	Gross Domestic Product
CIF	Climate Investment Fund	GEF	Global Environment Facility
CMM	Coal Mine Methane	GFCF	Gross Fixed Capital Formation
CMM	Coal Mine Methane	GHG	Greenhouse Gas
CO ₂ -eq	Carbon dioxide equivalent	GNI	Gross National Income
COP	Conference of the Parties	GNP	Gross National Product
CRS	Creditor Reporting System	Gt	Gigatonne
CSP	Concentrated Solar Power	IADB	Inter-American Development Bank
CTF	Clean Technology Fund	IBRD	International Bank for Reconstruction and Development
DAC	Development Assistance Committee	IDA	International Development Association
DANIDA	Danish International Development Agency		
DBSA	Development Bank of Southern Africa		

Abbreviations

IDC	Industrial Development Corporation	NSW	New South Wales
IFAD	International Fund for Agricultural Development	OCF	Official Climate Finance
IFC	International Finance Corporation	ODA	Official Development Assistance
IIGCC	Institutional Investors Group on Climate Change	ODI	Overseas Development Institute
IMF	International Monetary Fund	OECD	Organisation for Economic Co-operation and Development
IPCC	Intergovernmental Panel on Climate Change	PFM	Public Finance Mechanism
IPF	Indicative Planning Figure	PIF	Project Identification Form
IRBD	International Bank for Reconstruction and Development	POPs	Stockholm Convention on Persistent Organic Pollutants
Jl	Joint Implementation	PPCR	Pilot Program for Climate Resilience
JICA	Japanese International Cooperation Agency	RDB	Regional Development Bank
KfW	Development Bank of Germany	REDD	Reduce Emissions from Deforestation and forest Degradation
LDC	Least Developed Country	REED	Rural Energy Enterprise Development
LDCF	Least Developed Countries Fund	REEEP	Renewable Energy and Energy Efficiency Partnership
LTMS	Long Term Mitigation Scenarios	REFIT	Renewable Energy Feed-In Tariffs
MDB	Multilateral Development Bank	REFSO	Renewable Energy Finance and Subsidy Office
MDG	Millennium Development Goal	RGGI	Regional Greenhouse Gas Initiative
MDG-F	MDG Achievement Fund	SADC	Southern African Development Community
MRV	Monitoring, Reporting, Verification	SANEDI	South African National Energy Development Institute
Mt	Megatonne	SARi	South African Renewables Initiative
MTEF	Medium Term Expenditure Framework	SCAF	Seed Capital Assistance Facility
MW	Megawatt	SCCF	Special Climate Change Fund
NAMA	Nationally Appropriate Mitigation Action	SCF	Strategic Climate Fund
NAPA	National Adaptation Programmes of Action	SCI	Subsidiary Body for Implementation
NEEA	National Energy Efficiency Agency	SDR	Special Drawing Rights
NGO	Non-governmental organisation	SIDS	Small Island Developing States
NIE	National Implementing Entities		

Abbreviations

SPV	Special Purpose Vehicle
SREP	Program for Scaling-Up Renewable Energy in Low Income Countries
SWH	Solar Water Heater
t	Tonne
TIA	Technology Innovation Agency
TNC	Trans-National Corporation
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
US\$	United States Dollars
VC	Venture Capital
WFP	United Nations World Food Programme
WSSD	World Summit on Sustainable Development
ZAR	South African Rand

I. Introduction

South Africa will need to utilise both available external and domestic climate finance sources as efficiently as possible if it is to transition its economy to a lower-carbon growth path while at the same time addressing its significant socio-economic challenges and taking steps to ensure that the country is able to adapt to the inevitable impacts of man-made climate change. In order to do this, a good understanding is required of the current and likely future international climate finance architecture.

Within the context of the development of the National Climate Change Response White Paper for South Africa, this report was commissioned to provide an overview of the current literature on the state and evolution of climate finance to form the basis of understanding the process. Given the speed at which the global climate finance architecture is evolving and the very short time frame available within which to conduct the research, the objective of the report is to provide a high-level overview of the direction in which climate finance is moving, a framework for further consideration of climate finance by South African policy makers, and to extract existing consensus around “best practices” in the channelling and management of these funds. Importantly therefore, whilst the subject matter of climate finance is generic, it is approached from the perspective of informing South Africa, a developing country, on its approach to financing its climate change mitigation and adaptation needs.

Within this context, the report focuses on identifying and framing important issues that need to be considered, rather than drilling down into the detail of any one issue. It is intended that this framework will assist in the development of a fundraising strategy to enable South Africa to access climate finance quickly and effectively. In addition, the report provides some initial recommendations that could inform the development of this strategy, including institutional arrangements that will determine how climate finance is accessed and disbursed. Given the high-level nature of the report, it also serves to indicate areas where further research and analysis would be beneficial to the policy development process. An initial list of these areas is captured in Appendix A. The scope of this report is restricted to secondary research (with the exception of information provided by the DBSA), and as such the analysis is constrained by the public availability of data.

The report starts in Section 2 by considering the complications that exist around defining climate finance. In Section 1 it proceeds to investigate the numerous different sources of climate finance currently available. The discussion moves on, in Section 4 to focus on the instruments used to channel climate finance. After an overview of the current climate finance landscape, Section 5 considers current topical issues within the field. Section 1 switches to identifying elements of “best practice” in mobilising and dealing with climate finance. Section 1 provides a South African perspective on climate finance. Section 8 concludes the report.

2. The Defenision of Climate Finance

Table I provides annual cost estimates for climate change adaptation and mitigation from various sources over the medium and long-term. The World Bank (2009) estimates that the additional or incremental funding for climate change-related development required from the international community is US\$180 - 250 billion per year. This funding would be required to leverage up to US\$4.6 trillion in order to meet climate funding requirements.

The challenge of mobilising the significant funding outlined above is complicated by the fact that there is no single definition or universally accepted understanding of the term “climate finance”. The questions below illustrate the impact that definitional issues can have on climate finance analysis:

- Does climate finance include flows from developed countries to developing countries only? Or should domestic financing by developing countries, as well as south-south flows, be included in the definition of climate finance?

Table I: Funding estimates for, and costs of, climate change (US\$ billion per percentage of GDP)

Estimate	Adaptation	Mitigation	Description
World Bank (2009)	30 -100	140 - 175 (associated financing requirements of 265 – 565)	Annual requirements by 2030
Project Catalyst (2009) ¹	14 - 28	76 -111	Average per year from 2010 - 2020
IPPC (2007b) in Hamilton (2010)	Not estimated	5.5% reduction in global GDP (US\$7 trillion)	Estimated reduction in annual global GDP by 2050
Stern (2006)	5 - 20% of global GDP by 2050	1% of global GDP by 2050	Annual global GDP reduction. The adaptation figure assumes no mitigation has occurred

- Does climate finance comprise both adaptation and mitigation finance?
- Is climate finance defined as public sector financing, or public and private sector financing?
- Should climate finance include flows that are specific to climate change only? Or, should Official Development Assistance (ODA) and other grant-like flows that have both a developmental and climate change focus also be included? What about investment in infrastructure, which accounts for climate change as part of best practice? Should these flows be only partially included? Is it possible to extract the “pure” climate change portion? How does this affect the concept of new and additional finance?
- Is the financing of renewable energy and clean technologies a sub-set of climate finance? Is climate

finance a sub-set of green finance? What about corporate social responsibility expenditure, and additional expenditure required to meet domestic environmental and social standards and requirements?

Given these complexities, a more useful approach to the topic may be to return to the objectives of climate finance: financing the transition to a low-carbon global economy, climate proofing to reduce adaptation costs, and funding the adaptation costs. This requires eventual mainstreaming of mitigation and adaptation into the day-to-day operations of both the public and private sectors. In the short term this will require both additional sources of finance, and a focus on the changes required to incorporate climate considerations into the way finance is allocated.

The public sector plays a key role in enabling this change. Currently, public climate finance is being discussed largely under the auspices of the United Nations Framework

¹ Estimates from Project Catalyst (2009) have been converted from Euros to US\$ at 1.4 US\$ per Euro.

Convention on Climate Change (UNFCCC or the Convention). It is clear that developed countries must finance their own mitigation and adaptation, but there is a long-standing and entrenched political negotiation occurring under the auspices of the UNFCCC, over who (developed vs. developing) pays for developing country mitigation and adaptation. This includes to what extent, and how fundamental to this negotiation are issues of national sovereignty, identifying what is “incremental”, the types of mechanisms used, institutions to govern these financial flows, and monitoring them.

However, geopolitics are changing. This is prominently evidenced in the climate change commitments put forward by both developed and developing countries in Copenhagen during the sixteenth Conference of the Parties (COP15) and formalised in Cancun at COP 16. There is a growing realisation that focusing exclusively on the issue of who pays (developed or developing), particularly for mitigation, may be to the detriment of developing countries, which need to position themselves competitively for sustainable growth in the low-carbon future. The role of domestic country funding should thus not be underestimated. It is particularly important that developing country domestic expenditure is aligned with local mitigation and adaptation priorities, and that the expenditure is targeted in a way that can leverage and crowd in the domestic private sector.

This paper attempts to reflect this tension, despite there being more detail around public flows falling under the UNFCCC discourse. It further aims to provide an initial background against which the South African government can both formulate strategies to access flows originating from the international public sector governed by the UNFCCC (or other multilateral mechanisms), and align and focus domestic spending, and to crowd in and leverage the domestic and international private sector.



3 Sources of Climate Finance

The following sections, descriptions and analysis of the various sources of climate finance have been taken from a variety of web sources including the Climate Funds Update (www.climatefundsupdate.org), Climate Finance Options (www.climatefinanceoptions.org) and the various fund homepages.

As discussed in Section 2, climate finance for South Africa's mitigation and adaptation financing needs will originate from international developed country public finance, the alignment of domestic public finance, and crowding in private sector investment.

Financing flows from these originating funding sources will blend and intermingle as they are channelled through a number of mechanisms and intermediaries, and eventually combine in appropriately structured mitigation and adaptation projects and programmes. This complicates the analysis of carbon finance, as the characteristics of the finance's origins are not always readily apparent, for example whether these are flows under the UNFCCC or not. Some flows might fall under two categories, such as bilateral finance and UNFCCC governed finance. In addition, some sources of finance could also be classified as finance instruments, e.g. carbon trading. Cross referencing has been used where possible, and the topic is addressed where it is deemed to have most relevance.

This section first discusses the mobilisation of international public finance, focusing on the UNFCCC negotiations and the UNFCCC financial mechanism that will govern the disbursement of these funds. It then moves on to consider the intermediary public and private climate finance sources with which South Africa, as a developing country, will engage. These intermediaries often combine flows from different original sources, with corresponding implications on the conditionalities of the funds.

3.1 Financing flows under the UNFCCC

The UNFCCC COP16 reconfirmed support for efforts to keep climate change below 20C in the Cancun Agreements. In order to meet this goal, the participants acknowledged that significant additional financing will be required to assist developing countries to undertake additional mitigation activities and deal with the impacts of climate change. This led developed countries to restate their pledge made at COP15 to mobilise US\$100 billion of scaled-up, new

and additional funding for climate change mitigation and adaptation activities in developing countries annually from 2020. (Van Melle et al., 2011). So-called "fast start" financing to the amount of US\$30 billion was pledged for the period 2010 - 2012, with an equal allocation between mitigation and adaptation. Funding for adaptation was prioritised for the least developed countries (LDCs) and Small Island Developing States and Africa.

This financing is uniquely contextualised under the UNFCCC negotiations. Given the recognition that "the largest share of historical and current emissions has originated in developed countries" (UNFCCC, 1992: page), this financial transfer is largely understood by developing countries to be a form of reparation payment, and is therefore distinct from development aid. This position, and variations thereof have implications for the type and extent of conditionalities associated with the financing made available under the Convention. At the one extreme is the view that there should be no conditionalities, as the funding rightfully belongs to the developing world in the first place. Therefore the issue of Monitoring, Reporting and Verification (MRV) is particularly sensitive in the climate negotiations.

The distribution mechanism and characteristics linked to the US\$100 billion annual pledge have not yet been finalised. The funding may thus include a wide variety of sources: public and private, bilateral and multilateral, as well as alternative innovative sources that don't yet exist. While it was agreed that a portion of this funding (with an emphasis on adaptation) should be channelled through a new vertical United Nations-governed Green Climate Fund, a role was also foreseen for current disbursement mechanisms (Van Melle et al., 2011).

3.1.1 The Report of the Advisory Group on Financing

The ability of the developed world to deliver on both the fast start financing and the US\$100 billion remains to be seen, and will be impacted by the health of the global economy. The UN Secretary General's High-Level Advisory Group (AGF) was constituted to investigate whether the goal of committing US\$100 billion per year by 2020 was possible. In 2009 the Group submitted their report detailing possibilities and recommendations for this goal, concluding that it would be ambitious, but possible (AGF, 2010). The funding possibilities are described in Table 2 on the next page

Some of the options for funding are immediately available. These include carbon-related revenues raised in developed countries through carbon taxes, carbon charges in the

Table 2: Possible sources of funding by 2020 (US\$ billion) (Source: AGF, 2010)

Funding source		Description and assumptions
AAU (Assigned Amount Units)/ ETS (Emissions Trading System)		Forecast developed country emissions of 15 Gt by 2020 Between 2% and 10% of market size would be auctioned and allocated for climate finance
Offset levies		Levy of 2 - 10% on offset transactions Offset market size of 1.5 - 2Gt
International transportation (Maritime)		Assumes 0.9 - 1 Gt of emissions, with revenues captured through auctions or levies 25 - 50% of captured revenue can be used to finance climate
International transportation (Aviation)		Assumes emissions of 800 Mt, 250 Mt considered for revenue estimates (accounting for incidence on developing countries) 25 - 50% of captured revenue can be used to finance climate
Carbon-related revenues	Carbon tax	US\$1 of tax on 11 - 13 Gt of energy-related emissions
	Wires charge	Revenue from power-generated emissions in OECD countries, 4.7 Gt in 2020, with US\$1 per ton
	Removal of fossil subsidies	
	Redirection of fossil royalties	
Financial transaction taxes		Assumes tax rate of 0.001 - 0.01%, with use of 25 - 50% of total revenues for climate change
Direct budget contributions		
Development Bank instruments		Gross flows, with a leverage factor of US\$3 - 4 on US\$7 - 9 billion
Carbon market offsets		1.5 - 2 Gt of offset flows
Private finance		Generated with a leverage factor of 2 - 4 on public flows and carbon offset markets

electricity sector, and the removal and redirection of fossil subsidies and royalties. Levies on offset transactions are already being used to fund the adaptation fund, signalling that this funding source is likely to grow.

The least likely of these options are the international transportation levies and the financial transaction taxes. There is currently no indication that the international transportation sector is willing to accede to a levy on emissions or to be allocated (or be required to purchase) auction emission credits. As the impact of the recent crisis recedes and banks resume business as usual behaviour, the impetus for the creation of global financial transaction taxes is likely to wane. A number of headwinds exist, including the need for a global agreement on carbon markets, which requires political willpower, but will provide greater certainty in terms of pricing and liquidity of markets.

Finally, a common theme throughout this review is reflected by the fact that there is enormous potential for private

funders to provide large amounts of climate finance. This reinforces the need to develop an environment conducive to private finance, ensuring sound domestic policies and sufficient capacity and knowledge in relevant institutions.

3.1.2 Key Cancun Developments

A number of key developments can be highlighted from the recent Cancun Agreements. First, the parties affirmed that adaptation be treated with the same priority as mitigation. Given that analysis has shown that mitigation is favoured by public funders (and presumably would be by private funders), a renewed focus on adaptation is likely to occur, with developing countries pressing developed nations to provide more funding (especially in the form of grants) for adaptation. A possibility at future COP negotiations is the continued request for donor countries to primarily provide adaptation finance. A suitable approach may be one where donor funds (such as ODA) are earmarked for adaptation, while funds derived from carbon markets (including levies and auctions) is reserved for mitigation.

Second, it was decided that the establishment of market-based mechanisms to promote mitigation should be considered at COP17 to be held in Durban, South Africa towards the end of 2011. While it is not clear what these mechanisms might be, it is possible that this may include a more global carbon market, or a wider levy to raise funds for mitigation.

Third, it was decided that the Green Climate Fund should be established. This would act as the operating entity of the financial mechanism of the Convention. It is not clear how far this goes towards appeasing developing countries' demands for a new operating entity, though it can be considered a significant step. This suggests that the Global Environment Facility (GEF) will no longer be the operating entity for the financial mechanism, a move that would be welcomed by developing countries. Additional positive aspects (from developing countries' perspectives) include the fact that the Green Climate Fund will be governed by a board with an equal number of members from developing and developed countries and that the fund is to be designed by a transitional committee consisting of 25 members from developing countries and 15 members from developed countries.

3.1.3 Nationally Appropriate Mitigation Actions

The Bali Action Plan (UNFCCC, 2007a) conceived the term "Nationally Appropriate Mitigation Actions" (NAMAs), applied to developing countries "in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner" (UNFCCC, 2007). To date, negotiations under the UNFCCC have failed to deliver clarity on what a developing country NAMA is. However, it is clear that NAMAs are closely related to mitigation financing. Whilst they may not be the only way in which developing countries can access international finance for mitigation, they are likely to be an important one.

The discussions on developing country NAMAs provide some insight into how they could evolve from a financing perspective (Jung et al., 2010). NAMAs could be "unilateral" (i.e. undertaken and financed by developing countries on their own), or "supported", (i.e. they are implemented with direct financial assistance from developed countries). "Credited" NAMAs refers to the possibility that NAMAs could be developed as market mechanisms, potentially on a sectoral basis, with the sale of emission reduction credits on the carbon market as a financing source. Individual

projects could be identified as NAMAs, as could long-term programmes (Marquard and Tyler, 2010).

The roles of additionality, monitoring and verification remain contested within the NAMA context. Some developing country groupings are opposed to any encroachment on the sovereign right of nations to define NAMAs on their own terms and to apply international finance (agreed under the UNFCCC) as they determine.

Jung et al. (2010) identify some recommendations for developing NAMAs despite uncertainty around the mechanism. These are aligned with best practice in attracting other types of international carbon finance. The recommendations are as follows:

- NAMAs should be contextualised in well developed national and sector strategies; they should be proposed at as broad a level as possible in order to avoid difficulties arising from the interdependencies of single actions.
- Development finance provides a good model for NAMA finance, and the learning and tools of this area should be considered.
- NAMAs should target strategic, long-term and transformational measures, as these are unlikely to be funded through carbon market mechanisms.
- Monitoring and verification should follow the structure of the underlying NAMA, and may not necessarily be based on greenhouse gas (GHG) emission reductions.

3.2 UNFCCC Climate Finance Mechanisms and Funds

Currently there is one Mechanism and three Funds for channelling climate finance under the UNFCCC. These are the UNFCCC Financial Mechanism under the GEF Trust Fund, the Special Climate Change Fund (SCCF), the Least Developed Countries Fund (LDCF) and the Adaptation Fund (UNFCCC, 2008; UNFCCC, 2011). While the first three instruments are operated by GEF and rely solely on voluntary contributions, the Adaptation Fund is operated by an independent board and is funded from a 2% levy on Clean Development Mechanism (CDM) projects (UNFCCC, 2008).

3.2.1 The Financial Mechanism under the GEF Trust Fund

The UNFCCC established a Financial Mechanism in 1992 to provide funds to developing country Parties for climate change adaptation and mitigation (UNFCCC, 2008). The operation of this Mechanism was assigned to GEF on an on-going basis, subject to review every four years.

This Mechanism is accountable to the UNFCCC Parties, which decides on its policies, priorities and eligibility criteria for funding, based on advice from the Subsidiary Body for Implementation (UNFCCC, 2011). Up to July 2007, the GEF Trust Fund had allocated more than US\$3.3 billion in funding to climate change projects, and had leveraged US\$14 billion in additional funds (UNFCCC, 2007b).

GEF evolved from a pilot programme within the World Bank in 1990 (focusing on environment protection and sustainable development) to an independent institution outside of the World Bank in 1992 (Gomez-Echeverri and Muller, 2009). As the GEF evolved it was also entrusted to serve as the financial mechanism for a number of other conventions including:

- Convention on Biological Diversity (CBD);
- Stockholm Convention on Persistent Organic Pollutants (POPs); and
- UN Convention to Combat Desertification (UNCCD).

The GEF provides grants and concessional funding to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer,

and persistent organic pollutants (POPs). These projects benefit the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods.

Countries cannot access GEF funds directly. They need to propose projects for GEF funding via one of ten implementing agencies that assist governments and non-governmental organisations (NGOs) in the development, implementation and management of projects funded by the GEF (UNFCCC, 2008). The current ten GEF implementation partners are: the United Nations Development Programme (UNDP); the United Nations Environment Programme (UNEP); the World Bank; the United Nations Food and Agriculture Organization (FAO); the United Nations Industrial Development Organization (UNIDO); the African Development Bank (AfDB); the Asian Development Bank (ADB); the European Bank for Reconstruction and Development (EBRD); the Inter-American Development Bank (IADB); and the International Fund for Agricultural Development (IFAD). The Scientific and Technical Advisory Panel of the GEF provides technical assistance on GEF policies.

The GEF is divided into four-year replenishment cycles, of which the latest, GEF-4 expired in 2010. GEF-5 runs for the period 2011 - 2014 and donors have pledged an estimated US\$3.5 billion to this cycle.

Figure 1 shows the percentage of funds pledged by each donor country. Together with investment income and carry-over of resources, this will result in a total replenishment of US\$4.34 billion for GEF-5. As of September 2010, US\$201 million was available for new funding decisions.

Figure 1: Pledges by country for GEF-5 (Source: DNA Economics calculations based on GEF Council Meeting, 2010b)

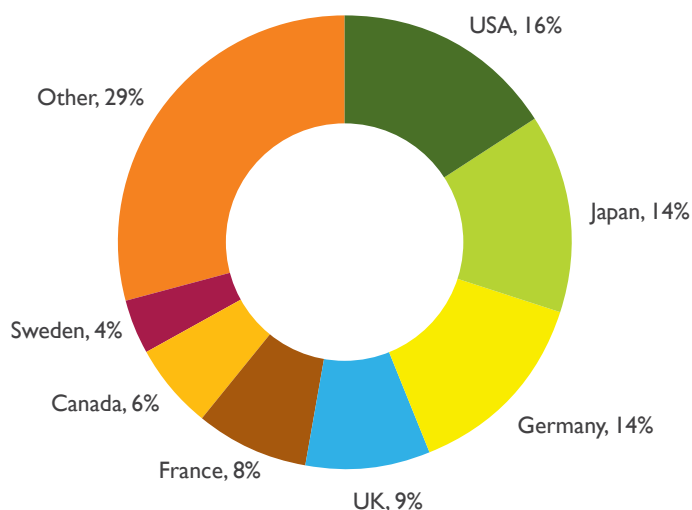
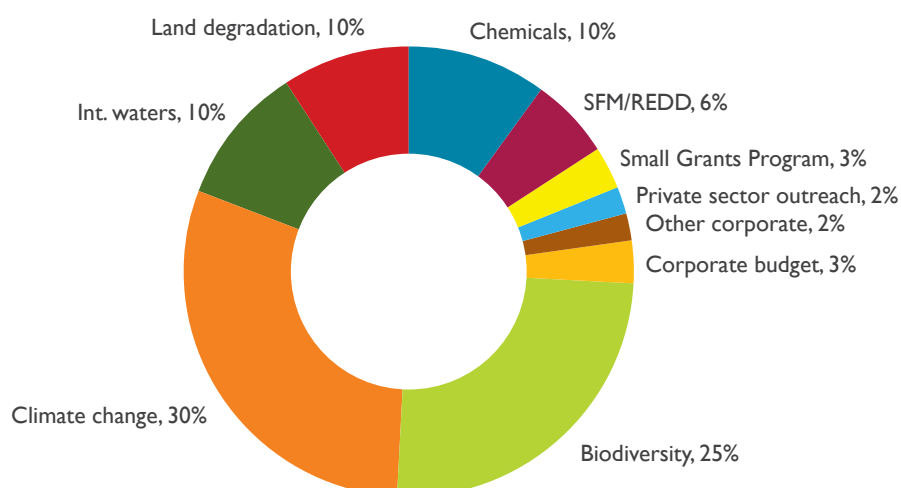


Figure 2: Proposed resource envelope for GEF (Source: DNA Economics calculations based on GEF Council, 2010a)



As shown in Figure 2, roughly 30% of the GEF-5 cycle is allocated specifically to climate change initiatives. Given that GEF grant resources have focused on the early stages in the adoption of a new technology, and only cover incremental costs, they tend to have a high risk factor and are often used to lower barriers and establish enabling conditions for further market transformation and growth (World Bank, 2010b).

3.2.2 Special Climate Change Fund

The SCCF was established under the UNFCCC in 2001 to finance projects relating to adaptation, technology transfer and capacity building, energy, transport, industry, agriculture, forestry and waste management, and economic diversification. The GEF administers the SCCF. To date, projects eligible for US\$92.23 million of funding have been approved by the SCCF (GEF, 2010c). As of October 2010 the fund had US\$35 million available for approval by the council.

3.2.3 Least Developed Countries Fund

The fund was established to assist LDCs in the implementation of the National Adaptation Programmes of Action (NAPAs), with the GEF responsible for the fund's operation. As of October 2010 the fund had US\$81 million available for approval by the council. To date, the LDCF has approved projects to receive disbursements to the value of US\$122.57 million (GEF, 2010c).

3.2.4 Adaptation Fund

The Adaptation Fund was established in 2001 and became operational in 2007. Eligible countries are described as developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change, such as small island nations and countries liable to severe flooding, drought and desertification. While South Africa may qualify for funding from the Adaptation Fund, it is likely to be fairly low down in terms of urgency requirements when compared to LDCs.

Cumulative funds received by beneficiaries have amounted to US\$201.5 million, 65% of which is financed from a 2% levy on certified emission reductions (CER) issued for CDM project activity. Spain is the next largest contributor, having provided 28% of funds, with other donors making up the remainder. As of 31 October 2010, the Adaptation Fund had approximately US\$144 million available. At end February 2011, the Adaptation Fund had only approved two projects for funding (Adaptation Fund, 2011).

The Adaptation Fund is managed by the Adaptation Fund Board, to which the GEF provides secretariat services, with the World Bank serving as Trustee. The Fund is implemented by accredited national (currently only in Jamaica, Senegal and Uruguay) and multilateral agencies: ADB, IFAD, UNDP, UNEP, WFP (UN World Food Programme) and the World Bank through the International Bank for Reconstruction and Development (IBRD).

3.3 Other Multilateral Climate Change Funds

3.3.1 Climate Investment Funds

The Climate Investment Funds (CIFs) are a collaborative effort between Multilateral Development Banks (MDBs) and countries, acting as bridging funds until a post-2012 global climate change agreement has been established. It is composed of two funds both capitalised by developed countries namely the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). These funds are channelled through the MDBs including the AfDB, the ADB, the EBRD, the IADB and the World Bank Group.

Table 3 provides a detailed breakdown of pledges to CIFs from donor countries. Of the total US\$6.3 billion committed to the CIFs, US\$4.4 billion was allocated to the CTF and US\$1.9 billion to the SCF.

3.3.1.1 Clean Technology Fund

The CTF promotes scaled-up financing for low-carbon technologies that are able to provide significant potential for long-term GHG emission savings. Resources from CTF are provided largely in the form of concessional loans, thus helping to reduce financing costs. Such loans are most likely to be allocated to projects that are moving from the start-up/development phase, and are beginning to take off (World Bank, 2010b). Table 4 highlights the terms for the CTF's concessional funding.

Table 3: Pledges to CIFs by country, as of September 2010 (Source: Climate Investment Funds, 2011)

Country	CTF (US\$ million)	SCF (US\$ million)	Total CIFs (US\$ million)
Australia	97	48	145
Canada		84	84
Denmark		35	35
France	277		277
Germany	615	68	683
Japan	1,112	222	1,334
Netherlands		76	76
Norway		179	179
Spain	109		109
Sweden	90		90
Switzerland		20	20
UK	613	697	1,310
USA	1,492	508	2,000
Total	4,405	1,937	6,342

Table 4: CTF financing terms (Source: Climate Investment Funds, 2009)

	Harder concessional	Softer concessional
Maturity (years)	20	40
Grace period (years)	10	10
Principal repayment (years 11 - 20)	10%	2%
Principal repayment (years 20 - 40)	N/A	4%
MDB fee (funding years 09 - 10)	0.10%	0.10%
Service charge (funding years 09 - 10)	0.75%	0.25%
Grant element estimate of loan	45%	75%

As of September 2010, the CTF had US\$44 million available for new investment plans, with US\$4.35 billion already allocated to 13 endorsed investment plans, which are shown in Table 5. Remaining funding available under the CTF is estimated to be US\$773 million.²

In South Africa, US\$450 million of the endorsed amount of US\$500 million has been approved for 33 project proposals (National Treasury, 2011a). A summary of the projects funded is given in Table 6 below. US\$350 million

has been provided to Eskom for the construction of a wind farm and Concentrated Solar Power (CSP) projects, with the remaining US\$100 million going towards encouraging projects in the private sector.

3.3.1.2 Strategic Climate Fund

The SCF supports three targeted programmes, namely the Forest Investment Program (FIP), the Pilot Program for Climate Resilience (PPCR) and the Program for Scaling-Up Renewable Energy in Low Income Countries (SREP).

Table 5: CTF investment plan balance, as of September 2010 (Source: CTF Trust Fund Committee, 2010)

Country/Region	Amount endorsed (US\$ millions)
Colombia	150
Egypt	300
Indonesia	400
Kazakhstan	200
Mexico	500
Middle East and North Africa	750
Morocco	150
Philippines	250
South Africa	500
Thailand	300
Turkey	250
Ukraine	350
Vietnam	250

Table 6: South Africa's approved projects for CTF, 2010 (Source: Climate Investment Funds, 2011)

Project	Implementing agency	Description	CTF funding
Eskom Renewable Energy Support Project	IFC/AfDB	Two components to be implemented by Eskom: Sere Wind Farm (100 MW), Upington CSP (100 MW).	350
South African Energy Efficiency Program	IFC/AfDB	The proposed programme will encourage local financial intermediaries to develop lending programmes for small-sized energy efficiency investments.	15
Sustainable Energy Acceleration Program	IFC/AfDB	It will target and apply CTF funds to support pioneer private sector sustainable energy projects and will address existing market barriers together with advisory services to catalyse market transformation.	85
Total			450

² Total endorsed investment plan is against pledged contributions, while available funding reflects the difference between contributions received and funding to be disbursed for projects within the investment plans..

Table 7: World Bank carbon funds and facilities, 2009 (Source: World Bank Carbon Finance Unit, 2011; World Bank, 2010a)

Fund	Description	Tranche	Start date	Participants	Fund capital (US\$ million)	Private capital
BioCarbon Fund	Public / private initiative, administered by the World Bank, to demonstrate projects that conserve carbon in forest and agro-ecosystems. Both tranches are closed to new fund participation.	Tranche 1	2004	14	53.8	51%
		Tranche 2	2007	7	36.6	44%
Carbon Fund for Europe	Designed to assist European countries meet their commitments to Kyoto Protocol and EU ETS.		2007	5	50	20%
Community Development Carbon Fund	Provides carbon finance to the developing world, supporting projects that create "Development plus Carbon" credits. First tranche closed to further subscriptions.		2003	25	128.6	45.10%
Danish Carbon Fund	Danish fund to purchase emission reductions from developing countries.		2005	5	90	78%
Italian Carbon Fund	Italian fund to purchase emission reductions from developing countries. Fund open to participation of Italian private and public sector entities.		2004	7	155.6	30.20%
Netherlands Clean Development Mechanism	Dutch fund to purchase emission reductions from projects located in developing countries.		2004	1	Not publicly available	0
Netherlands European Carbon Facility	Dutch fund to purchase emission reductions from projects located in countries in transition.		2002	1	Not publicly available	0
Prototype Carbon Fund	As the first carbon fund, played a role in pioneering market for project-based emission reductions.		2000	22	219.8	57.60%
Umbrella Carbon Facility	The facility consists of five carbon funds and 11 members from the private sector; intended to manage the purchase of large volumes of emissions reductions.		2006	16	799.1	75%
Spanish Carbon Fund	Spanish fund to purchase emission reductions from projects located in countries in transition.	Tranche 1	2005		220	22.70%
		Tranche 2	2008		70	
Forest Carbon Partnership Facility	Providing assistance to tropical and sub-tropical developing countries to support their efforts to reduce emissions from deforestation and forest degradation (REDD).		2008	51 (37 REDD country participants)	168.5	3%
Carbon Partnership Facility	The facility uses carbon finance to support the implementation of a post-2012 regulatory framework through long-term investments and cutting-edge technologies.					

The SCF has, as of September 2010, funding available to the value of US\$368 million, with not all funding pledges received. Only US\$39 million has been approved for use, the bulk of which is for the administrative budget, based on contributions received. Given that the fund is targeted at low-income countries, South Africa is not a potential beneficiary. Most Southern African Development Community (SADC) countries, however, would be eligible for funding from this fund.

3.3.2 World Bank Carbon Funds and Facilities

The World Bank has been supporting and strengthening the capacity of developing countries to benefit from carbon asset transactions through the establishment of ten funds and facilities, the first of which was established in 1999. As

of 2009, the ten funds (described as the “Kyoto Funds”) had a total capitalisation of US\$2.5 billion, representing resources contributed from 16 governments and 66 private companies. Table 7 describes these funds.

The Kyoto Funds primarily support projects by signing Emission Reduction Purchase Agreements (ERPAs), which provide projects with a significant funding guarantee. The Kyoto Funds’ focus has been in East Asia and the Pacific, specifically China, with this region accounting for 72% of signed ERPAs by value. Africa, Europe and the Latin American region account for 7% of ERPAs each, with South Asia accounting for the remaining 3%. Table 8 provides an example of some of the larger emission reduction projects that the Kyoto Funds have invested in.

Table 8: Sample of projects under the World Bank Carbon Funds and Facilities (Source: World Bank, 2010a)

Fund	Country: Project	Description	Contract Emission Reductions (tCO ₂ -eq)
Prototype Carbon Fund	China: Jincheng CMM (co-purchase)	Capture of coal mine methane (CMM) associated with coal mining operation and utilisation of the gas to generate power through a 120 MW combined cycle power plant.	3,341,507
Community Development Carbon Fund	Nepal: Biogas Support Program	Commercial dissemination of 200,000 household biogas plants using animal waste in rural Nepal.	1,000,000
BioCarbon Fund	Moldova: Soil Conservation	Afforest/reforest 20,000 hectares of degraded state-owned and communal agricultural lands.	600,000
Italian Carbon Fund	India: Allain Duhangan Hydro	192 MW run-of-river hydro power plant in the lower reaches of the Allain and Duhangan Rivers.	2,820,250
Danish Carbon Fund	Russia: Associated Gas Recovery, Komsomolskoye Oil Field	Construction of a booster compressor station with a gas conditioning unit and a gas pipeline to the national gas transmission system, which will result in recovery of gas currently burnt during flaring.	1,620,000
Spanish Carbon Fund	Mexico: La Venta II	An 85 MW wind project in the south region of the Isthmus of Tehuantepec, in the Mexican state of Oaxaca	1,800,000

3.3.3 United Nations Funds

3.3.3.1 Millennium Development Goal Achievement Fund

The Millennium Development Goal (MDG) Achievement Fund (MDG-F) facilitates progress on the MDGs, of which one of the programme areas is environment and climate change. The UN administers the MDG Fund, and programmes operate in a joint fashion, bringing together numerous UN agencies. The MDG Fund was created through an initial contribution from Spain. Cumulatively, Spain has contributed US\$826 million to the Fund since 2006. Roughly 13% (US\$89.5 million) of the total approved funds have been committed to the environment and climate change thematic window. Figure 3 provides an overview of how the funds allocated to the environmental and change thematic window have been distributed globally. The environment and climate change window comprises 17 joint programmes, with common elements across the

programmes, including the mainstreaming of environmental concerns in policy-making, improving government capacity in terms of planning and implementation of environmental actions, and assessing the country's climate change adaptation capacity (MDG-F Secretariat, 2010).

3.3.3.2 UN-REDD

The UN launched an initiative to Reduce Emissions from Deforestation and forest Degradation (REDD) in developing countries. The aim of the programme is to create a financial value for the carbon stored in forests, allowing developing countries to generate funds through the sale of these carbon credits. The programme provides funds for capacity building to prepare developing countries for the implementation of national REDD strategies. A breakdown of pledges by donor country is provided in Table 9.

Figure 3: Funds for environment and climate change thematic window, June 2010 (Source: MDG-F Secretariat, 2010)

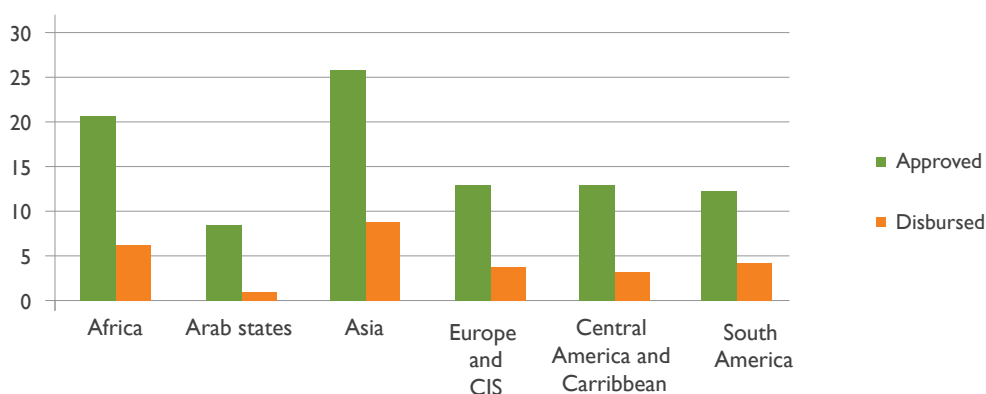


Table 9: REDD Pledges as of February 2011 (Source: Climate Funds Update, 2011)

Donor country	Pledges (US\$ million)
Norway	117
Denmark	8
Spain	1
Total	127

3.3.3.3 United Nations Seed Capital Funds

There are two main UN seed capital funds. The first is the Seed Capital Assistance Facility (SCAF), which provides seed financing for clean energy projects and enterprises. The facility is implemented through UNEP, ADB and AfDB. The facility has US\$9.3 million in financing available (Climate Finance Options, 2011).

The second fund is the UN Rural Energy Enterprise Development (UN-REED) initiative focuses on enterprise development and seed funding for clean energy entrepreneurs in developing countries. The fund has a diverse partnership including UN agencies, NGOs and enterprise development partners. There are currently three REED initiatives in operation, Africa (A-REED), Brazil (B-REED) and China (C-REED).

3.3.4 Other Multilateral Initiatives

3.3.4.1 Renewable Energy and Energy Efficiency Partnership

Established at the 2002 World Summit on Sustainable Development (WSSD), the Renewable Energy and Energy Efficiency Partnership (REEEP) is a non-profit, specialist change agent aiming to catalyse the market for renewable energy and energy efficiency, with a primary focus on emerging markets and developing countries. The REEEP is supported primarily by governments (Australia, Austria, Canada, the European Union, Germany, Ireland, Italy, Netherlands, New Zealand, Norway, Spain, the US and the United Kingdom) and by contributions from the private sector. The REEEP has just announced its 8th programme cycle with a call for proposed clean energy projects targeting Brazil, China, India, Indonesia and South Africa. The Partnership expects to fund approximately thirty projects worth 4.5 million Euros (Climate Finance Options, 2011).

3.4 Bilateral Climate Financing

Bilateral assistance for climate change comes in multiple forms: through individual funds set up by particular donors, through donor agencies, directly in the form of ODA, and through bilateral finance institutions. Donor countries are also the main source of funding for the multilateral funds. Given the multiple forms of bilateral assistance, one can only cautiously estimate the actual value of bilateral assistance, as it is not additive, with the likelihood that the funds may be represented in more than one channel. For example,

a country's contribution to a bilateral fund may also be included in its recording of ODA, while for some country's ODA contributions may also reflect contributions to multilateral climate change funds. The authors thus provide an overview of bilateral assistance, without attempting to unravel the full (and unduplicated) contribution of bilateral finance to climate change. Quantitative estimations of funding have been provided where possible. Given data limitations, these are only indicative estimates.

3.4.1 Bilateral Funds and Initiatives

Bilateral initiatives generally have a single developed country as a donor; may include the setting up of a fund as the financing mechanism, and are generally administered by an agency from the donor country. A number of bilateral funds contribute specifically to climate change initiatives. The list and descriptions below are based on information from www.climatefundsupdate.org:

- **Hatoyama Initiative:** the Hatoyama Initiative is a pledge by Japan to contribute US\$15 billion to climate change initiatives by 2012. This will comprise US\$11 billion of public finances, with the remainder funded by private and NGO sources. The Initiative aims to provide funding for both mitigation and adaptation activities, by contributing to existing funds (such as REDD) and by providing technical and financial assistance to countries directly.
- **International Climate Initiative:** The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) developed this financing mechanism in 2008. Funding is provided by the German government through the auction of emission allowances, of which roughly US\$185 million a year is earmarked for developing countries. The Initiative aims to support mitigation and adaptation activities equitably.
- **Global Climate Change Alliance (GCCA):** This was initiated in 2007 by the European Commission, with the intention of providing both technical and financial assistance to LDCs and Small Island Developing States (SIDS) for both mitigation and adaptation. The total amount pledged is approximately US\$226 million, mostly from the EU budget, but also from some individual EU member states. As of February 2011, the alliance had disbursed or approved US\$203 million. The GCCA has five priority areas,

namely: i) assisting countries in knowledge building of climate change effects; ii) creating incentives for forest protection through REDD; iii) improving participation in the CDM; iv) building capacity to prepare for and mitigate natural disasters; and v) mainstreaming climate change into poverty reduction strategies. Projects have been (or are in the process of being) implemented in 18 countries, including eight countries and island states in Africa.

- International Climate Change Adaptation Initiative: This is an Australian initiative, committing Australia to AUS\$328 million for the period 2008 - 2013. The Initiative focuses mainly on Australia's neighbouring island states, providing both technical and financial assistance for adaptation initiatives. The Initiative is jointly managed by AusAid and Australia's Department of Climate Change and Energy Efficiency (DCCEE).

3.4.2 Bilateral Finance Institutions

Bilateral Finance Institutions (BFIs) are similar in concept to MDBs, excepting that BFIs tend to receive contributions from a single (or few) countries, and shareholders (and contributors) to BFIs are not clients or beneficiaries of a BFI. Many BFIs provide loans and funding to developing countries governments' directly, and to institutions within these countries.

Based on UNEP (2010), climate financing by four BFIs for developing countries is discussed. The four BFIs are the French Development Agency (AFD), the European Investment Bank (EIB)³, the Japanese International Cooperation Agency (JICA) and Germany's Development Bank (KfW). A summary of the BFI commitments for 2009 is presented in Table 10 below.

The four BFIs are estimated to have contributed US\$13 billion to climate finance in 2009, with roughly 12% of this destined for West and Sub-Saharan Africa.

3.4.3 Bilateral ODA

The OECD's Development Assistance Committee (DAC) is primarily responsible for compiling data on ODA. ODA is donor aid provided by developed countries to developing countries. Under the UNFCCC developed countries are called upon to provide additional funding, implying that raising funds for climate change should not result in donors diverting funds from other developmental objectives. The concept of additional funding is controversial and difficult to measure, especially given that many donors are yet to achieve the commitment to devote 0.7% of Gross National Product (GNP) to ODA made through the 1970 UN General Assembly Resolution and affirmed on numerous occasions subsequent to that, including at the Gleneagles G20 meeting in 2005. The OECD's DAC members have seen ODA, as a percentage of Gross National Income (GNI), decline from 0.51% in 1960 to 0.31% in 2009 (based on OECD DCD-DAC, 2011).

Bilateral ODA for climate finance is difficult to assess, given the numerous channels through which donors' funds are processed. This includes funds delivered through traditional donor agencies, bilateral funds, bilateral investment agencies, multilateral donors and multilateral funds. In addition, ODA reporting is inconsistent among donors. Notwithstanding, bilateral ODA funds are assessed from two aspects.

First, the report assesses OECD ODA based on donor classification of climate change ODA using Rio Markers⁴. While the use of Rio Markers is in itself difficult, for numerous reasons outlined in the following sections, it is currently the

Table 10: Committed BFI climate finance for 2009, US\$ millions) (Source: UNEP, 2010)

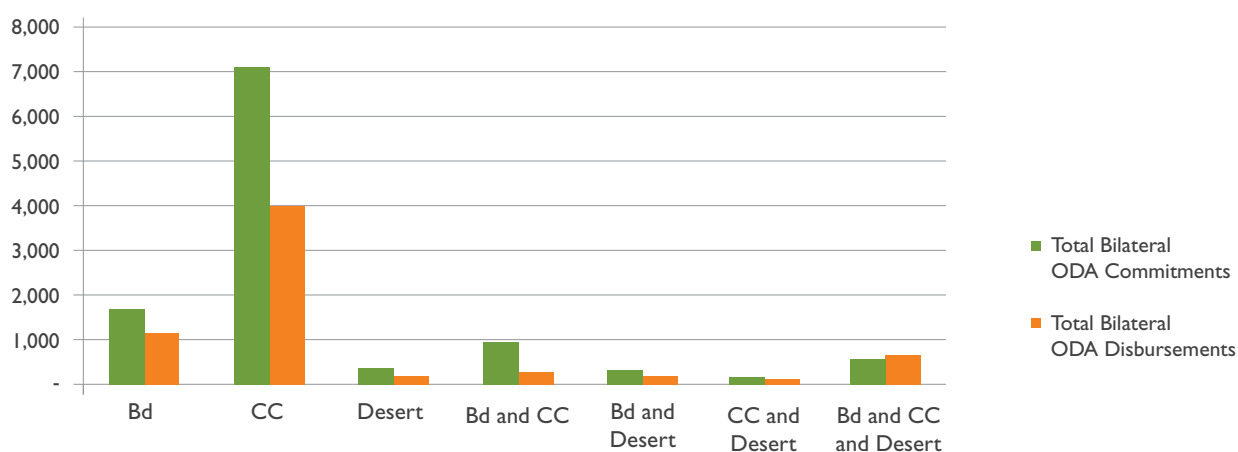
	AFD	EIB	JICA	KW	Total 2009
Mitigation	2,807	1,515	3,300	1,304	8,926
Adaptation	615	-	3,118	230	3,963
Total	3,422	1,515	6,418	1,534	12,889

³ The EIB is included in the analysis both here as a BFI, and in the following section as an MDB.

⁴ The Rio Markers are indicators used to identify aid activities that focus on the objectives of the three Rio conventions: United Nations Convention on Biological Diversity (UNCBD), United Nations Framework Convention on Climate Change (UNFCCC) and United Nations Convention to Combat Desertification (UNCCD). The Rio Markers are qualitative, with donors indicating whether the aid's objective is principally related to one of the conventions, significantly related to one of the conventions or does not target one of the conventions' objectives. (Organisation for Economic Co-operation and Development (OECD), 2004).

Figure 4: Bilateral ODA, based on Rio Markers, 2009 (US\$ millions) (Source: DNA Economics calculations based on OECD (DCD-DAC), 2011)

Abbreviations: Bd: biodiversity; CC: climate change; Desert: desertification



best available source of information regarding traditional bilateral ODA flows for climate change initiatives. Second, the report looks at donors' fast start pledges, highlighting problems with additionality and possible double counting.

Based on 2009 data (and using Rio Markers), donors have committed and disbursed roughly 10% and 7% of total bilateral ODA respectively to biodiversity and climate change, with significantly less funding being directed at desertification. The split between these three sectors is shown in Figure 4.

Given the qualitative nature of the Rio Markers, there is likely to be some bias in the actual ODA contribution to these issues, as well as the classification between the three issues. If one assumes that biodiversity, climate change and desertification issues could all be grouped into climate financing, it would suggest that donors committed roughly US\$11 billion and disbursed just under US\$6.5 billion to

climate finance in 2009. Looking at climate change alone (where climate change ODA is grouped with ODA that might have also have a climate change and biodiversity/desertification impact), the total bilateral ODA committed was US\$8.7 billion, while US\$5 billion was disbursed in 2009. Figure 5 shows bilateral ODA by donor, with 50% of the ODA committed to climate change in 2009 originating from Japan.

A short analysis of the fast start financing pledged by developed states suggests that total pledges amount to approximately US\$30 billion for the 2010 - 2012 period. Roughly US\$4.5 billion has been committed for disbursement in 2010 (World Resources Institute (WRI), 2010). According to Figure 6, Japan accounts for 50% of this pledge, though it should be noted that this falls under the Hatoyama Initiative described above, highlighting the issue of double counting and additionality.

Figure 5: Committed bilateral ODA for climate change by donor, 2009 (US\$ millions) (Source: DNA Economics calculations based on OECD (DCD-DAC), 2011)

Data based on Rio Markers, where climate change is either a principal or significant objective.

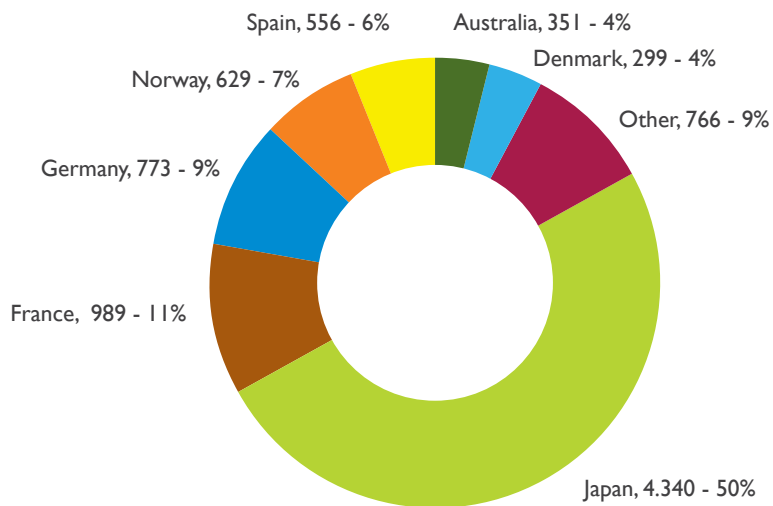
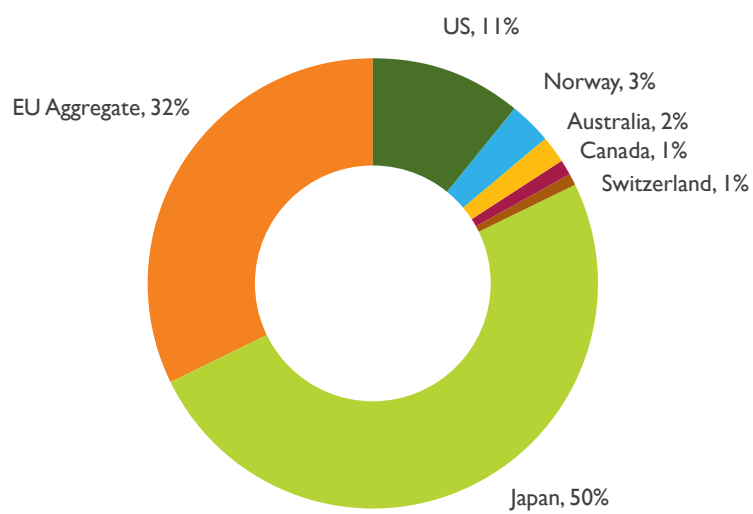


Figure 6: Fast start financing pledged 2010 - 2012 (Source: DNA Economics, based on WRI, 2010)



3.5 Multilateral Development Banks

The MDBs are created through the coalition of countries in order to provide financial and technical assistance to its members. In this context the MDBs refer to the International Monetary Fund (IMF), the World Bank, as well as the Regional Development Banks (RDBs), including AfDB, ADB, IADB, EBRD and EIB.

The MDBs are funded by capital contributions, generally from their members. These contributions are used to raise funds in international debt markets. MDBs generally have very high credit ratings, due to their conservative policies and high levels of capitalisation. This allows them to borrow – and therefore lend – at a lower rate than other financial institutions (AGF, 2010). In addition to financing against their own capital, MDBs are often responsible for the operation

and implementation of a variety of multilateral and bilateral funds. This is especially true of the World Bank and the IMF.

Thus MDBs are perceived to have good technical and institutional capacity with regard to financing and leverage of capital. However, they are often viewed in a negative light by developing countries, given that these institutions play a gatekeeper role to a large proportion of donor funding. MDBs are often viewed as having stringent conditionalities attached to finance, with a substantial lag between the application for funding and the receipt of actual funds. The administrative and reporting requirements are considered burdensome, with these requirements often resulting in additional costs for the applicant. Overall, the perception is that the additional costs (in time and money) of receiving funding from the MDBs are too high.

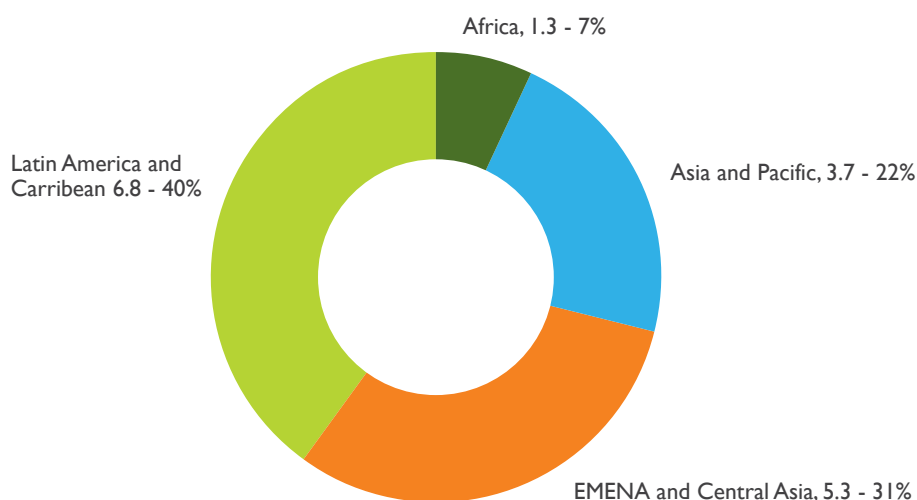
Table 11: MDB climate change financing, 2009 (Source: AGF, 2010)

Mitigation objective	2009 (US\$ millions)
Demand side energy efficiency	3
Renewable energy	4
Supply side energy efficiency	2
Forestry and land use	1
Other	2
Climate related development policy loans	5
Total MDB investment	17
Total cost of programmes	56

The MDBs use a variety of financing instruments, including loans, equity, concessional financing and grant-based technical assistance. As detailed in Table 11, for 2009, the MDBs estimate that US\$17 billion was used in financing climate change mitigation, supporting programmes that had a total investment value of US\$56 billion. This implies a leverage factor of just over US\$3 for every US\$1 invested by the MDBs (AGF, 2010).

Figure 7 illustrates the regional MDB climate financing for 2009, the majority of which occurred in the Latin America/Caribbean region, with Africa accounting for only 7%. The MDBs forecast that the climate change mitigation financing will increase from US\$17 billion in 2009 to US\$21 billion in 2012 (AGF, 2010).

Figure 7: Regional composition of MDB climate change financing, 2009 (US\$ millions) (Source: AGF, 2010)



3.6 Own-Country Financing

The ability of governments to use their own finances is significant. While developing countries (in general) may call for the costs of mitigation and adaptation to be funded by developed countries, many have used the recent financial

crisis (and stimulus packages) to shift spending priorities towards climate change initiatives, especially renewable energy and increasing energy efficiency.

Table 12 highlights the funding from recent stimulus packages that have been allocated to “green” initiatives.

Table 12: Climate change investments from economic stimulus plans, 2009, selected countries (Source: Robins et al., 2009)⁵

Country	Stimulus package / fund	Allocated to green initiatives		Period
	US\$ billions	US\$ billions	% of stimulus	
Developed countries				
USA	976.9	117.2	12%	2009 - 2019
Germany	104.8	13.8	13%	2009 - 2010
Japan	639.9	36	6%	2009 onwards
UK	34.9	5.2	15%	2009 - 2011
Developing countries				
China	649.1	218	34%	2009 - 2010
Indonesia	5.9	0.1	2%	2009
South Africa	7.5	0.8	11%	2009 - 2011
Mexico	7.7	0.8	10%	2009

⁵ These amounts only related to stimulus spending, and would thus exclude cost of existing programmes like the REFIT programme in South Africa.

Robins et al. (2009) estimate that during the fiscal stimulus efforts globally, countries allocated at least US\$512 billion to “green” climate change initiatives, to finance projects from 2009 onwards.⁶

While the above analysis represents public funds raised primarily through normal taxes, special initiatives such as carbon market levies, special carbon taxes and emission auctions can be used to raise climate-specific funds, where the framework for such initiatives is fully in place.

The ability for many developing countries to shift spending towards green initiatives is constrained by two factors. The first is the inability to raise public funding, with many developing countries’ budgets supplemented by donor budget support. The second is the need for an immediate focus on developmental objectives, especially in situations where immediate development objectives do not coincide with long-term environmental policy goals. Without significant external funding, it is likely that domestic funds in developing countries will be diverted from addressing significant socio-economic challenges, rendering greening efforts untenable in the medium to long term. Thus, while own-country funding should play an important role in financing the transition to low-carbon economies in developing countries (particularly ones with relatively developed capital markets and developed tax systems), it has been acknowledged in the UNFCCC negotiations that own-country finance alone will not be sufficient.

3.7 Private Financing

Ward (2010) suggests that private finance is likely to be the biggest source of funding required for climate change initiatives. This is supported by estimates that the World Bank Group’s GEF portfolio of public funding has leveraged US\$13.7 billion from other sources (World Bank 2010b), while CTF funds of US\$4.4 billion have been linked to other investment sources valued at US\$40.5 billion. Given the key role that private finance is expected to play in supporting climate change and making up for shortfalls in public finances, encouraging and facilitating greater investment from the private sector is addressed in Section 6.2.

As Amenc et al. (2010) note, finding an overarching definition for private sector climate finance flows is particularly hard

to pin down. There is a high degree of overlap between socially responsible investing, sustainable development, green investing and responsible investing. The common denominator between these terms is that they all take into account extra-financial aspects of investments, which Amenc et al. (2010) classify as environmental, social, and governance factors. Aspects of investment relating to climate change and sustainability would fall under environmental factors; human rights and consumer protection would be examples of social factors; while executive pay and management structure typify governance factors.

Ward (2010) goes further to describe the wide misconception that private sector finance and carbon finance is the same thing. Ward indicates that carbon finance is typically small compared with the underlying equity and debt capital available within the private sector for channelling to climate change-related investments under the right conditions. Private climate finance can come from an array of sources including:

- Institutional capital;
- Carbon markets;
- Corporate investment (foreign and domestic corporations);
- Venture capital; and
- Philanthropic (e.g. Clinton’s Climate Fund).

While it is not clear exactly how much private investment has flowed into climate change financing, the following sections provide a summary of each of these key sources of private finance, noting, where possible, the amount of funds flowing into climate change activities.

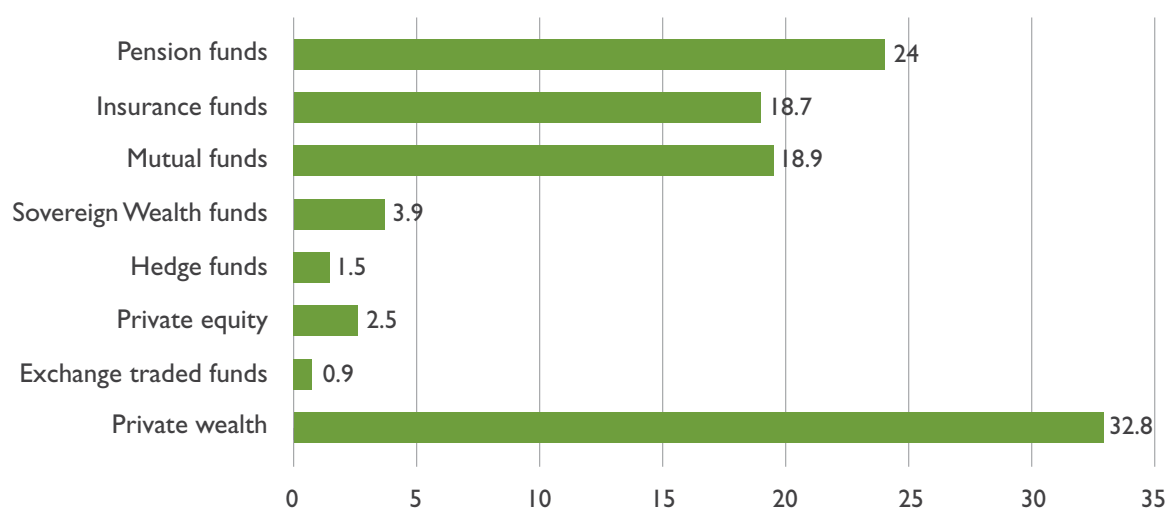
3.7.1 Institutional Capital

Ward (2010) highlights the key sources of private sector institutional capital as the following:

- Pension funds;
- Insurance companies;
- Sovereign wealth funds;
- Endowments;
- Private banks; and
- Investment management companies.

⁶ This is based on the assessment of additional fiscal commitments made since September 2008. Investments driven by regulatory mandates (e.g. energy efficiency requirements) have not been included.

Figure 8: Global fund management industry, assets under management, 2008 (US\$ trillions) (Source: Ward, 2010)



The total value of funds under management by the various types of institutional investors is highlighted in Figure 8 above.

In principle, investors support the need to cut global GHG emissions and the role that climate finance from the private sector needs to play in order to ensure mitigation and adaptation objectives are met. This is highlighted in the statement by the Institutional Investors Group on Climate Change (IIGCC), (2009a) which indicates that 186 investment institutions, collectively representing assets of US\$13 trillion, acknowledge the need for a substantial reduction in GHG emissions. However, the IIGCC (2009a: 1) notes that before private investors can fully integrate their investment role with that of climate change, “clear, credible long-term policies are critical”, requiring a “strong” post-2012 climate change agreement.

Amenc et al. (2010) describe four groups of reasons that motivate investors towards green investing, namely ethical considerations, return considerations, legal or regulatory conditions (e.g. requirement that certain portion be invested), and reputational considerations. Furthermore, they highlight that many of the reasons to “invest green” could also be reasons not to “invest green”.

It is worthwhile elaborating on the roles of two institutional funds, namely green bonds and pension funds, in financing climate change activities. The two issues are interlinked, as pension funds are increasingly seeing green bonds as a low-risk way of investing in climate change. Each is described in further detail in the sections below.

3.7.1.1 Green Bonds

Green bonds are a variant of general bonds, designed to specifically attract investors looking to invest money for climate change purposes, with the issuer providing an additional guarantee that the funding raised will support climate change initiatives (Ward, 2010). The IIGCC (2009b) suggests that “climate bonds” may be attractive to institutional investors if the risk-return characteristics are suitable and similar to other government bonds, but note that a small number on institutional investors would be prepared to accept lower returns or higher risk than would normally be targeted. The IIGCC highlights the following key factors of green bonds:

- Yields are competitive with other government bonds.
- They are highly liquid.

- Higher numbers of guarantees (from different governments) for an individual issue will result in investors seeking a higher spread.
- The way in which funds raised from climate bonds are used will be a key issue, with the assumption that “climate bonds” will be used only for mitigation or adaptation activities. Policies and national climate action plans will therefore have to be well developed and properly implemented.

The question exists as to whether the use of green bonds simply shifts the funding burden from developed to developing countries as indicated by Suppan (2010). Even if bonds are not issued by governments but by MDBs, Ward (2010) notes that the need to maintain credit ratings and ensure that bondholders are repaid is likely to result in the funds raised being used to provide debt finance. This will likely be provided at higher interest rates than the issued bonds, suggesting that developing countries that access the funds raised from green bonds will face with higher levels of debt, at interest rates higher than those required to attract investors to green bonds.

To avoid developing countries becoming increasingly indebted through green bonds, Ward (2010) suggests the use of sovereign guarantees for financial institutions and MDBs. In this way, the debt burden does not lie with governments and the sovereign guarantees lower the risk (and therefore the return) required by green bond investors.

Table 13 highlights some of the major green bond issuances by the World Bank and other finance institutions.

3.7.1.2 Pension Funds

Pension funds are increasingly being advocated as a source of climate financing for a number of reasons, as highlighted by Ward (2010):

- Pension fund assets are a large source of untapped funding. Ward (2010) indicates that the size of global pension assets is estimated to have been US\$29.5 trillion at the end of 2009. Investing 0.5% of these assets in climate change initiatives would add roughly US\$148 billion to climate finance.
- There appears to be an appropriate match between the long-term investment objectives of pension funds

and the long investment horizon of many mitigation related investments, specifically infrastructure type projects.

Having said this, there are a number of reasons for caution in relation to the use of pension fund investments for climate change initiatives. These include the following:

- Pension funds, first and foremost, have a fiduciary responsibility to ensure that funds accumulated and invested are able to pay pensions to pension holders.
- Given this, pension funds operate within strict risk management boundaries, requiring, amongst others, a diversified investment portfolio (including equities, bonds, property and other alternative asset classes). The high perceived risks of climate change initiatives, coupled with uncertain returns, make climate finance not only unpredictable but also inaccessible to pension funds (Ward, 2010).

Peter Dunscombe (2010), the Chairman of the IIGCC indicates that governments need to provide clear signals regarding climate change. This policy needs to be transparent, strong, stable and credible. In emerging economies, private investors face additional perceived risks; a combination of capacity and policy development is required to lower these risks. Only when climate change investments are able to provide risk adjusted returns comparable to other types of investments, will pension funds be able to allocate a greater proportion of their investment to climate solutions.

Green bonds may provide the ideal avenue to attract pension funds, where sufficient guarantees can lower the perceived risk, and bonds provide the type of long-term investment conducive to pension funds. The World Bank's issue of green bonds, for instance, demonstrates this, with a number of pension and insurance funds purchasing bonds issued. Since the first issue in 2008, the World Bank has issued over US\$2 billion in green bonds through 34 transactions. A number of pension funds have invested in green bonds, including the Swedish National Pension Fund, the UN Joint Staff Pension Fund, the New York Common Retirement Fund and California State Teachers' Retirement System (CALSTRS) (World Bank, 2011).

Table 13: Green bonds issued (Source: Climate Bonds Initiative, 2011; World Bank Green Bonds, 2011)

Issuer	Issue Year	Amount (issue currency)	Amount (US\$ millions)	Coupon	Maturity Date	Lead Manager
World Bank	2009	US\$300 million	300	Floating	2012	SEB
	2009	US\$180 million	180	2%	2013	SEB
	2008	SEK2.85 billion	432	3.50%	2014	SEB
	2010	NZ\$150 million	108	5.23%	2015	Daiwa Securities
	2010	MXN40 million	3	6.15%	2015	JP Morgan
	2010	ZAR25 million	3	7.20%	2015	JP Morgan
	2010	US\$10 million	10	Floating	2015	Clariden Leu
	2010	US\$50 million	50	1.38%	2015	JP Morgan
	2010	MYR12 million	4	1.38%	2015	TD Securities
	2010	AU\$30 million	28	5.40%	2015	JP Morgan
	2010	US\$10 million	10	1.50%	2015	Daiwa Securities
	2010	US\$10 million	10	2.05%	2015	Daiwa
	2010	US\$10 million	10	2%	2016	SEB
	2011	US\$30 million	30	2.14%	2016	JP Morgan
	2011	US\$10 million	10	Floating	2016	Daiwa Securities
	2011	US\$10 million	10	1.98%	2016	JP Morgan
	2011	US\$30 million	30	2%	2016	JP Morgan
	2011	US\$10 million	10	2.34%	2016	Daiwa Securities
	2011	US\$20 million	20	2.30%	2016	Daiwa Securities
	2011	US\$10 million	10	2.20%	2016	Daiwa Securities
	2010	SEK700 million	97	3.25%	2017	SEB
	2010	BRL135 million	77	9.50%	2017	JP Morgan
	2010	HUF5.7 billion	27	5.50%	2017	SEB
	2010	NOK400 million	66	3.75%	2017	SEB
	2010	RUB750 million	25	7.50%	2017	JP Morgan
	2010	TRY50 million	33	10.00%	2017	JP Morgan
	2010	ZAR650 million	89	8.75%	2017	TD Securities
	2010	NZD50 million	36	5.63%	2017	RBC
	2010	EUR2 million	3	2.50%	2017	SEB
	2010	AU\$255 million	234	6%	2017	TD Securities
	2010	COPI72.5 billion	91	8%	2020	JP Morgan
	2010	MXN850 million	67	7.50%	2020	TD Securities
	2010	JPY125 million	1	0.88%	2020	TD Securities
	2010	SEK100 million	14	3.50%	2020	SEB
	2011	US\$5 million	5	3.32%	2021	Daiwa Securities

Table 13: Green bonds issued (continued)

Issuer	Issue Year	Amount (issue currency)	Amount (US\$ millions)	Coupon	Maturity Date	Lead Manager
EIB	2007	EUR600 million	821	Zero-coupon	2012	Dresdner Kleinwort
	2009	SEK1.7 billion	222	2.95%	2015	Swedbank
	2009	SEK550 million	72	Floating	2015	Swedbank
US Government	2009	US\$2.2 billion	2,200			
Triodos bank	2009	No details available				
Nordic Investment Bank	2010	No details available				Nomura Securities
Total			5,499			

Note: Issue currencies converted to US\$ using average exchange rates for the issue year based on data from www.oanda.com. Exchange rates for 2011 are the average between January and February.

3.7.2 Carbon Markets

As Ward (2010) describes, energy in climate change policy innovation in the last decade has been around carbon markets. While the carbon markets have played a significant role in engaging the investment sector, Ward (2010) believes that this alone is insufficient to deal with funding requirements, and that the private sector needs to be mobilised through other channels. This section provides a brief overview of the carbon markets, together with some comment on the use of this mechanism for raising mitigation finance for South Africa.

3.7.2.1 Emissions Trading Under the Kyoto Protocol

Under the Kyoto Protocol Annex B (UNFCCC, 1997) countries have acceded to targets for limiting or reducing emissions, with each country allocated a number of Assigned Amount Units (AAUs). The Protocol makes provision for three “flexible mechanisms” to assist countries in meeting their targets; Emissions Trading, CDM and the Joint Implementation (JI) mechanism. These are summarised below.

a. Emissions Trading of Assigned Amount Units/Cap and Trade:

Cap and trade, or allowance markets, work by creating an asset through legislation (or other regulations) by limiting the amount of emissions a sector, industry or company may emit. The “right” to emit is then allocated or auctioned, and auctioning generates revenue for the public sector, which can then be used

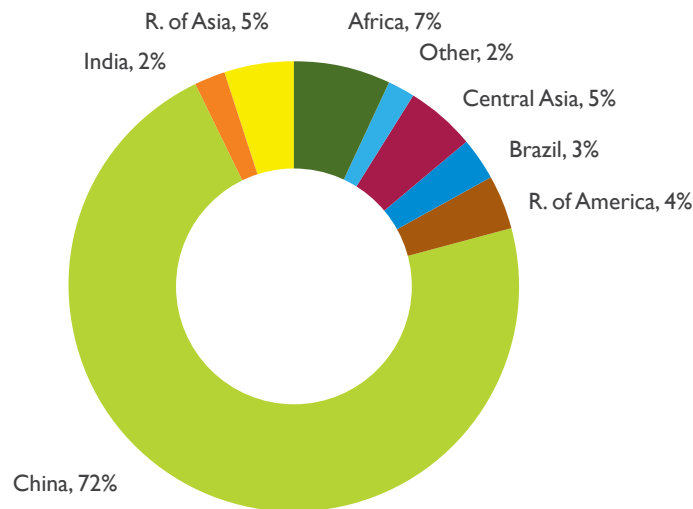
for climate change or other purposes. The ability to trade emission allowances derives from the fact that the emission limits are placed below current emission “needs”, i.e. entities with surplus emission allowances are able to sell these allowances to entities that are generating excessive emissions.

Countries are able to sell excess capacity to other countries that are producing emissions in excess of their targets. Given that the AAUs are traded between developed countries (which are the countries that have committed to emissions targets under the Kyoto Protocol), AAUs do not generate climate finance for developing countries directly. Where developed countries use proceeds from, or charge a levy on, AAU sales to finance climate change activities, developing countries may stand to benefit.

b. Clean Development Mechanism and Joint Implementation

The CDM is a “baseline and credit” market-based mechanism managed under the UNFCCC. Figure 9 shows the countries that are the primary CDM sellers globally. Allowing emission reduction projects in developing countries to qualify for CER credits, which can be traded and sold, serves two objectives: projects in developing countries will be able to raise funds for mitigation by selling CERs to developed countries, while simultaneously allowing developed countries to meet a part of their emission reduction targets under the Kyoto Protocol.

Figure 9: Primary CDM sellers, 2009 (Source: Kossoy and Ambrosi, 2010)



The JI mechanism (managed under the UNFCCC) allows developed countries with emission reduction commitments to earn Emission Reduction Units (ERUs) from projects in other developed and transition economies (i.e. Annex B countries).

The level of activity in Kyoto offset markets declined for the second year in a row in 2009, a direct result of the financial crisis. Buyers exited the market as risk aversion increased and potential sellers were unable to finance CER projects. Kossoy and Ambrosi (2010) highlight the fact that many feel the CDM market is at a crossroads. This is the result of two factors. Firstly, carbon markets are created by regulation, causing a scarcity in emissions permits. Without a meaningful regulatory regime, there is no scarcity, and the market will not function. The current lack of consensus around an international agreement on post-2012 climate policy means that there is no certainty regarding the magnitude of scarcity required, and whether or not the necessary scarcity will be created. Market players are therefore reluctant to invest in mitigation technologies without this long-term price certainty. Secondly, outside of the EU there is increasing uncertainty of any near-future introduction of carbon markets in developed countries, particularly the US and Australia. Given the globalisation of economic activity, it is very difficult for one region, namely the EU, to continue with

a mitigation policy such as the EU Emission Trading System (ETS) in the absence of either a global agreement or similar action in other developed countries.

This secondary market is essentially the on-sale of CERs, where the seller is not the original owner of the carbon asset. Given that the seller of the CERs on the secondary market is not likely to originate from a developing country, the secondary market is likely to produce little direct benefit to developing countries, or to projects in developing countries.

3.7.2.2 Regional Emissions Trading Markets

There are a number of regional cap and trade/allowance markets that operate in developed countries. The largest cap and trade system is the EU ETS, with several smaller regional/local cap and trade schemes in place around the world. The ETS has incorporated Kyoto's flexible mechanism certificates, allowing organisations to make use of a certain amount of Kyoto certificates to cover emissions. In this way, the ETS can provide direct funding to developing countries. It is anticipated that from 2013 onwards (when members may begin to auction rather than freely allocate allowances), at least 50% of the revenue from allowance auctions could be used for climate change purposes, including developing country funding for mitigation and adaptation (AGF, 2010).

Other markets include:

- Chicago Climate Exchange (CCX) – members make a voluntary but legally binding commitment to reduce GHG emissions. Members include companies from North America as well as municipalities, states and universities.
- New South Wales (NSW) is the first state in Australia to commit to long-term emissions reduction targets by focusing on reductions in the power sector. Emitters can meet targets through the purchase of certificates (NSW Greenhouse Abatement Certificates).
- Regional Greenhouse Gas Initiative (RGGI) – is an allowance market based in the USA, incorporating mandatory caps on emissions from the power sector (and reductions of 10% by 2018) in ten states.

These markets are only relevant to the extent that they can purchase credits generated in developing countries (either CDM, voluntary, or any future crediting scheme as developed under the UNFCCC). This depends on the design of the scheme by the developed country policy makers.

3.7.2.3 Voluntary Market

This is the segment of the carbon market outside Kyoto compliant mechanisms, where “baseline and credit” carbon

credits are bought by companies, organisations and individuals to offset their own carbon footprint or comply with local schemes. Voluntary markets do not contribute to a developed country’s Kyoto emission reduction targets, but can produce climate funding for developing countries by purchasing CERs from projects in those countries.

The voluntary market is small, and contributed just 0.2% to the value of the overall market in 2009 (US\$338 million). Trading on voluntary markets fell significantly between 2008 and 2009, with the volumes of emissions reductions falling 26% to 94Mt and the monetary value of emissions reductions falling 47%. This is attributed to a number of factors, including a reduction in corporate spending due to the financial crisis, and policy uncertainty regarding compliance to emission reduction targets in the USA and Australia (Hamilton et al., 2010).

The relative contribution of various carbon markets is shown in Table 14. Allowance markets refer both to the Kyoto and domestic cap and trade schemes; project-based transactions include both the Kyoto CDM and JI and the voluntary market; and the “Spot and secondary Kyoto offsets” category refers to the trading of CERs and JI credits once they have been delivered by the project to their primary buyer.

Table 14: Volume and value of carbon markets, 2009 (Source: Kossoy and Ambrosi, 2010)

Carbon market	Volume (MtCO ₂ -eq)	Value (US\$ millions)
Allowance markets		
EU ETS	6,326	118,474
NSW	34	117
CCX	41	50
RGGI	805	2,179
AAUs	155	2,003
Subtotal	7,362	122,822
Spot and secondary Kyoto offsets		
Subtotal	1,055	17,543
Project-based transactions		
Primary CDM	211	2,678
JI	26	354
Voluntary market	46	338
Subtotal	283	3,370
Total	8,700	143,735

From the perspective of providing financing to developing countries such as South Africa, carbon markets are relevant in three ways. Firstly, as a developed country domestic policy instrument, they could raise fiscal revenue through the auctioning of allowances. This revenue could then be transferred to developing countries under any of the UNFCCC financial mechanisms. The same would be accomplished through the imposition of a carbon tax in these countries, and is a significant potential contributor of mitigation financing identified by AGF (2010).

Secondly, emissions trading could be utilised as a developing country domestic policy instrument, and would both incentivise investment in mitigation activities by the private sector in a country such as South Africa, and potentially raise revenue for the fiscus through the auctioning of allowances. This revenue could then be applied to mitigation projects or programmes in the country.

Finally, baseline and credit schemes such as CDM and the voluntary market could provide a source of carbon finance for developing countries. The potential of the voluntary market has been identified as likely to be small going forward. CDM is at a crossroads (Kossov and Ambrosi, 2010), and its role in carbon finance in the future has yet to be determined.

3.7.3 Private Sector Corporate Flows

This section focuses on the investment by private corporations, through foreign direct investment (FDI) and other forms of foreign investment.

The United Nations Conference on Trade and Development (UNCTAD) (2010: 103) defines low-carbon foreign investment as the “transfer of technologies, practices or products by Trans-National Corporations (TNCs) to host countries – through equity (FDI) and non-equity forms – such that their own and related operations, as well as the use of their products and services generate sufficiently low GHG emissions than would otherwise prevail”. UNCTAD (2010) further explains that clearly identifying how much private investment by TNCs is being invested in low-carbon activities is difficult in practice for the following reasons:

- It is unfeasible to scrutinise each individual FDI case to identify definite low-carbon cases.
- In many cases the data does not specify production processes involved or the specific output being produced, making it difficult to determine how significant the low-carbon investment is.
- The issue of measuring low-carbon investment is complicated by the relative concept of low-carbon versus investment as usual.
- Low-carbon investments occur in a range of industries where data is not systematically available.
- Non-equity forms of low-carbon foreign investment may not be captured in traditional data sources on FDI.

Table 15: FDI in three low-carbon areas, 2003 - 2009, US\$ billions (number of projects) (Source: UNCTAD, 2010)

Host region	Investing regions			
	World	Developed economies	Developing economies	South-East Europe and CIS
World	344 (2,006)	304 (1,741)	36 (226)	4 (21)
Developed economies	195 (1,244)	189 (1,172)	5 (56)	0.2 (7)
Developing economies	136 (684)	105 (503)	29 (166)	2 (6)
South-East Europe and CIS	14 (78)	10 (66)	1 (4)	2 (8)

Given these limitations, UNCTAD (2010) analyses three of the main low-carbon business areas, namely: renewable energy, recycling activity and environmental technology manufacturing. In 2009, FDI in these three areas amounted to about US\$90 billion. Table 15 shows the number and value of investments for these three areas globally.

While flows have been predominantly North-North, developing countries have seen FDI to low-carbon areas from both developed and developing countries, while developed countries have seen FDI flow from developing countries. The many directions of flows between regions, as well as the difficulty in identifying climate change flows, illustrates how complicated the debate is regarding how climate finance should be defined (i.e. it cannot simply be defined as flows from developed to developing countries)..

3.7.4 Venture Capital

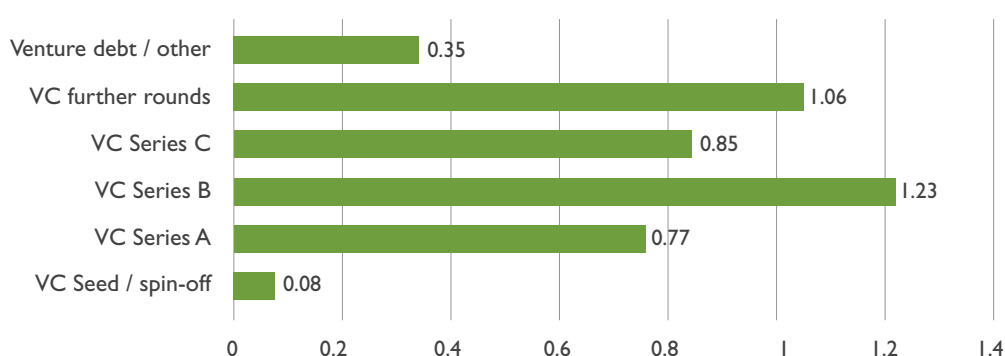
Venture capitalists manage funds raised to invest at the early stages of potentially high-growth projects and businesses. The investments can be considered high risk/high return, with significant technology, management and market risks. Though venture capital is only a small proportion of overall

private investment, it plays an important role in incubating technological developments and facilitating innovation UNEP (2008).

Venture capital financing can be viewed as a series of rounds, bringing an embryonic company to a stage at which it requires non-venture capital to commercialise the technological development. At the earliest stage of financing, companies will generally source seed capital from angel investors or early stage venture capitalists. The venture capitalist will then provide first (Series A) and subsequent rounds of funding (Series B, C, D), until a point where the company is able to use private equity funding UNEP (2008).

Figure 10 shows venture capital invested in renewable and energy efficiency companies in 2008. In total, venture capital provided US\$4.3 billion to these firms, with most of the funding going towards the mid-stages of venture capital funding. A very small amount was invested at the seed capital stage of projects. While the funding from venture capital is comparatively small, its role in catalysing new technologies and advances in renewable energy should not be underestimated.

Figure 10: Venture capital investments in clean energy, 2009 (US\$ billions) (Source: UNEP, 2009b)



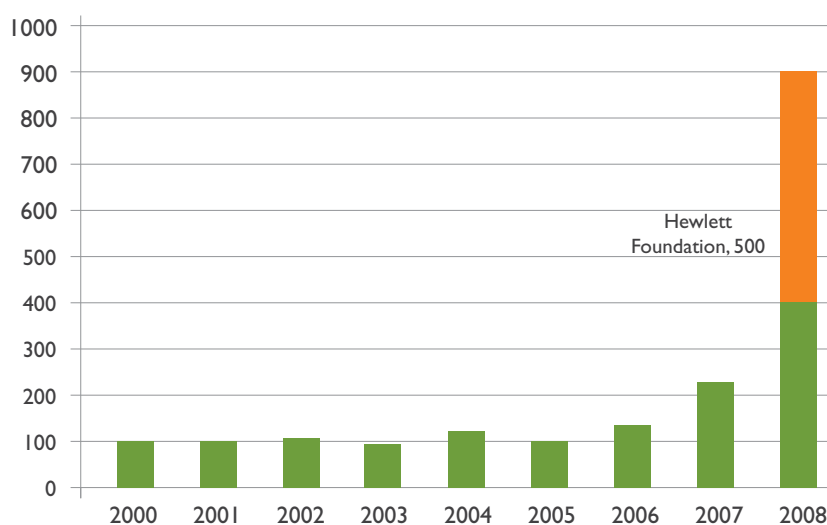
3.7.5 Philanthropic

Philanthropic funds are increasingly focusing on climate change issues, with much of the funding going towards research initiatives. The Foundation Centre estimates that US foundations contributed at least US\$113 million to environmental programmes for developing countries in 2008 (Lawrence, 2010). Some of the key foundations are highlighted below:

- The William J. Clinton Foundation, through the Climate Change Initiative (CCI), focuses on three key areas of climate change, namely cities, clean energy and forests. The CCI focus on cities aims to help municipalities to improve energy efficiency and measure emission reductions. Under its clean energy focus, the CCI develops projects that have a long-term commercial potential, looking specifically at solar energy and carbon storage. The CCI's forestry programme is focused on assisting countries to measure and sustain local forests.
- The Climate Works Foundation is a joint initiative of three foundations, namely the William and Flora Hewlett Foundation, the David and Lucille Packard Foundation and the McKnight Foundation. This Foundation received a US\$100 million per year grant over five years from the Hewlett Foundation, beginning in 2008. The Climate Works Foundation supports public policies that address climate change initiatives, and partners with affiliated organisations to support climate policy in key global and sectoral areas. The Foundation focuses on geographic areas that contribute most to GHG emissions, specifically the USA, the EU, China, India and Latin America.
- The Bill and Melinda Gates Foundation. This Foundation does not focus specifically on the reduction of carbon emissions, though a substantial portion of the funds provided contain both developmental and climate change (specifically adaptation) objectives.

Figure 11 provides an overview of climate change funding provided by US Foundations for the 2000 - 2008 period. The substantial increase between 2007 and 2008 was as a result of the US\$500 million grant from the Hewlett Foundation, which is being released as annual US\$100 million grants over five years, beginning in 2008 (Lawrence, 2010). Nevertheless, philanthropic climate change contributions by US foundations alone in 2008 exceeded the 2009 value of the voluntary carbon market, even when the contribution by the Hewlett Foundation is excluded.

Figure 11: Giving by US Foundations for climate change, 2000 – 2008 (US\$ millions) (Source: Lawrence, 2010)
Note that the Hewlett Foundation grant is spread over five years starting from 2008



3.8 Quantifying Total Climate Finance Flows

The exact amount of funding committed to climate finance is unclear for a number of reasons:

- Varying definitions of climate finance;
- Lack of publicly available information, especially for funding from private sources; and
- Overlaps in funding, with bilateral ODA often committed to MDBs and multilateral funds and a lack of systematic reporting by donors.

UNEP (2010) provides estimates for total public funding committed to climate finance in 2009, summarised in Table 16. Identifying private climate financing is especially difficult,

though analysis by McKinsey suggests that private finance contributed roughly US\$56 billion to climate finance in 2009, through MDBs, FDI and other investments (Buchner and Brinkman, 2010).

Brown et al. (2010) note that international funds set up to disburse climate finance currently rely solely on ODA for capitalisation, with the exception of the Adaptation Fund. Given the scale of funding required for both mitigation and adaptation, as well as concerns about diversion of ODA away from development towards climate change and pressure on public finances in the developed world, it is becoming increasingly important to find innovative ways of raising additional revenues.

Table 16: Sources of public climate finance, 2009 (Source: UNEP, 2010)

Sector	US\$ billions
MDBs	15
Multilateral funds*	1.05 - 1.75
Bilateral ODA	Unknown
BFI**	13

Notes:

* This reflects funds from the Climate Investment Funds (CIF), GEF, Special Climate Change Fund (SCCF), Least Developed Countries Fund (LDCF) and a nominal contribution from other funds.

** Four BFIs in the UNEP Climate Change Working Group: AFD, EIB, JICA, KfW

4 CLIMATE FINANCE INSTRUMENTS

A number of instruments are used to finance climate interventions, with the most common being loans, grants and equity. These finance instruments are implemented in a number of ways, including funding projects, programmes or through technical assistance. Carbon finance through the carbon markets could be described as a climate finance instrument, although this has been dealt with in Section 0. While technical assistance is often provided at all levels of a project's or programme's maturity, the World Bank (2010b) highlights the typical project financing needs for climate change mitigation projects. These are summarised in Table 17.

As one would expect, mitigation projects in the early stages of development are best financed through mechanisms

that have low return (and payback) requirements, such as grants and highly concessional loans. As projects mature and become self-sustainable, traditional terms of financing for projects of that nature become applicable.

There is some debate around the use of loan financing for the funding of adaptation projects, given that these projects are less likely to generate substantial financial returns. NGOs and developing countries have called for the use of grant-only financing for adaptation projects and programmes. Honkaniemi (2011) reiterates this, stating that both civil society and southern climate negotiators agree that adaptation funding should only be provided through grants, especially given that developed countries are largely responsible for climate change effects.

Table 17: Financing needs at different project stages (Source: World Bank, 2010b)

Maturity level	Description	Policy support required	Project financing needs
Technically viable but not commercially available or financially competitive	Some technical and cost barriers remain to adoption and commercialisation	Public and private research and development required Need to internalise global externalities through carbon taxes/feed-in tariffs Legal/regulatory barriers	Grant resources essential Concessional finance blended with venture capital may play role Revenue enhancement helpful but alone insufficient to make project attractive
Technically viable, commercially available but still not financially competitive	Technology known and available commercially, but not financially competitive against current technologies and fossil fuels	Domestic policies to level playing field Remove fossil fuel subsidies, internalise local externalities Provide financial incentives	Grant resources important Concessional finance very important to lower financial cost and bridge financing gap Revenue enhancement becomes important
Technically viable, commercially available and financially competitive	Technology commercially available and cost competitive against existing technologies and fossil fuels	Regulations, with financial incentives to remove market barriers Consumer education Financial programmes to expand adoption	Grants assist in defraying costs of establishing regulations and providing technical assistance Concessional finance important but less dominant Investment finance critical to scale up

Funding provided through MDBs is largely in the form of loans and concessional loans, given that these institutions are required to generate a return on capital and repay loans. Using available data, the use of financing instruments by BFs and bilateral donors is examined below.

UNEP (2010) provides data on four BFs, namely AFD, EIB, JICA, and KfW, as summarised in Figure 12. It is clear that funding with less stringent terms (such as grants and concessional loans) is used for adaptation, with just 5% of financing through non-concessional loans and other types of instruments. Grants account for just 14% of total

adaptation financing. On the other hand, mitigation activities are mainly financed through loans, both concessional and non-concessional.

Figure 13 reveals that bilateral ODA uses loans (both concessional and non-concessional) as the main financing instrument for funding climate change activities. While it is not clear if bilateral ODA funding is particularly skewed towards either mitigation or adaptation activities, the historical data indicates that grants are not the leading instrument for financing climate change.

Figure 12: Financing instruments used by BFs, 2009 (Source: UNEP, 2010) Based on four BFs (AFD, EIB, JICA, KfW)

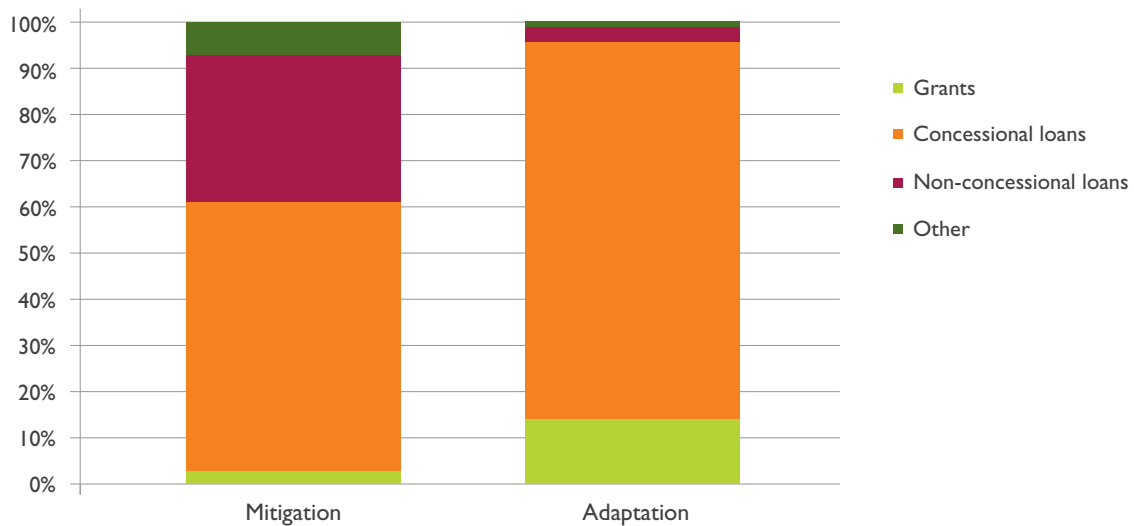
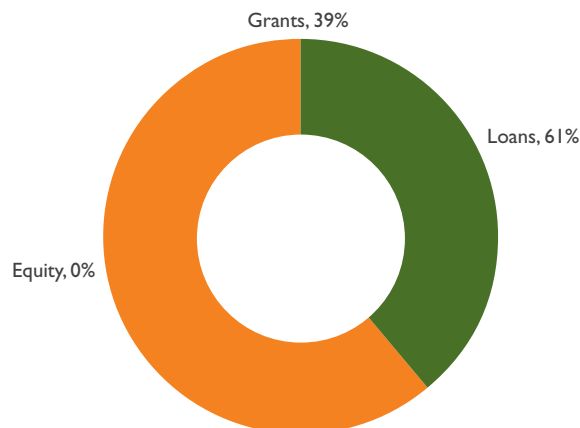


Figure 13: Bilateral climate ODA by type of instrument, 2009 (Source: DNA Economics calculations based on OECD (DCD-DAC), 2011)



Bilateral ODA tends to finance projects or programmes (or some combination of both), as shown in Figure 14 below. While the OECD Creditor Reporting System (CRS) database is imperfect in terms of how donors report ODA (for example, projects or programmes that include some component of technical assistance may not be recorded as such), it does provide a sense of where bilateral donors are focusing funding. In 2009, technical assistance accounted for less than 10% of bilateral funding for climate change, most of which was likely to have been financed through grants. Roughly 66% of climate ODA was allocated to projects, and 7% to programmes.

Finally, the funding instruments used by multilateral funds are demonstrated by Honkaniemi (2011) using the CIFs as an example (See Table 18). It is clear that overall, concessional loans are the primary method of financing for the CIFs. Honkaniemi (2011) suggests that this demonstrates that developed countries are attempting to finance climate change initiatives by increasing debt levels

of developing countries. Looking more closely at the CIFs, it is clear that while concessional loans are indeed used to finance adaptation activities (under some of the SCF funds), the overall picture is skewed by the fact that the CTF uses concessional loans almost exclusively to finance climate change projects. The key here is that the CTF is primarily focused on mitigation activities, where projects have the potential to generate financial returns once fully operational.

The analysis suggests that very little climate finance through the public sector comes in the form of grants as a financing instrument (less than 7% for four BFIs, 39% for bilateral climate ODA and an estimate of less than 20% of CIF funds). It is also clear that funding for mitigation activities generally has more stringent terms (in terms of being non-concessional and more market-related loans) than funding for adaptation activities. The use of loans (even concessional loans) for adaptation purposes is likely to face political and social resistance from NGOs and developing countries.

Figure 14: Bilateral climate ODA by type of assistance, 2009 (Source: DNA Economics calculations based on OECD (DCD-DAC), 2011)

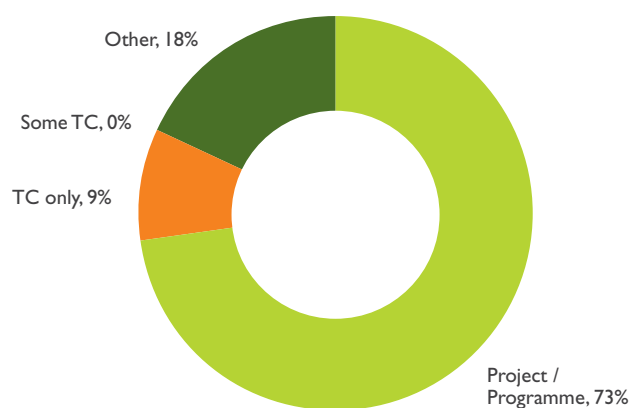


Table 18: CIFs pledges by financing instrument (Source: Honkaniemi, 2011)

		Total pledges (US\$ millions)	Grants	Concessional loans
CTF		4,400	Small amount	Most
SCF	PPCR	972	614	358
	FIP	558	399	159
	SREP	296		
Total		6,226		

5 CURRENT CLIMATE FINANCE ISSUES

A number of debates and issues currently dominate the fluid subject of climate finance. These include the allocation of resources between mitigation and adaptation, the “additionality” of climate finance, monitoring, reporting and verification requirements, and the funding mechanisms/institutions through which climate finance is delivered. Each of these debates will be separately discussed in sections 5.1 - 5.4 below.

5.1 Adaptation and Mitigation

Bilateral funds and BFI tend to show more of a focus on mitigation activities, with Van Melle et al. (2011) suggesting that adaptation activities are relatively costly to finance. This is reflected in Table 10 above, and in Figure 15 below. The four BFI analysed by UNEP (2010) channelled 69% of their funds into mitigation activities in 2009. Of the Fast start pledges analysed, 48% of funds were committed to mitigation activities, while only 29% were committed to adaptation activities in 2010.

Table 19 shows how some of the main multilateral funds have been disbursed between mitigation and adaptation. To date very few funds have disbursed funds to both mitigation and adaptation activities.

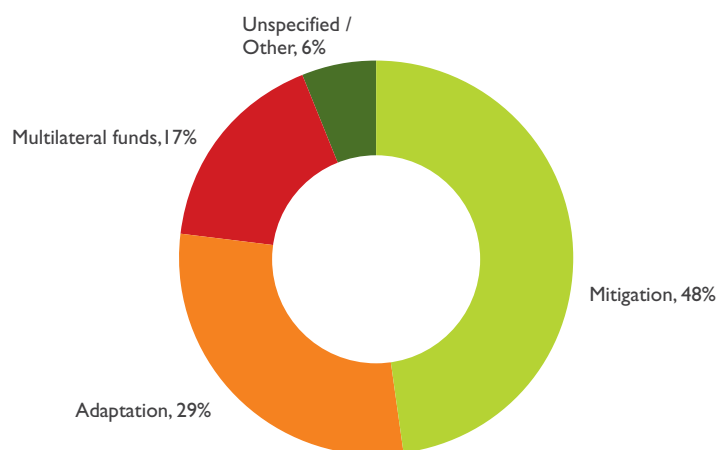
As illustrated in Figure 16, mitigation activities appear to be capturing approximately 85% of disbursed funds of public climate financing (Climate Funds Update, 2011). It is likely that, in addition to public funds, almost all private financing is likely to go towards mitigation activities.

5.2 Additionality

As both Ward (2010) and Ballesteros et al. (2010) highlight, a distinct mistrust between developing and developed countries exists (extending to the use of current multilateral institutions) resulting from “the pent-up frustrations in developing countries about prior commitments made by developed countries not being delivered across all these years” (Ward, 2010: 24). This has resulted in widely different views on climate finance; from how much is considered enough, to how it is delivered, and whether this financing should contain conditionalities. In the area of climate finance this mistrust is especially exacerbated by the wide view in the developing world that the developed countries need to be held responsible for historic emissions. The World Bank (2010c) notes that most developing countries consider climate change funding an entitlement rather than aid.

As highlighted by Ward (2010), developing countries expectations of climate financing are to be found in the

Figure 15: Fast start financing pledges, climate change funding channels, 2010
(Source: DNA Economics calculations based on WRI, 2010)



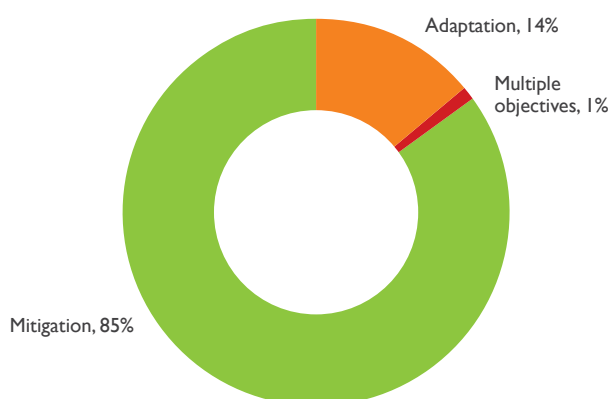
UNFCCC articles, where it is agreed that developed countries will pay the full incremental costs of implementing climate change mitigation and adaptation measures through new and additional funding. A key aspect of this is that ODA has consistently fallen below committed levels and is unlikely to reach the global commitment of OECD countries to allocate 0.7% of their Gross National Product (GNP) to this end by 2015.

As the World Bank (2010c) indicates, in many situations it is difficult to separate the developmental and climate change impacts, especially for adaptation programmes and projects. Brown et al. (2010) show that the issue of additionality is further complicated by the lack of clarity in how additionality is defined and how the large amount required for climate finance is going to be raised.

Table 19: Multilateral funds disbursement/expenditure by activity (US\$ millions) (Source: DNA Economics analysis calculations based on Climate Funds Update, 2011)

Fund	Mitigation	Adaptation	Multiple objectives
Adaptation	-	14	
SCCF	3	94	
LDCF	-	142	
GEF	997	-	
CTF	881	-	
PPCR	-	11	
FCPF	6	-	
MDG	9	53	29
UN-REDD	73	-	
Total	1,970	314	29

Figure 16: Multilateral funds disbursement/expenditure by activity (Source: DNA Economics analysis calculations based on Climate Funds Update, 2011)



According to Brown et al. (2010), there are four prominent definitions in the debate on additionality. These are as follows:

- Climate finance is aid over and above the 0.7% of GDP target. Thus all climate finance should be in addition to the 0.7% target of developed countries.
- Climate finance over the 2009 ODA levels for climate actions can be considered additional financing. This suggests that 2009 is the baseline, from which any funding above the baseline is additional.
- Climate finance should form a specified percentage of rising ODA levels. Thus climate finance is part of the traditional aid package, but limited to a certain portion, recognising that a significant portion of climate financing needs will come from non-ODA sources.
- Increases in climate finance should not be connected to ODA. ODA and climate finance should be completely separate, with ODA continuing to be used for and described as developmental in nature.

Brown et al. (2010) show that these definitions of climate finance and additionality have both technical and political considerations. This suggests that completely separating ODA from climate finance is the most likely to increase trust between developing and developed countries.

As shown in Table 20, Fallasch and De Marez (2010) demonstrate the complexity of the concept of new and additional climate funding by referring to the Copenhagen Accord fast start finance pledges, proposing three scenarios

to an agreed definition of new and additional funds, and assessing the impact this would have on the amounts pledged to fast start funding.

5.3 Monitoring, reporting and verifying of Climate Finance

The benefits of monitoring, reporting and verifying (MRV) of climate finance throughout the funding process are clear (Ballesteros and Ramkumar, 2010; Tirpak et al, 2010; and World Bank, 2010c). These include the following benefits:

- MRV can build trust, recognition and accountability, especially between developing and developed countries, and especially if the MRV process is built into climate finance from the stage at which such funds are committed.
- The reporting and verification of climate finance can result in increased ambition, with far reaching objectives, and can allow for the sharing of best practice.
- Developing countries can benefit from the MRV process by using it as a capacity building exercise, increasing national capacity for MRV across other domestic initiatives.
- It helps in monitoring progress and facilitates implementation of domestic climate policies.

Despite the importance and benefits of MRV, there are numerous challenges, both political and institutional, that hamper the development of an effective MRV process.

Table 20: Fast start financing pledges under different new and additional scenarios (Source: Fallasch and De Marez, 2010)

Scenario	Qualifying funds (US\$ billion)	Description
Scenario 1 - No agreed baseline for new and additional funds	31.2	Contributors have full discretion in defining eligible funding. Funding committed or budgeted prior to December 2009 is included. No restriction in terms of including ODA funds.
Scenario 2 - Pledged funding prior to COP15 the baseline for new and additional funds	17.8	Contributions to CIFs, GEF; bilateral initiatives not included.
Scenario 3 - Funds must be new and additional to ODA	8.2	Only funding not part of official ODA is eligible.

Van Melles et al. (2011) reflect on three ways of describing current and eventually needed financial flows for mitigation based on three different possible definitions of MRV:

- For a 2°C stabilisation pathway, investments of approximately US\$1 trillion per year, globally, will be necessary.
- The incremental investment is described as the difference between initial low-carbon investment and the cost of a comparable business as usual asset. Incremental costs for a 2°C pathway range from US\$50 - 400 billion per year by 2020.
- If the incremental cost is seen as the Net Present Value difference between a low-carbon project and a business as usual project, the incremental cost is estimated to be between US\$50 - 130 billion per year in 2020.

It is clear that there is a significant difference between the investment and incremental costs (and differences in the incremental cost when measured in different ways) applicable to different definitions of MRV. As a practical illustration of this problem, the Cancun Agreements not

clarifying whether the commitment to US\$100 billion a year by 2020 applies to investment or incremental costs. This lack of clarity adds to the difficulty in classifying and therefore measuring climate finance.

A further MRV complication relates to the way climate financing is reported. The UNFCCC requires that parties report on climate change financing for developing countries, yet reporting of climate financing across developed countries is asymmetrical and inconsistent, resulting in limited usefulness (Brown et al., 2010). The World Bank (2010c) notes the multiple challenges in MRV on climate change as relating to the:

- Need for comprehensive coverage, giving wide array of funding sources;
- Harmonising of information across channels and sources; and
- Relationship between climate change financing and supporting MDGs.

Table 21 provides a summary of the key monitoring issues, by the source and type of funding.

Table 21: Key monitoring issues for climate finance (Source: World Bank, 2010c)

Type of flow	Monitoring issues
Carbon markets	- Multiple and confidential primary transactions - Actual flows unknown
Resources under UNFCCC	- Additionality
Climate-specific concessional funds	- Consistency and double counting issues - Additionality
ODA	- Co-benefits of development activities (especially adaptation) - MDBs not reporting yet
Non-DAC donor support	- Non-exhaustive coverage - Unclear purposes
Philanthropy	- Non-exhaustive coverage - Unclear purposes
Domestic resources	- Scarce information
Underlying finance (GFCF ⁷ , FDI)	- Non-exhaustive coverage - Unclear purposes

⁷ Gross Fixed Capital Formation.

There are a number of options and recommendations made in order to improve MRV of climate finance. Some of these options are highlighted below.

The World Bank (2010c) suggests using the Rio Marker initiative as a starting point for harmonising and improving consistency in monitoring. The World Bank (2010c) notes that the Rio Marker is currently the most advanced initiative being used to monitor and report on climate finance flows across countries and sectors. Brown et al. (2010) also indicate this as a potential option, where the Rio Markers would be refined and made compulsory. Reporting by multilaterals and non-DAC donors would need to be standardised and made consistent with the OECD DAC, possibly through inclusive use of the Rio Markers. The move towards programme-oriented ODA suggests that climate finance increasingly requires new sources of support that can be more easily tracked than traditional ODA. However, the Rio Markers are highly qualitative in nature and their use has only recently become compulsory.

Notable deficiencies in the Rio Markers include (Brown et al, 2010):

- Application of Rio Markers was not made mandatory until 2007, with reporting between 1998 and 2006 done on a trial basis.
- Climate change-related markers have mainly been applied to mitigation activities, with an adaptation marker only included since 2009.
- Rio Markers only reflect bilateral climate change flows, as multilaterals do not use the marker.
- The Rio Markers do not allow tracking of climate change activities via general budget support.
- Donors are responsible for defining whether or not an activity is climate change-related. This may result in inconsistencies among donors.
- Qualitative description of Rio Markers means that they can be significantly biased.

Given the divergence and spread of flows, the World Bank (2010c) advocates a dual tracking system of sources and endpoints. This would require increasing statistical capacity in developing countries. Brown et al. (2010) note that ODA is increasingly moving towards programmatic forms of financial delivery, where separating development and climate

funding and matching downstream results from upstream support becomes increasingly difficult. In this scenario a dual tracking system becomes essential in attempting to identify the impact of ODA flows.

A significant departure from the current status would be defining climate finance completely separately from other forms of ODA. This has the additional benefit of clearly indicating the additionality of climate finance, especially for those countries that fall short of the 0.7% of GNI requirement for ODA (World Bank, 2010c). A drawback of this option is that it becomes significantly more difficult when attempting to track the incremental share of ODA when attempting to assist developing countries with adaptation.

Stadelmann et al. (2010) advocate this full reclassification of climate flows to Official Climate Finance (OCF), believing that it would make the assessment of new and additional funding easier to monitor, and would be more effective. However, they note three critical issues. First, this concept would not be politically appealing to developed countries (though the inclusion of loans and private finance may make this option more palatable). Many OECD countries have expressed the view that climate financing and development financing are closely linked at the project level and difficult to separate. Therefore all concessional aid, irrespective of its use, should be recorded as part of their ODA. Some countries also see climate finance as part of their ODA contribution to support the MDGs related to the environment. Secondly, the division between ODA and OCF cuts across the notion that programmes and policies can have both a positive developmental and climate change effect. Stadelmann et al. (2010) suggest that while a programme can have both developmental and climate change effects, separating the ODA and OCF components can provide better assessment of the programme. Finally, given the OECD's role in assessing ODA performance, they may best be suited to classifying and recording OCF. This, however, will likely undermine the role of the UN, requiring the UNFCCC to either assign the task of accounting for OCF to the OECD, or for the UNFCCC to form a strong administrative link with the OECD.

Stewart et al. (2009) suggests that a global climate finance registry be established to track and promote compliance with a climate finance deal. This registry would track commitments and disbursement from public and private sources, and would cover both developed and developing countries. This would allow for a multitude of funds (rather

than a politically impractical single global fund) whilst ensuring that funds are monitored and tracked. This fund should be the responsibility of an international body (with a governance structure that includes representatives from developing and developed countries, as well as the private sector and NGOs) that develops a methodology to assess the different forms of financing for achieving their mitigation and adaptation objectives.

5.4 Potential for New Institutions

Developing countries are sceptical of using existing multilateral institutions such as the World Bank for public and private finance, seeking to either replace these institutions or substantially reform existing institutions to alter the decision-making power in their favour in a number of areas including cost sharing, conditionality, disbursement and use of funds (Stewart, 2010). While Ward (2010) suggests that the role of MDBs is important, especially with regards to private funding, he notes that both investor institutions and project developers find doing business with MDBs difficult, time consuming and highly bureaucratic.

In contrast, the IIGCC (2010b) views the MDBs as playing a key role in systematically deploying mechanisms that enable private sector institutions to access risk reduction support

mechanisms, and therefore encourage private sector investment. Given that private sector investment is likely to play an increasingly significant role in climate finance, developing countries may face a difficult choice between a wholesale replacement of existing institutions and easier access to private sector funds.

Figure 17 (page 48) highlights the complexity of the climate finance landscape. A number of multilateral funds are managed and operated by the main multilateral agencies (with the red arrows showing operational relationships) including the MDBs and UN agencies, and the GEF, which uses UN agencies and major MDBs as implementing agencies. Fund flows (green arrows) highlight the fact that there are a number of flows that do not go through these agencies (e.g. direct flows through donor agencies or directly from the private sector). However, it is clear that for a large proportion of both current public and private climate change flows the UN agencies and MDBs play a significant gatekeeper role. The application and eligibility/conditionality requirements for access to these funds can be strict, as highlighted for some of the main funds in Table 22. The fact that climate finance is currently largely administered by institutions that are (justifiably or not) viewed by developing countries with scepticism is one of the reasons that some countries are considering new institutional arrangements to channel climate finance.



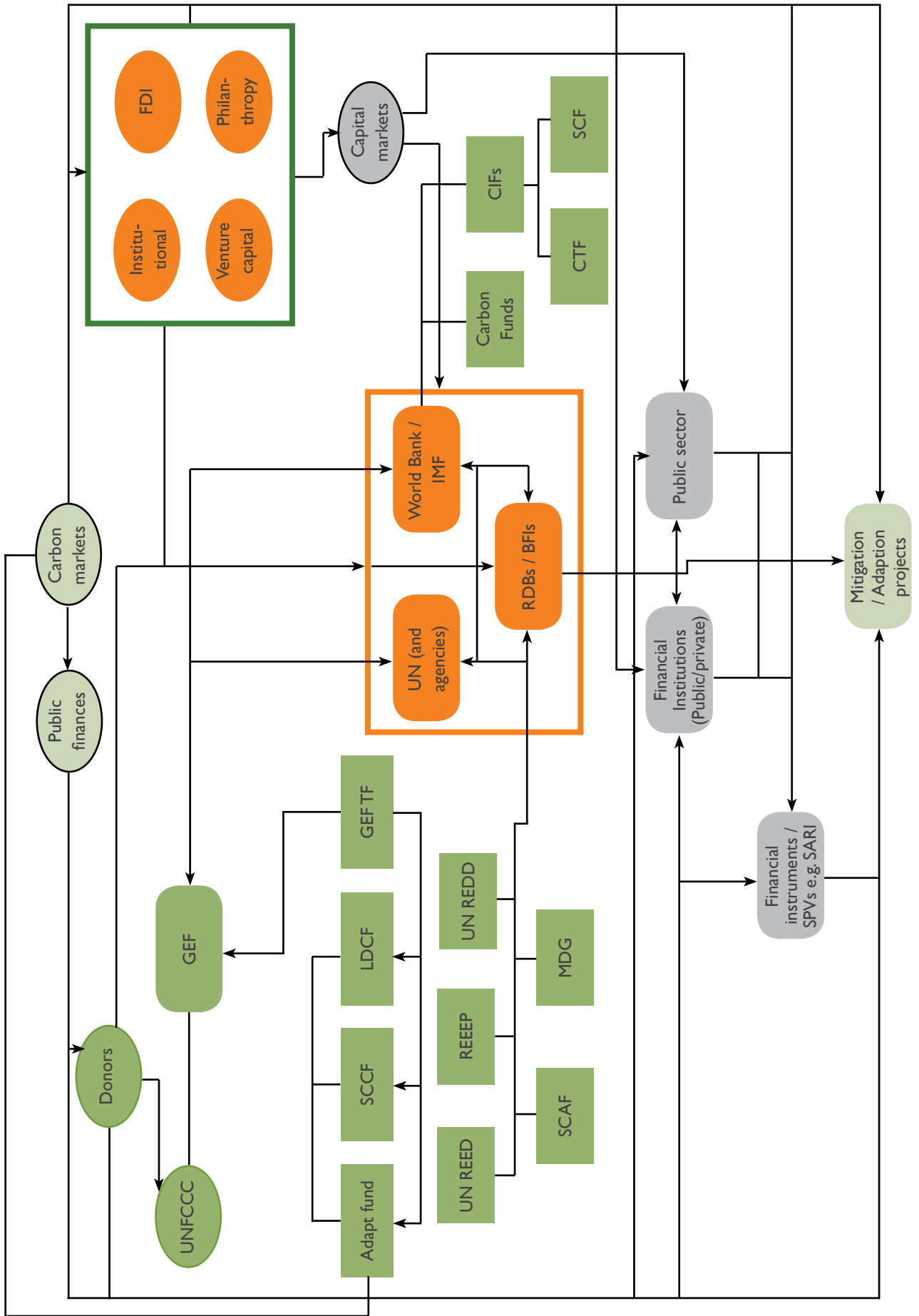


Figure 17: Climate finance landscape

Glossary for Figure 17:

SCCF - Special Climate Change Fund; LDCF - Least Developed Countries Fund; GEFTF - Global Environment Facility Technology Fund; UN REED - United Nations Rural Enterprise Energy Development; REEEP - Renewable Energy and Energy Efficiency Partnership; UN REDD - Reducing Emissions from Deforestation and Forest Degradation; SCAF - Seed Capital Assistance Facility; MDG - Millenium Development Goal; SPV Special Purpose Vehicle; SARI South African Renewables Initiative; CIF - Climate Investment Fund; CTF - Clean Technology Fund; SCF - Strategic Climate Fund; FDI - Foreign Direct Investment; RBI - Regional Banking Institutions; BFI - Bilateral Finance Institutions; IMF - International Monetary Fund

Table 22: Selected funds application and eligibility conditions (Source: Climate Funds Update, 2011) Note: Table 22 continues onto page 47 - 49

Fund	Application, eligibility and administration	Administering/ implementing organisation
GEF (for UNFCCC mechanism)	<p>GEF funding is in accordance with the following eligibility criteria: (a) GEF grants made available within the framework of the financial mechanisms of the UNFCCC should conform with the eligibility criteria decided by COP; (b) A country is an eligible recipient of GEF grants if it is eligible to borrow from the World Bank or if it is an eligible recipient of UNDP technical assistance through its country Indicative Planning Figure (IPF); (c) GEF concessional financing, in a form other than grants, which is made available within the framework of the financial mechanism of the conventions shall conform with eligibility criteria decided by the COP of each convention. GEF concessional financing, in a form other than grants, may also be made available outside those frameworks on terms to be determined by the Council.</p> <p>The project cycle can be divided into a five step project process, application (ensuring that proposal is aligned to country priorities), submission of Project Identification Form (PIF), council approval, GEF CEO endorsement, implementation and monitoring and evaluation.</p>	<p>GEF administers the UNFCCC financial mechanism.</p> <p>Implementing agencies include MDBs and UN agencies</p>
Adaptation Fund	<p>Seven criteria determine eligibility: (a) Level of vulnerability; (b) Level of urgency; (c) Balanced and equitable access to fund; (d) Capturing of project and programme design and implementation; (e) Ability to secure regional co-benefits, where applicable; (f) Ability to maximise multi-sectoral or cross-sectoral benefits; (g) Adaptive capacity</p> <p>Since 2009 it has allowed recipient countries to have direct access to its funds through accredited National Implementing Entities (NIE), but to date there are only three accredited NIEs.</p>	<p>Managed by the Adaptation Fund Board (AFB), GEF provides secretariat services, World Bank serves as Trustee. Implemented by NIEs, MDBs and UN agencies.</p>
LDCF	<p>Eligibility for funding for National Adaptation Programmes of Action (NAPA) implementation requires that a country be classified as an LDC that has completed its NAPA.</p> <p>The project proposal should be identified as a priority activity in the country's NAPA and show evidence of stakeholder consultation and support.</p> <p>The project document should demonstrate that the proposal has been developed in compliance with the NAPA rules and the proposal should list project components and additional cost calculations demonstrating baseline and alternative scenarios. The project must demonstrate increased capacity to cope with climate change impacts after project completion (i.e. sustainability). Finally, with respect to stakeholder involvement, the project should provide for multi-stakeholder consultations and participation (which have proven pivotal to the NAPA preparation process) to continue during project implementation.</p>	GEF

Fund	Application, eligibility and administration	Administering/ implementing organisation
LDCF (continued)	<p>A financing plan should provide a summary of financing contributions to the project, including an assessment of the baseline financing being included in the project. Co-financing may include utilisation of existing resources, in the form of bilateral grants, International Development Association (IDA) loans, or other in-cash and in-kind contributions. These co-financing contributions may include existing budget lines of the core development sector under consideration. The total project cost will be the sum of the LDCF contribution and all co-financing.</p> <p>Institutional co-ordination and support is required of all projects to ensure that any potential duplication of activities is minimised and that co-ordination, collaboration, and consistency of approaches to other activities in the country is maximised.</p> <p>Monitoring and evaluation requirements for the project are the same as for all GEF projects. By the time of project approval, all projects should have developed a detailed monitoring and evaluation plan that includes provision and arrangements for annual monitoring reports and independent mid-term and final evaluations.</p>	GEF
SCCF	<p>Activities must focus on “additional costs” imposed by climate change on the development baseline. This means that activities, which are considered as part of the development baseline, are not considered. For example, improvement of public health and education systems, infrastructure for rural development, and water sanitation are not eligible. Funding is provided only to address impacts of climate change on a vulnerable socio-economic sector that are above and beyond the baseline. However, projects do not need to generate global environmental benefits. Local benefits can be generated by SCCF projects, as long as the case for additionality can be made.</p>	GEF
CTF	<p>Country access based on: (a) ODA eligibility (according to OECD/DAC guidelines); and (b) an active MDB country program.</p> <p>The MDBs jointly assess the potential for investments in the country (or countries, in the case of multi-country approaches) to meet CTF criteria for significant GHG emissions savings, demonstration potential at scale, development impact and implementation potential.</p>	World Bank (Trustee), administrative unit established in the World Bank. MDBs responsible for implementation
SCF	<p>The SCF Trust Fund Committee is responsible for: approving establishment of SCF Programs and the scope and objectives governing the use of the funds under the SCF Programs; ensuring that the strategic orientation of the SCF is guided by the principles of the UNFCCC; establishing a SCF sub-committee for each SCF Program and designating members; approving allocation of SCF resources for administrative budgets; etc.</p>	World Bank (Trustee), administrative unit established in the World Bank. MDBs are responsible for implementation.
MDG-F	<p>Programmes must be conceived by a minimum of two UN agencies in collaboration with national government and non-governmental counterparts and submitted through the Resident Coordinator system of the UN. All proposals must be endorsed by a National Steering Committee consisting of, at a minimum, a representative of Spanish Cooperation, the National Government and the Resident Coordinator as the leading authority of the UN at the national level.</p> <p>The Fund relies on UN Resident Coordinators to exercise in-country leadership. The Coordinators provide ongoing oversight that the programme is on track, that promised results are being delivered, and that participating organisations are meeting their obligations.</p>	UNDP

Ballesteros et al. (2010) outline the proposals by a number of countries for new funding mechanisms. These are shown in Table 23 (page 49). What is clear in these proposals is the wish by developing countries for new financing mechanisms and institutions that provide these countries with greater representation. Presumably this will result in less conditionality when it comes to accessing funds.

Ballesteros et al. (2010) suggest that a new deal on climate finance is likely to fundamentally change the distribution of power, responsibility and accountability between contributor and recipient countries, resulting in climate finance mechanisms that are substantially different from existing ones. In particular Ballesteros et al. (2010) highlight:

- Greater representation of developing countries in the design and management climate finance mechanisms
- would result in greater ownership (and effectiveness) of climate finance investments.
- A greater balancing of national development interests with global imperatives.
- Larger sources of public climate finance sources would require greater capacity and creativity to effectively utilise these resources, necessitating the creation of new financial mechanisms at both the global and national level. This would also require that existing institutions be reformed such that climate change concerns are mainstreamed into their strategies.
- Ensuring that climate finance is delivered at scale will require, in the short term at least, the use of multiple mechanisms, both existing and new.

Table 23: Existing Proposed Fund mechanism and institutional designs (Source: Ballesteros et al., 2010)

Proposal	Description
G77 Proposal and China	Developed countries should contribute 0.5 -1% of GNP in support of climate change-specific assistance administered through a single fund with multiple windows to address each priority area. A board with equitable and geographically balanced representation of parties would be assisted by a Secretariat of professional staff. Recipients would have direct access to the fund and would not have to work through the UN or other multilateral agencies.
India's financial mechanism	Similar to G77 proposal. All UNFCCC financing should be provided in the form of grants (and not concessional or hard loans), to be governed by an equitably represented executive board. National implementing entities designated by country parties would be responsible for approving projects, actions and programs.
Bolivia's Multilateral Climate Fund	Scaled up variation of G77, with 6% of GNP to be provided for climate change (3% to adaptation, 1% to mitigation, 1% to technology development, and 1% to capacity building), as well as special drawing rights (SDRs) from IMF.
UK Compact Model	Delivery of finance, based on country-owned national plans, administered by institution with an equal number of developed and developing country representatives, instrument to co-ordinate support to a country from bilateral and multilateral programmes. National level systems put in place for monitoring, reporting and verification of compact.
Mexico Green Fund proposal	Creation of multilateral green fund within the UNFCCC to scale up financing, securing universal contributions on common but differentiated responsibilities, based on GHG emissions, population and GDP. Developing countries to access amounts larger than their own contributions.
Switzerland Proposal	Proposed uniform levy of US\$2 per ton of CO ₂ , except developing countries with annual emissions lower than 1.5 tons CO ₂ per capita. To go into two funds: the Multilateral Adaptation Fund and the Insurance pillar that would finance recovery and rehabilitation.
US Financing Proposal	New Global Fund under the Convention, with a board accountable to the UNFCCC COP, with the World Bank serving as trustee. Both developed and developing countries would contribute to the fund.
Maldives' Proposal	Build on existing commitments in the Convention, with the mechanism to include a new board, secretariat, expert group and independent assessment panel. Calls on developed countries to provide 1.5% of GDP in addition to innovative sources of finance by 2015.

6 CLIMATE FINANCE BEST PRACTICE

The literature on climate finance suggests and emphasises a number of areas where “best practice” can increase the volume of climate finance that a country like South Africa can attract and leverage. Similar to development aid, an ability to spend and track the performance of international public finance is critical. Establishing an attractive investment environment provides the foundation for attracting private financing. Private financing flows will respond to a favourable risk/return balance, with public finance playing an important role in bringing down the risk profiles of mitigation opportunities in particular, and also adjusting risk/return profiles to also take account of externality costs. In addition, a number of innovative financing mechanisms are under development internationally in both the private and public arenas, such as the carbon markets and NAMAs. Specific policies and initiatives will need to be developed to access these. Finally, domestic financing opportunities can be created through mainstreaming mitigation and adaptation priorities into all aspects of local public and private sector financing, and ensuring that spending is aligned around the goals of a low-carbon and climate resilient society and economy.

6.1 Policy, Regulatory and Institutional Conditions

A number of conditions are required to optimise private sector investment and enhance the investment climate. These are outlined by Ward (2010), the IIGCC (2009a) and Ward et al. (2009). In addition to the traditional requirements for attracting investment, three broad areas are defined, suggesting where governments and DFIs can ensure that the investment climate is favourable to attracting private (and public) sector climate change-related investments:

- Policy and regulatory certainty:
 - Legal/commercial: protection of property rights; and contract enforcement laws/practices supportive of private sector investment.
 - Clear short- and long-term GHG emission reduction targets.
 - Energy and transportation policies to accelerate green investment, such as low-carbon transport infrastructure.
 - Price signals on carbon that are strong and sustained with efficient, well designed carbon markets.
- Comprehensive policy framework to implement these targets, including effective global market, regulatory incentives and standards.
- From an external perspective, expanding cap and trade systems internationally is essential in order to further develop the carbon market and provide greater investment certainty in reduction certificates.
- Institutional capacity and rigour:
 - Putting in place efficient and effective national policies, rules and agencies.
 - Strategic and planned scale-up and aggregation (i.e. projects to programmes): multi-agency approach, buy-in and support; and provision of supplementary infrastructure required.
 - Domestic capacity: education/communication of and with government bodies, including local level; domestic financial institutions; business intermediaries; and civil society, including media.
- Risk reduction:
 - Financing mechanisms that can mobilise private sector investment.
 - Availability of insurance for low-carbon technologies.
 - Reduction of financing barriers in local economy.
 - Provision of long-term regulation that matches investment horizons.

At the heart of these policy goals is the requirement that countries ensure policy certainty and lower risk in order to encourage private sector investment. Reducing the risk profile of climate change-related projects will also create an environment where institutional investors with conservative mandates (like pension funds and insurance firms) are able to increasingly invest in climate change-related projects.

6.2 Targeting the Risk-Reward Balance

Ward (2010) effectively describes the gap between private sector investment expectations and the results that can be achieved through investing in climate-related projects, stating that the effect of the carbon market “pales by comparison” to the effect of lowering interest rates for

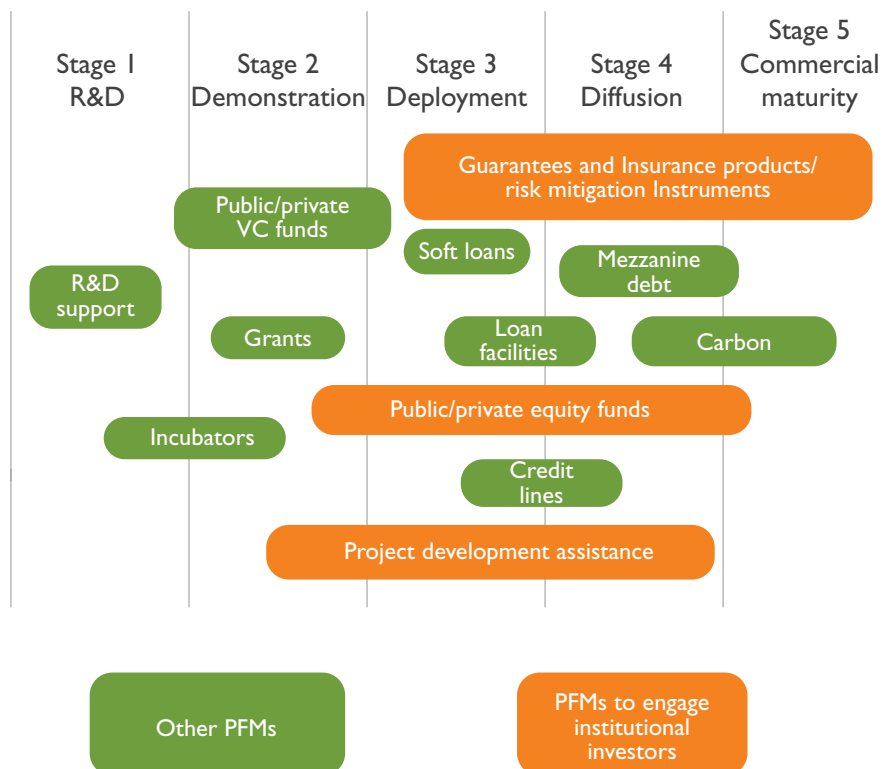
green investment on climate finance. Given the nature of mitigation projects, where the perceived risks are often high and the rates of return are often unpredictable, it is not surprising that private sector investors (who look for predictable infrastructure-style rates of return) have not been more active in climate funding.

Public Finance Mechanisms (PFMs) are increasingly being seen as the avenue through which obligations to climate financing can be met. There are a range of PFMs that can be used to support climate finance, as indicated in Figure 18. Given that private funding is becoming the single most significant source of climate finance, the use of PFMs to encourage private sector funding in climate change is gaining momentum. According to Ward et al. (2009), US\$1 of public finance mechanisms can leverage US\$3 -15 of private investment.

The key factor in the need for public finance mechanisms is to balance the risk-reward scale in order to make it more

favourable to investors. Ward (2010) believes changing the risk-reward balance in order to encourage private sector investment has to start with equity investments, especially when considering that equity investors' expected returns in infrastructure funds is significantly higher than their expected return in developed countries, due to higher levels of perceived risk. One way in which private investment can be steered towards the "green" economy is to drive down costs and/or increase incomes in the green economy (Ward, 2010). PFMs present an intervention that may be able to do this. Ward et al. (2009) suggest two ways in which PFMs could be used, advocating a cornerstone model or challenge fund model. Under each model, a number of PFMs would be made available to established funds (into which institutional investors move a portion of funds), with the PFMs allocated through arrangement with development finance institutions (cornerstone model) or through a competitive process (challenge model). The challenge model may be additionally beneficial, as competition between investors for PFMs would ensure that the public sector receives value for money.

Figure 18: PFMs available in climate financing (Source:Ward et al., 2009) Note:VC=Venture Capital



The public sector is most effective when entering a space that the private sector will not enter and then encouraging the private sector to enter these spaces. Benefits of using PFMs (in addition to private finance) could be substantial and include the following:

- In addition to competition between investors for PFMs ensuring value for money, the process of interaction between DFIs and the private sector, as well as institutional capacity and development, could be enhanced through the introduction of competition in the supply of PFMs: institutions that are more successful in attracting private sector investment through PFMs (as well as in bridging the gap between the public and private sector) receive greater funding over time.
- While the PFMs mentioned will require significant and sustained public investment, this investment is considerably less than if the public sector were to undertake the investment alone.
- Risk management policies and instruments that are able to lower the perceived risk for equity investors will therefore lower return expectations. This will then attract debtors, who would be more willing to provide lower cost finance (Ward, 2010).

Both the World Economic Forum (2009) and Ward et al. (2009) advocate greater public-private dialogue, with Ward et al. (2009) furthering this by suggesting that a forum be established for this specifically purpose, possibly located within the UN Global Forum on Finance.

Ward (2010) notes that while these instruments may be beneficial, they are not without financial costs to the public sector. It is therefore essential that initiatives that inter alia reduce other risks, such as policy uncertainty, insufficient capacity in public institutions, weak regulation and enforcement of contracts and corruption, are undertaken before using financial instruments to encourage private sector financing.

6.3 Mainstreaming: Aligning Domestic Expenditure to Avoid Stranded Assets

The scale of the transition that is required in order to contain global climate change to less than 2°C implies that eventually all finance will be climate finance. At a certain point, based on globally accepted evidence (see Meinshausen, 2005; Intergovernmental Panel on Climate Change (IPCC), 2001; IPCC, 2007a), it will simply be too costly to undertake non climate-friendly investments. In order to prepare for this eventuality and to ensure that investments do not become obsolete before the end of their productive life, it is important that climate change considerations are included in all decision-making in both the public and private sectors. This will lead to the balance between climate-resilient and carbon-intensive investments tilting towards a low-carbon future earlier, which will mean that more funds are allocated to climate-resilient investments and expenditures in the short to medium term.

Climate change awareness thus needs to be incorporated into the expenditure and investment plans of all levels of government, parastatals, agencies and all other public sector entities. Climate change also needs to be considered across all policy spheres, including industrial policy, energy policy, human settlements, infrastructure development etc. All investment and expenditure decisions should be "greened" as far as possible, and their impact on adaptation and mitigation needs to be considered. While the transition to a low-carbon economy is on-going, and particularly in the early years, it is quite possible that the cost-benefit trade-off (including additional socioeconomic criteria) will lead to decisions being taken that are not optimal from a climate change only perspective. This is not a problem as long as trade-offs are explicitly considered and the true costs (including externalities as far as possible) and benefits are included in the decision.

To ensure that adaptation and mitigation priorities are considered in all public expenditure and investment decisions in future, climate indicators will need to be included

in government strategic planning and policy processes, expenditure programmes and procurement procedures at all three tiers of government, and will require education of government officials and political office holders.

In the private sector, similar mainstreaming and capacity building work will be required to ensure that all investment and expenditure opportunities include mitigation and adaptation considerations, and that the risks inherent in making climate-unfriendly decisions are understood.

Throughout the financing community (e.g. commercial and investment banks, venture capital, DFIs) procedures will require updating and employees will need to be educated in how to ensure that climate change considerations are given sufficient attention when new undertakings are evaluated. As Ward (2010) notes, there is a great deal of inertia in the financial system as procedures take time to develop and implement. Changing these is critical to ensure coherence and to leverage the extent of financing required to respond to both mitigation and adaptation requirements.

7 SOUTH AFRICAN CONTEXT

7.1 Overview

It seems that efforts to mobilise funds for investment in climate-related areas have preceded a clear strategy of how these funds will be disbursed. Most official documents and reports pay very little, if any, attention to the practical issues of accessing and utilising climate finance. South Africa's Second National Communication under the UNFCCC for instance, is silent on the issue of climate finance, apart from highlighting the fact that it is a constraint to technology transfer that needs to be overcome (DEA, 2010a). The National Climate Change Response Green Paper (DEA, 2010b) mentions goals to support the local provision of climate financing (i.e. ensuring that the local DFI's lending portfolios take cognisance of the externality costs of climate change, and ensuring that the local banking industry supports lending to clean energy projects), but provides no indication regarding exactly how these goals will be attained in practice (DEA, 2010b). The Green Paper does signal the intent of government to create a "Climate Finance Tracking Facility" to track the flows of climate finance in both the private and public sector and report on mitigation actions that have been implemented with international support, but the rationale for this particular institutional setup is unclear.

The content of this section is not intended to provide a comprehensive overview of the sources of climate funding available in South Africa, but rather aimed at demonstrating the growing array of different funding sources, funding mechanisms, and even nascent innovative funding instruments and structures that are being applied to finance climate change-related projects in South Africa.⁸

7.2 Selected Sources of Local Climate Finance

7.2.1 Public sector and DFI funding

Significant public sector funds have recently been committed to climate-related investment in South Africa. In the 2011/2012 budget, for instance, ZAR1 billion was pledged to the creation of a "green fund" (National Treasury, 2011a). Of this amount, ZAR200 million has been allocated to hosting the 2011 United Nations Conference on Climate Change in Durban, while the remaining ZAR800 million is available for allocation in 2012 and 2013.⁹ These numbers do

not include measures like tax incentives aimed at increasing energy efficiency under the auspices of industrial policy or incentives linked to support renewable energy since the funding has yet not been allocated. Furthermore, Robins et al. (2009) estimate that the South African government has allocated roughly US\$7.5 billion to climate change initiatives between 2009 and 2011 as part of the fiscal stimulus in the wake of the recent global financial crisis.

The Industrial Development Corporation (IDC) aims to provide ZAR25 billion of funding to "green industries" over the period 2011/12 to - 2015/16 (National Treasury, 2011a). Current indications are that the industries in question will be largely solar and wind power (De Lange, 2010). In addition, the Development Bank of Southern Africa (DBSA) has previously publicly commented that it intends to provide ZAR20 - 30 billion in financing to green energy projects over the period 2011 - 2015 (Creamer, 2010). If the public and DFI funds mobilised to date are disbursed in a manner consistent with international best practice in dealing with climate finance (see Section 6.2), these funds should be able to unlock a significant amount of private sector capital. This assertion is supported by the fact that the South African government believes that the US\$500 million that has been earmarked for South Africa by the CTF has allowed the government to leverage an additional amount of roughly double the original allocation for clean energy investments, raising the available pool of funding to US\$1.6 billion (Van der Merwe, 2010).

The National Treasury (2010) is currently considering the implementation of a carbon tax in South Africa in order to incentivise mitigation. Whether or not the carbon tax will be a net source of investable funds to fund mitigation and adaptation activities itself remains to be seen. Whether or not the pool of funding for climate change related projects increases will depend on whether the funds raised via the tax is earmarked for climate change projects (which seems unlikely) or whether the tax is made revenue neutral by reducing other taxes or increasing social spending to balance the potential negative distributional impact of the tax on the poor (which seems likely). Even if the tax raises no additional revenue for mitigation activities, it will increase the private benefit of abatement to firms and is thus likely to lead to additional investment in mitigation activities.

⁸ This statement is particularly pertinent given that a number of alternative sources of climate change financing like bank lending, venture capital and market-based instruments like the CDM or voluntary offset markets, etc. have not been explored in detail.

⁹ It is thus unclear whether the intention is to create a loose-standing "fund" with a management and disbursement structure, or whether this is in effect a pool of money available for appropriation from the National Treasury for specific projects administered by other line departments.

7.2.2 Donor funding

Donor funding is not controlled or managed centrally in South Africa (Auditor General (AG), 2010). While DEA is the point of contact for GEF, for instance, and facilitates access to this funding for projects focused on climate change for other government departments and organisations (as well as projects falling directly under DEA), these funds are received by the National Treasury (on behalf of departments) who then channels the funding to the relevant departments for disbursement to projects. Not all projects are co-ordinated by the DEA, however. Each government department identifies and sources donor funding for its own climate change initiatives. Therefore, in cases where DEA is not the focal point for the funding, it will not be aware of these flows. In these cases, the funding available for climate change initiatives from developed countries would be listed and available at the departments where the projects are to be housed, and not in a central repository.

The Medium Term Expenditure Framework (MTEF) guidelines require that all national and provincial departments and entities provide a schedule of all donor funding over the MTEF period, along with a description and timelines of how the funds will be utilised (AG, 2010). The National Treasury then tracks the revenues and expenses related to climate change projects at the various departments, and projects administered by departments, and audits are conducted by the AG to ensure that the projects are reasonably portrayed in the annual reporting.

The National Climate Change Summit 2009 Statement (Participants, 2009: 8) called upon the National Treasury to develop a “coherent approach to domestic and international funding for mitigation and adaptation, including the use of economic instruments” as part of the process for developing a national climate change response policy. From the description provided above, however, it is clear that the National Treasury acts more like a bank than a fund when it comes to channelling climate change funding; it only channels funds once the relevant departments and donors have been matched and monitors whether the funds have been spent as intended in the agreement between the different departments and donors. However, is not within its mandate to ensure that the money is spent in the most effective way, as is the case with allocations are made via the budget. Within the current disbursement

framework, it is unclear whether it is the responsibility of the National Treasury to ensure a coherent approach to climate financing.

There does seem to be a need for at least a minimum level of co-ordination among donors, and between donors and government. Faure (2009) mentions that while the interest in funding climate change-related projects in South Africa had increased in recent years, it was not until late 2008 that a number of donors created the Climate Change Development Partners Working Group with the intention of meeting on an informal basis to discuss their climate change projects and related issues. Faure (2009) also raises questions about the way in which climate change funding is targeted and whether it necessarily reflects the priorities of the country. Despite the view that industrial energy efficiency constitutes a low-hanging fruit in terms of mitigation, with the Long Term Mitigation Scenarios (LTMS) (Winkler, 2007) having identified energy efficiency as the biggest emissions reduction wedge in South Africa, Faure (2009) points out that at most 30% of current and planned donor mitigation finance available for renewable energy and energy efficiency projects was targeted at energy efficiency in 2009. In fact, the actual allocation is likely to be far less once the amount of financing flowing to renewable energy projects from the available dual-purpose financing is taken into account. Only 2% of 2009 funding was exclusively targeted at energy efficiency, compared to 33% for renewable energy. Faure (2009) also notes that only 20 - 25% of current and planned adaptation funding in 2009 was directed at low-income communities, with the bulk of adaptation funding targeted at research institutions. While it is important to build the knowledge and technology base for adaptation, it is debatable whether a ratio of more than 2:1 is ideal, given South Africa's socio-economic realities, and the immediate positive impact that adaptation projects can have.

7.2.3 Carbon markets

Structural issues in the South African economy mean that emissions trading is unlikely to be an appropriate domestic policy choice for the country (National Treasury, 2010), although a carbon tax may well raise revenues for investment in mitigation, and will incentivise mitigation activities in the private sector.

South Africa has underutilised the opportunity presented by the CDM over the past decade. There are numerous reasons for this and include: i) regulatory issues which are difficult to navigate, particularly for municipal projects; ii) little experience with the CDM UNFCCC process in the country; iii) very low fossil fuel prices which reduce the incentive for mitigation projects; iv) little support available; v) no co-ordinated government approach to the CDM; vi) lack of complementary innovative financing support for CDM-type projects; and vii) no driver for CDM engagement in the industrial sector (Little, 2006).

However, there is a substantial amount of discussion on post-2012 crediting opportunities, and the role of the CDM and carbon markets in supporting mitigation in developing countries. This could take the form of crediting NAMAs, sectoral crediting or programmatic CDM, or some other variant yet to emerge from the international process.

7.2.4 Private sector funding

South Africa has a well-developed financial system. Financial intermediaries like banks and the capital markets will be able to raise significant amounts of climate finance, provided that

the risk/return ratios are acceptable to financial institutions and investors. In addition, more attention is being paid to investment opportunities in low-carbon projects as a result of the rapid development and commercialisation of new low-carbon technologies that also have financial benefits to project developers (most clearly illustrated by the case of renewable energy technologies internationally) (Camco, 2010). South Africa's significant renewable energy resources provide a wide range of commercial opportunities for investment, provided that an enabling environment can be created and that the risk/return profile matches the risk appetite of investors (ibid).

Venture capital and private equity firms and hedge funds have begun to play an increasing role in the development of low-carbon projects and the establishment of companies to exploit climate change-related opportunities (Camco, 2010). The amount of private equity funds alone available for climate finance in South Africa is estimated at ZAR3 - 5 billion (DBSA, 2011). Examples of local private equity funds set up to invest in climate change-related projects are shown in Table 24 below.

Table 24: Examples of South African private equity funds targeting low-carbon projects (Source: DBSA, 2011)

Fund name	Characteristics
Inspired Evolution Fund	
Target Fund Size:	ZAR1 billion
Target Sub Sectors:	Clean Energy generation, energy storage, energy efficiency, cleaner production, water quality and management, waste management
Status:	Fundraising
Lereko Metier Sustainable Capital Fund	
Target Fund Size:	ZAR250 million
Target Sub Sectors:	Renewable Energy, Waste, Energy efficiency, Bio Energy and Co-generation
Status:	Fundraising
Merchantec Carbon Fund	
Target Fund Size:	ZAR1 billion
Target Sub Sectors:	Renewable Energy, Carbon credits, Low-Carbon Industrial Development
Status:	Fundraising

7.2.5 Additional sources of funding

In addition to bilateral donor funding, there is also a wide array of domestic funding sources available for climate change projects in South Africa. Examples provided by Faure (2009) include:

- The Renewable Energy Finance and Subsidy Office (REFSO), established by the Department of the Energy (DoE) to provide “once-off” capital subsidies for renewable energy projects and provide technical support to developers;
- The South African National Energy Development Institute (SANEDI), which aims to combine the research capacity of SANERI with the implementing capacity of the National Energy Efficiency Agency (NEEA) into one institution;
- The Renewable Energy Feed-In Tariffs (REFIT) that aim to increase private participation in the renewable energy market;
- The DoE-initiated, GEF-funded (through the World Bank), and DBSA-implemented Renewable Energy Market Transformation project to fund pre-feasibility and feasibility studies required to obtain loans from commercial banks to fund renewable energy, CDM and voluntary offset projects;
- The GEF-funded, Central Energy Fund (CEF)-implemented “SWH 500” project aimed at implementing Solar Water Heater (SWH) projects at scale;
- The National Sustainable Housing Facility currently under development and funded by the DBSA, KfW and DANIDA (Danish International Development Agency) to act as a clearinghouse to secure financing for thermal performance improvements, SWH systems, and energy-efficient lighting for low-income housing in South Africa;
- The Demand Side Management (DSM) programme initially housed in Eskom to increase energy efficiency and reduce energy use; and
- The Technology Innovation Agency (TIA), which aims to stimulate innovation by providing financing and technical support to help commercialise innovation projects, including sustainable energy research.

7.2.6 Innovative financing structures and instruments

In addition to the examples listed above, there are also a number of innovative financing structures and instruments being developed in South Africa to raise climate finance.

The Clinton Climate Change Initiative, for example, focuses on facilitating private sector mechanisms to increase and accelerate the uptake of renewable energies and energy efficiency technologies (Faure, 2009). It has been working with the City of Johannesburg to develop an innovative financial model to finance energy efficiency retrofits in buildings whereby energy efficiency investments are paid for by future energy savings that are guaranteed by the implementer, and against which a loan is then obtained from a commercial bank. This model was used to finance public building retrofits in Johannesburg. The South African Renewables Initiative (SARi) aims to aggregate and channel funds for the renewable energy market in South Africa by reducing the risk and increasing the return profile of renewable energy projects.

Recent changes to the pension fund regulation in South Africa in 2011 expand the allowance for debt issued by listed or regulated entities to be held by pension funds. It also enables greater investment in unlisted and alternative assets that could support economic development and thus “better align[s] retirement fund regulation with other government policy objectives like socially responsible investing” (National Treasury, 2011b: 51). Provided that instruments can be structured in a way that meets the relatively strict investment criteria that is required of pension fund investments, these changes to the statutory requirements placed on pension funds may pave the way for the creation of local “green bonds” issued by local DFIs with strong credit ratings like the IDC or the DBSA. However, in order to qualify as green bonds, the funds raised would need to go into ring-fenced portfolios within the DFIs with clearly defined mandates and would not be available to re-finance existing projects.

7.3 Current External Climate Finance Flows

Using data provided by the DBSA on donor projects funded (which builds on initial work done by the World Bank) the authors attempt to analyse the climate finance funding received by South Africa from donors, multilateral agencies and funds since 2003. It is important to note that:

- A large proportion of projects have incomplete descriptive information. Where possible, the projects have been classified based on the existing information and project descriptions.
- For many projects the funding indicated is across a number of years. Given the difficulty in identifying actual spending by year, the analysis is based on the total funded amount.
- Where possible, co-financing of projects has not been included in the analysis. This is largely due to the fact that for most projects such data are not provided.

The analysis provided below is based on an unaudited and unverified database and should thus be used for illustrative purposes only.

Financing provided by donors, funds, multilateral agencies and philanthropic foundations are estimated to have funded roughly 95 programmes and projects. The cumulative finances have provided an estimated ZAR20.1 billion since 2003. As detailed in Figure 19, 64% of these projects are operational, while 18% of projects are still in the developmental phase.

Figure 20 provides a breakdown of the sources of donor and multilateral funds in South Africa. The majority of these funds has been provided by bilateral donors, primarily

France, Germany and Australia, while multilateral funds (specifically the CTF and GEF) have provided only about 20% of total funding.

A summary of implementing agencies for donor and multilateral funds is illustrated in Table 25. The table ranks the implementing agencies according to their relative expenditure of the available funding. Donor agencies account for a small proportion of implementing agencies (0.1%) despite the fact that bilateral donors are the largest providers of funding. Public corporations (specifically Eskom and the CEF) have been responsible for the implementation of the majority of projects by value. Significantly, individual municipalities such as the City of Cape Town, eThekweni Metropolitan Municipality and the City of Johannesburg have also been implementers of a significant value of donor funds, suggesting that bilateral donors are increasingly focusing on city-wide climate change initiatives, with municipalities responsible for 12% of the value of donor funds. Private banks in South Africa have implemented roughly 7% of the value of donor funds since 2003. It appears that financial intermediaries in South Africa are used infrequently to disburse and implement climate finance projects, suggesting that flows are highly decentralised, though this should be seen in the context of incomplete data. In addition, the private sector appears to have had little access to these funds, given the small percentage of funds channelled via private banking institutions (6.8%).

Figure 19: Donor and multilateral funds by status (Source: DNA Economics, based on data provided by DBSA)

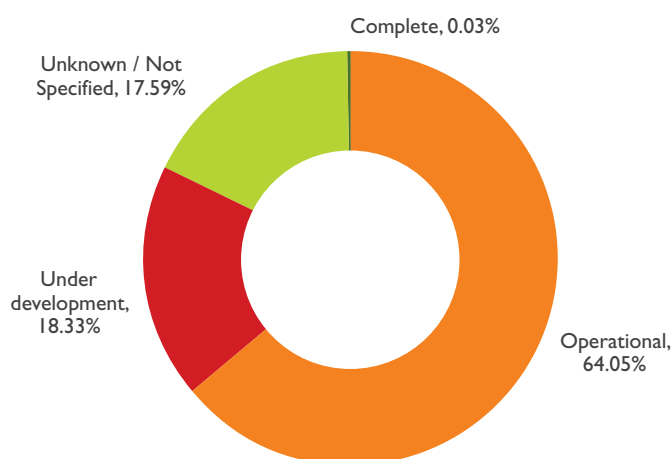


Figure 20: Source of donor and multilateral funds (Source: DNA Economics, based on data provided by DBSA)

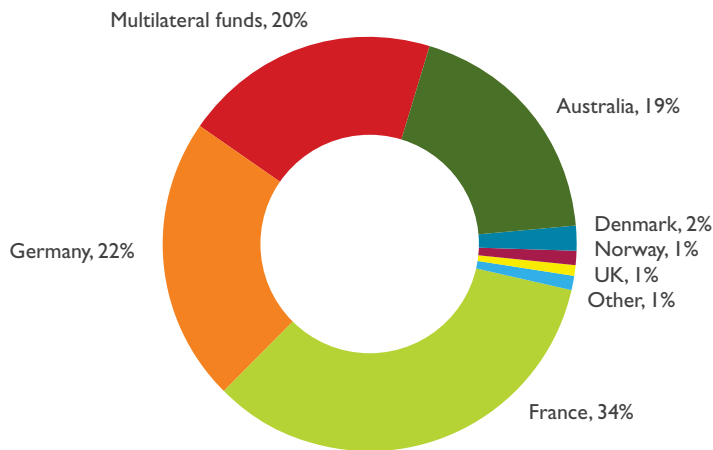


Figure 21: Funding instruments used by donors and multilateral funds (Source: DNA Economics, based on data provided by DBSA)

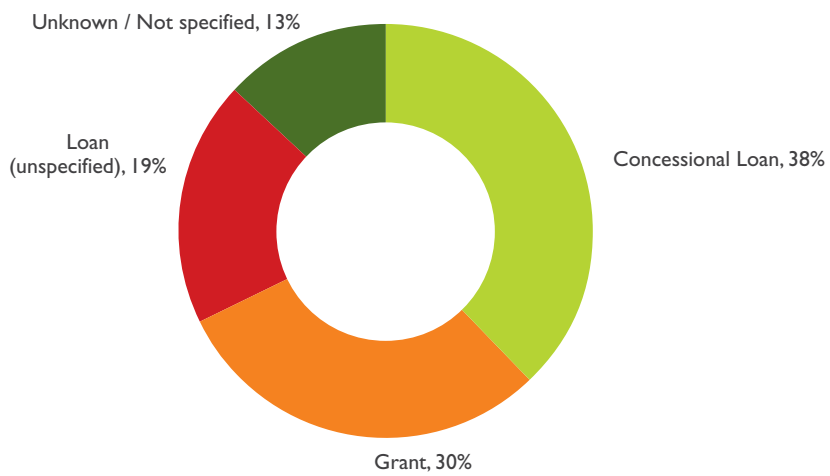


Table 25: Implementing agencies for donor and multilateral funds, ranked according to the relative value of initiatives implemented
(Source: DNA Economics, based on data provided by DBSA)

Implementing agencies	Percentage
Unknown/Not specified	41.4%
Public Corporations	23.8%
Municipalities	12.1%
National Departments	8.0%
Private Banking Institutions	6.8%
Multiple (Public/Private/Research)	6.3%
University/Research Institutions	0.7%
Other	0.6%
Donor Agencies	0.1%
UN Agency	0.1%
DBSA	0.05%

In terms of funding instruments, donor agencies in South Africa appear to follow international trends, with a large proportion provided through loans (both concessional and non-concessional). Grants account for roughly 30% of donor funds provided since 2003 (See Figure 21). It is not clear how much of funding is provided for and, in the form of, technical assistance. Seventy six per cent of funds (by value) did not specify whether funding comprised technical assistance. For 2% of funds, technical assistance was not a component of the project, while for the remaining 22% there was technical and research assistance.

Figure 22 provides a breakdown on the allocations of funds to mitigation and adaptation activities. By value, it is unclear for 49% of projects whether the funding is used for adaptation or mitigation activities, or both. While descriptions of projects have been used as a guide to allocating funding to either mitigation or adaptation, the analysis should be treated with caution. Roughly 25% of funds have been allocated to mitigation activities and 21% to both mitigation and adaptation. Only a small proportion of funds has been allocated for adaptation, reflecting the international trend highlighted in Section 3.4. It is also consistent with previous analysis of the use of donor funds in South Africa. As illustrated in Figure 22, Faure (2009) found that climate finance flows from donors in South Africa was heavily skewed towards mitigation activities.

As illustrated in Figure 23, Faure (2009) found that 86% of all planned and ongoing donor climate financing in South Africa was focused on mitigation in general, and the energy sector in particular. Within the energy sector, donor funding was heavily skewed in favour of renewable energy projects. As highlighted in Section 7.2.2, it is not clear whether the narrow focus on mitigation, and renewable energy in particular, is aligned with South Africa's climate finance priorities.

7.4 Overarching framework

Currently there is no overarching framework that ensures that the available climate change funds are used according to the climate change funding priorities of the country or that can serve as a way to ensure that projects are matched with the available funding sources that best suit their individual characteristics. Also, there is no obvious, fast and low cost-way to combine finance from the large number of funding sources and instruments with overlapping mandates in order to fund large projects, or even the same projects at different stages of development. Without such a framework in place, it is highly unlikely that the available climate finance in South Africa will be allocated in the most efficient way. Therefore, a framework will need to be developed as part South Africa's national climate change response strategy.

Figure 22: Mitigation vs. adaptation funding (Source: DNA Economics, based on data provided by DBSA)

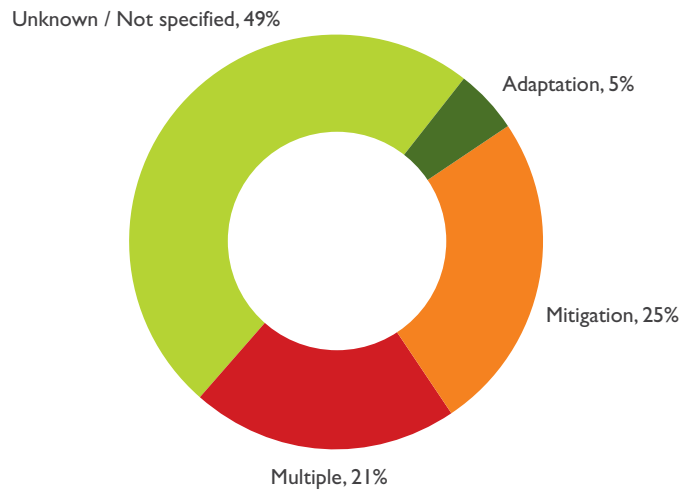
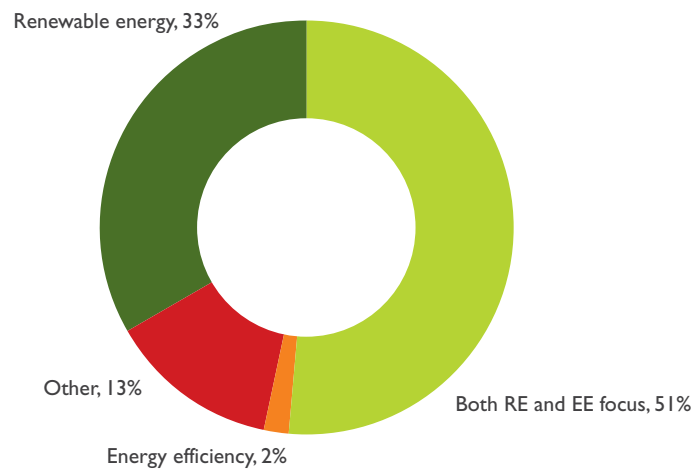


Figure 23: Ongoing and planned donor financing by category, 2009 (Source: Faure, 2009)



8 CONCLUSION AND RECOMMENDATIONS

Climate finance is a far-reaching concept that is difficult to define since it overlaps with areas of mitigation and adaptation policy and implementation. In addition, it is currently administered within an international framework that is complex and very fluid. This situation is expected to continue at least until a legally binding international deal to limit anthropogenic climate change is struck. Not only is the international institutional framework in a state of flux, but the instruments used to channel climate finance and the rules under which climate finance is disbursed, are also evolving. The current climate finance landscape, as illustrated by Figure 17 (Section 5.4), can be divided into two components based on the conditionalities that accompany funds. On one side of the divide are the funds falling under the auspices of the UNFCCC, multilateral agencies, bilateral donors and multilateral development banks. Climate finance from these sources largely constitutes “official” climate finance and is expected to continue to be determined by the implementation of eligibility criteria and MRV requirements. The other component comprises climate finance that is driven by market forces in which the risk/return profile of potential climate change related projects is expected to be the main determinant in facilitating access to funds. This mainly relates to private sector flows.

Given the scale of the challenge to make the transition to a climate-resilient, low-carbon economy, South Africa will need to devise a funding strategy that taps into both “official” and “market” climate finance sources, both of which are likely to experience a level of ongoing uncertainty regarding their extent. The ebb and flow of finance and investments in international markets in response to market conditions is well known. Based on experiences with ODA, however, “official” climate flows are also likely to be vulnerable to policy reversals and cyclical impacts. The recent events in Japan highlight the danger of unforeseen events on official climate finance flows. After the calamitous impact of the recent natural disasters on the Japanese economy, it is unlikely that Japan (which was responsible for 50% of ODA committed to climate change in 2009) will be able to maintain its official climate finance contribution at the current levels. From a risk diversification perspective it is thus prudent to follow a balanced climate finance funding strategy that incorporates both “official” and “market” flows.

Devising a funding strategy to attract official climate finance is complicated by the level of uncertainty surrounding international negotiations that will directly affect the

eligibility criteria and MRV requirement defining these funds. As a broad principle, however, it is important that any local instruments, funds or frameworks created to receive international flows from these sources are designed with sufficient flexibility to incorporate MRV requirements. Experience with donor funding, and credit lines in particular, has shown that it is very difficult to impose additional reporting requirements at a later stage. Furthermore, given the level of uncertainty at present and the diversity of funders that fall within the “official” category, the most effective action that South Africa can undertake to attract these funds is to ensure that it has clear, coherent and credible national climate change policies in place, that are well aligned with other sectors such as industrial and energy policies. Strong local institutions that can effectively conceptualise, plan and implement climate change related projects will also help ensure that South Africa is a preferred recipient of “official” climate finance in the medium to long term.

Given the current focus on directing funding to LDCs, South Africa is unlikely to be a major recipient of UNFCCC-linked funds in the short term. In order to access a larger share of these funds, South Africa may have to devise a funding strategy that incorporates a number of projects or programmes with regional benefits in terms of the roll-out of low-carbon infrastructure, services, products or technologies. The success of such a strategy will, in part, depend on the international community’s willingness to fund regional projects of which South Africa is a significant beneficiary. South Africa could build a strategy around providing low-carbon and adaptation services to the SADC region, thereby enabling financing flows to its least developed neighbours, whilst building its own capacity in key low-carbon economy elements such as manufacturing, skills and soft infrastructure.

“Market” flows, in contrast, are unlikely to have additional MRV requirements beyond standard financial reporting unless private sector funds are included in the definition of climate finance from developed to developing countries under the UNFCCC negotiation process. However, this is highly unlikely. Currently, the MRV requirements for dealing with flows from a number of different private sector sources and funders are much less onerous than those for funds flowing from donors, multilaterals or under the UNFCCC process. Even for instruments like green bonds, it is likely that the only additional reporting that will be required will be to show that the funds were

used for the “green” ring-fenced activity within the issuing institution for which it was earmarked¹⁰. By reducing risk premiums, policy and regulatory certainty – supported by well-capacitated local institutions with strong balance sheets (which can serve as local counter-parties) – will make South Africa a more attractive destination for private climate finance flows. Given the importance of the risk/return ratio in “market” climate finance transactions, there is an important role for public finance mechanisms to either reduce the risk or increase the returns linked to mitigation and adaptation projects. Targeting the risk/return balance is particularly important in areas where few projects have been implemented locally and there is no proven track record. Broadening the definitions of risk and return to include longer term, and potentially non-financial impacts, while incorporating the mainstreaming of climate change considerations into the decision-making processes of the local financial sector, could increase the amount of “market” climate finance available.

As mentioned earlier in this section, the climate finance landscape is currently particularly fluid as the world moves towards a global agreement on climate change, and individual parties position themselves for the negotiating end-game. This report shows that there are a growing number of climate finance sources and instrument options available at international and country level.

The following principles are identified to inform the institutional infrastructure put in place to support a South African climate finance access and management strategy:

1. Provide as much flexibility as possible while the climate finance landscape evolves;
2. Make it as easy as possible for climate finance to flow into South Africa; and
3. Make the most efficient use of all climate funds available (both external and domestic).

These principles form the main recommendations from this report, and each component is described in further detail, below.

8.1 Flexibility

The first principle cautions against committing to a long-term framework before it has become clear what the climate finance landscape will look like in the medium to long term. Some form of interim or temporary arrangement that could evolve with changing requirements, therefore seems attractive. This might take the form of a relatively passive role such as developing a detailed climate finance funding strategy, or a more active role such as co-ordinating and tracking climate finance flows.

8.2 Minimal Transaction Costs

The second principle implies that there should be as little effort as possible involved in channelling funds to projects and programmes. This would entail keeping bureaucratic procedures to a minimum, and decision-making chains as short as possible. Given the large number of climate finance sources, mechanisms and instruments available (each with their own mandates, procedures and agendas), it is highly unlikely that one institution or fund would be able to effectively and quickly engage with all, or even most, of these counterparties. Some sort of “honest” broker who can effectively utilise the existing relationships between the providers and recipient of climate funds, while at the same time use more complete information and insight to match new sources and recipients of funds, could potentially increase the efficiency with which climate finance is disbursed and the efficacy of its implementation. This would also support the first principle of flexibility, since as a broker, the entity would primarily be facilitating relationships between third parties, which would thus be relatively easy to wind up and replace should a new institutional structure be required.

8.3 Efficiency

Detailed information about potential climate change projects, as well as the funding options available, will be required in order to optimally match sources and uses of funds. Furthermore, projects need to be implemented as quickly as possible in order to free up funds for new projects. Furthermore, in order to make the most efficient use of the limited pool of funding available, the funds need to be applied in a manner that is broadly consistent with South Africa’s yet to be developed national climate change funding priorities.

¹⁰ There may be additional reporting requirements linked to socially responsible investment funds that are also interested in the impact of loans and investments, and not merely the financial returns.

9 REFERENCES

- Adaptation Fund (2011). [online] Available at: <<http://www.adaptation-fund.org>>
- Adaptation Fund Board (2010). *Financial Status of the Adaptation Fund Trust Fund, as at 31 October 2010*. Adaptation Fund Board.
- AGF (2010). High-level Advisory Group on Climate Change Financing. *Report of the Secretary-General's High-level Advisory Group on Climate Change Financing*, including background papers. United Nations.
- Amenc, N., Goltz, F. and Tang, L. (2010). *Adoption of Green Investing by Institutional Investors: A European Survey*. EDHEC-Risk Institute.
- Auditor General (AG) (2010). *Report of the Auditor-General to Parliament on the status of climate change initiative in South Africa*. [online] Available at: <http://41.193.80.205/Reports%20Documents/95207_NEW_Inners%20small.pdf>
- Ballesteros, A. and Ramkumar, V. (2010). *Governing Climate Finance: The Importance of Reporting Guidelines and Review Mechanisms to Ensure Transparency and Accountability*. Budget Brief, International Budget Partnership.
- Ballesteros, A., Nakhoda, S., Werksman, J. and Hurlburt K. (2010). *Power, Responsibility, and Accountability. Re-thinking the Legitimacy of Institutions for Climate Finance*. Final Report, Washington, DC: World Resources Institute.
- Brown, J., Bird, N. and Schalteck, L. (2010). *Climate finance and additionality: emerging definitions and their implications*. Climate Finance Policy Brief No. 2, Overseas Development Institute (ODI).
- Buchner, B. and Brinkman, M. (2010). *Climate finance landscape overview*. Presentation at CPI Climate Finance Project Launch Workshop: The State of International Climate Finance - Is It Adequate and Is It Productive? Venice: Climate Policy Initiative, 14 October 2010.
- Camco and TIPS (Camco) (2010). *Climate Change: Risks and Opportunities for the South African Economy - An Assessment of Mitigation Response Measures*. Report funded by the British High Commission.
- Clean Technology Fund (CTF) Trust Fund Committee (2010). *Trustee report on financial status of the CTF*. November 11, 2010.
- Climate Bonds Initiative (2011). [online] Available at: <<http://climatebonds.net>>
- Climate Change Summit 2009 Participants (2009). *Towards an effective South African climate change response policy: Conference Statement. National Climate Change Summit*. Gallagher Convention Centre in Midrand, Gauteng, 03 – 06 March 2009.
- Climate Finance Options (2011). [online] Available at: <<http://www.climatefinanceoptions.org/>> [Accessed 16th September 2011].
- Climate Funds Update (2011). [online] Available at: <<http://www.climatefundsupdate.org/>> [Accessed 16th September 2011].
- Climate Investment Funds (2011). [online] Available at: <<http://www.climateinvestmentfunds.org/cif/>> [Accessed 16th September 2011].
- Climate Investment Funds (CIF) (2009). *Clean Technology Fund. Financing products, terms, and review procedures for public sector operations*.
- Climate Investment Funds (CIF) (2010). *Total Pledges to Clean Technology Fund and Strategic Climate Fund as of 31 March 2010*.
- Creamer, T. (2010). *R15bn DBSA Loan Another Key Step in Closing Eskom's Funding Gap*. [online] Available at: <<http://www.polity.org.za/article/r15bn-dbsa-loan-another-key-step-in-closing-eskoms-funding-gap-2010-11-04-1>>
- De Lange, J. (2010). *IDC to invest R10bn in green jobs*. [online] Available at: <<http://www.fin24.com/Economy/IDC-to-invest-R10bn-in-green-jobs-20110213>>
- Department of Environmental Affairs (DEA) (2010a). *South Africa's Second National Communication under the United Nations Framework Convention on Climate Change - Draft*. Pretoria: Government Printer
- Department of Environmental Affairs (DEA) (2010b). *National Climate Change Response Green Paper*. Government Gazette No33801. Notice 1083 of 2010. [online] Available at: <<http://www.info.gov.za/view/DownloadFileAction?id=135920>>
- Development Bank of Southern Africa (DBSA) (2011). *Green Economy Resource Mobilisation*. Mimeo.

- Dunscombe, P. (2010). *Strong Policy Will Drive Private Sector Investment in Low Carbon Solutions*. [online] Available at: <http://unfccc.int/press/news_room/newsletter/guest_column/items/5294txt.php>
- Fallasch, F. and De Marez L. (2010). *New and Additional? An assessment of fast-start finance commitments of the Copenhagen Accord*. Potsdam, Germany: Climate Analytics.
- Faure, A. (2009). *Climate Change: Who's Doing What in South Africa?* Report financed by the Food and Agricultural Organization.
- Global Environment Facility (GEF) Council (2010a). *GEF Business Plan for FY11-14*. November 16 – 18.
- GEF Council (2010b). *Trustee Report Global Environment Facility Trust Fund as of September 30, 2010*. GEF Council, prepared by World Bank as Trustee.
- GEF Council (2010c). *Progress Report on the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF)*. Report submitted to LDCF/SCCF Council Meeting, July 1, 2010 Washington, D.C. [online] Available at: <http://www.thegef.org/gef/sites/thegef.org/files/documents/LDCF_SCCF_8_Inf3.pdf>
- Gomez-Echeverri, L. and Muller, B. (2009). *The Financial Mechanism of the UNFCCC: A Brief History. ecbi Policy Brief*. [online] Available at: <<http://www.oxfordclimatepolicy.org/publications/documents/ecbiBrief-FMHHistory.pdf>>
- Hamilton, C. (2010). *Requiem for a Species: Why we resist the truth about climate change*. Allen and Unwin.
- Hamilton, K., Sjardin, M., Peters-Stanley, M. and Marcello, T. (2010). *Building Bridges: State of the Voluntary Carbon Markets 2010*. A Report by Ecosystem Marketplace & Bloomberg New Energy Finance.
- Honkaniemi, N. (2011). *Storm on the horizon? Why World Bank Climate Investment Funds could do more harm than good*. European Network on Debt and Development (EURODAD).
- Institutional Investors Group on Climate Change (IIGCC) (2009a). *Investor Statement on the Urgent Need for a Global Agreement on Climate Change*. Institutional Investors Group on Climate Change (IIGCC).
- IIGCC (2009b). *Non-Carbon Market Financing Mechanisms for Climate Change Mitigation and Adaptation in Developing Countries*. Institutional Investors Group on Climate Change (IIGCC).
- Intergovernmental Panel on Climate Change (IPCC) (2001). *Contribution of Working Groups I, II, and III to the Third Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.
- IPCC (2007a). *Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. IPCC, Geneva, Switzerland.
- IPCC (2007b). *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*.
- Jung, M., Vieweg, M., Eisbrenner, K., Hohne, N., Ellermann, C., Schimschar, S., Beyer, C., with contributions by CTS Mexico. (2010). *Nationally Appropriate Mitigation Actions, Insights from Example Development*. Ecofys.
- Kossoy, A. and Ambrosi, P. (2010). *State and Trends of the Carbon Market 2010*. Washington, DC: Carbon Finance at the World Bank.
- Lawrence, S. (2010). *Climate change: The U.S. Foundation Response*. [online] Available at: <http://foundationcenter.org/gainknowledge/research/pdf/researchadvisory_climate.pdf>
- Little, G. (2006). *Accelerating the Implementation of the Clean Development Mechanism in South African Industry*, University of Pretoria.
- Marquard, A. and Tyler, E. (2010). *Defining NAMAs Seeking Support – Examples from South Africa*. Tianjin – German, NAMA workshop.
- MDG-F Secretariat (2010). *Report for the MDG Achievement Fund Steering Committee*. 24 September 2010, New York. MDG Achievement Fund.
- Meinshausen, M. (2005). *On the Risk of Overshooting 2°C. Proceedings from International Symposium on Stabilisation of Greenhouse Gas Concentrations – Avoiding Dangerous Climate Change Exeter*, 1-3 February 2005.

- National Treasury (2011a). *Budget Review – 2011*. [online] Available at: <<http://www.treasury.gov.za/documents/national%20budget/2011/review/Budget%20Review.pdf>>
- National Treasury. (2011b). *A Safer Financial Sector to Serve South Africa Better*. National Treasury Policy Document
- Organisation for Economic Co-operation and Development (OECD) (2004). *Reporting Directives for the Creditor Reporting System – Addendum*, Rio Markers. Development Assistance Committee, DCD/DAC(2002)21/AA, 2004.
- OECD (DCD-DAC). (2011). [online] Available at: <<http://www.oecd.org/dac/>> [Accessed 18 March 2011].
- Project Catalyst (2009). *Project Catalyst Brief: Financing Needs*. December 2009. San Francisco, California: ClimateWorks Foundation.
- Project Catalyst (2010). *From Climate Finance to Financing Green Growth*. Briefing paper, San Francisco, California: ClimateWorks Foundation.
- Robins, N., Clover, R. and Singh, C. (2009). *A Global Green Recovery? Yes, but in 2010*. HSBC Global Research, 2009.
- Stadelmann, M., Roberts, J.T. and Michaelowa, A. (2010). *Keeping a Big Promise: Options for Baselines to Assess “New and Additional” Climate Finance*. Center for Comparative and International Studies (CIS) Working Paper. No 66.2010.
- Stern, N. (2006). *The Stern Review: Economics of Climate Change*. London: HM Treasury
- Stewart, R.B., Kingsbury, B. and Rudyk, B. (2009). *Climate Finance: Key Concepts and Ways Forward*. Policy Brief, Belfer Center for Science and International Affairs, Harvard Kennedy School, Harvard Project on International Climate Agreements.
- Strategic Climate Fund (SCF) *Trust Fund Committee (2010)*. *Trustee report on financial status of the SCF*. November 11, 2010.
- Suppan, S. (2010). *The New Climate Debt: Carbon Trading Wrapped in a Green Proposal*. Minneapolis, Minnesota, USA: Institute for Agriculture and Trade Policy (IATP).
- Tirpak, D., Ronquillo-Ballesteros, A., Stasio, K. and McGray, H. (2010). *Guidelines for Reporting Information on Climate Finance*. WRI Working Paper. World Resources Institute, Washington DC.
- United Nations Conference on Trade and Development (UNCTAD) (2010). *World Investment Report 2010: Investing in a low-carbon economy*. [online] Available at: <<http://www.unctad.org/templates/WebFlyer.asp?intItemID=5539&lang=1>>
- United Nations Environment Programme (UNEP) (2008). *Public Venture Capital Study. UNEP Sustainable Energy Finance Initiative Public Finance Alliance (SEF Alliance)*, New Energy Finance Ltd.
- UNEP (2009a). *Financing a Global Deal on Climate Change*. A Green Paper produced by the UNEP Finance Initiative Climate Change Working Group, Geneva, Switzerland: UNEP Finance Initiative.
- UNEP (2009b). *Global Trends in Sustainable Energy Investment 2009*. United Nations Environment Programme.
- UNEP (2010). *Bilateral Finance Institutions and Climate Change. A Mapping of 2009 Climate Financial Flows to Developing Countries*. Initiative of the UNEP Climate Change Working Group for Bilateral Finance Institutions, United Nations Environment Programme.
- United Nations Framework Convention on Climate Change (UNFCCC) (1992). *United Nations Framework Convention on Climate Change*. [online] Available at: <http://unfccc.int/essential_background/convention/background/items/2853.php>
- UNFCCC (1997). *Kyoto Protocol to the United Nations Framework Convention on Climate Change*. [online] Available at: <http://unfccc.int/kyoto_protocol/items/2830.php>
- UNFCCC (2007a). *Report of the Conference of the Parties on its Thirteenth Session held in Bali from 3-15th December 2007*. Addendum. Part Two, Action taken by the Parties at its thirteenth session.
- UNFCCC (2007b). *Investment and Financial Flows to Address Climate Change*. [online] Available at: <http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/background_paper.pdf>

- UNFCCC (2008). *Investment and financial flows to address climate change: an update*. Technical Paper FCCC/TP/2008/7. [online] Available at: <<http://unfccc.int/resource/docs/2008/tp/07.pdf>>
- UNFCCC (2009). *Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009. Addendum. Part Two: Action taken by the Conference of the Parties at its fifteenth session*.
- UNFCCC (2011). [online] Available at: <http://unfccc.int/cooperation_and_support/financial_mechanism/items/2807.php> [Accessed 25 February 2011].
- Van der Merwe, C. (2010). *SA gets additional finance for clean technology projects*. *Engineering News*, 22 Jan 2010. [online] Available at: <<http://www.engineeringnews.co.za/print-version/sa-gets-additional-finance-for-clean-technology-projects-2010-01-22>> [Accessed 16th September 2011].
- Van Melle, T., Höhne, N. and Murray, W. (2011). *International climate financing: From Cancún to a 2°C stabilisation pathway*. Ecofys report submitted to KfW.
- Ward, J., Fankhauser, S., Hepburn, C., Jackson, H. and Rajan, R. (2009). *Catalysing low-carbon growth in developing economies*. United Nations Environment Programme.
- Ward, M. (2010). *Engaging private sector capital at scale in financing low carbon infrastructure in developing countries*. The Main Report of the Private Sector Investment Project, Global Climate Change Consultancy (GtripleC).
- Winkler, H. (ed) (2007). *Long Term Mitigation Scenarios: Technical Report*. Prepared by the Energy Research Centre for Department of Environment Affairs and Tourism, Pretoria, October 2007.
- World Bank (2009). *World Development Report 2010: Development and Climate Change*. Washington DC: The World Bank.
- World Bank (2010a). *2009 Annual Report, Carbon Finance for Sustainable Development*. Washington, DC: Carbon Finance at the World Bank.
- World Bank (2010b). *Beyond the Sum of Its parts. Combining Financial Instruments to Support Low-Carbon Development*. Washington, DC: The International Bank for Reconstruction and Development (IBRD) The World Bank, 2010.
- World Bank (2010c). *Monitoring Climate Finance and ODA*. Washington DC: The International Bank for Reconstruction and Development, 2010.
- World Bank (2011). *The World Bank Green Bond Fact Sheet*. Updated February 24, 2011.
- World Bank Carbon Finance Unit. (2011). [online] Available at: <<http://go.worldbank.org/9IGUMTMED0>>
- World Bank Green Bonds. (2011). [online] Available at: <<http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html>> [Accessed 16 September 2011].
- World Economic Forum (2009). *Task Force on Low-Carbon Prosperity: Summary of Recommendations*. Geneva, Switzerland: World Economic Forum.
- World Resources Institute (WRI) (2010). *Summary of Developed Country Fast-Start Climate Finance Pledges*. Update November 24, 2010, World Resources Institute.

Appendix A: Further research required

This document reviewed key papers on the evolution of the global climate finance architecture to inform South Africa's strategy for attracting and managing these financing sources. Given limitations in time and resources, together with the complexity and size of this emerging field, a number of issues require further exploration in the development of South Africa's approach to attracting and managing climate finance. The following questions arose from this research, and could form a basis for identifying further research and analysis areas:

- What are the gaps in the DBSA analysis of existing climate finance initiatives in South Africa?
- What is the proportional geographical distribution of climate finance?
- Why has there been an historically low allocation of climate finance to Africa?
- On a regional basis, the majority of MDB financing occurred in the Latin America / Caribbean region whilst Africa accounted for 7% of MDB financing. Why is this the case, and how can Africa's share be increased?
- Provide an exhaustive overview of carbon trading markets internationally and the likelihood of South Africa being able to link into them.
- Are there regional opportunities around carbon markets? What are SADC and NEPAD views on regional carbon trading?
- What are the future prospects for voluntary carbon markets once compliance markets, or carbon pricing, becomes ubiquitous?
- What new developments are impacting private sector climate finance flows' view of global competitiveness and e.g. border tax adjustments or potential green economy growth?
- Is the private sector driving mitigation in developing countries? Are issues around energy efficiency and energy security impacting the way the private sector does business?
- What are the barriers and constraints to South Africa accessing the various carbon finance sources?
- What conditionalities are associated with the various climate finance sources, focusing on trends in new sources coming on line?
- How can South Africa utilise grant finance as leverage for investing and attracting additional funds? Having more grant funding upfront to establish foundations for future commercialisation of a technological response to climate change is particularly important.
- How do different climate finance sources measure the "return on the investment"? Are measures other than financial return utilised?
- What green budget reforms have been initiated e.g. emergent issues from OECD, China, Brazil, Russia and India?
- Bilateral funds and BFIs tend to show more of a focus on mitigation activities, why is this the case?
- Is there an emphasis on demand-driven approaches, as opposed to exclusively fulfilling the mandate of the giver in public sector climate finance? How many countries have deviated from this approach (e.g. Brazil's Amazon Fund)?
- What efforts have been utilised to achieve private mainstreaming of climate change issues, e.g. Equator Principles, Principles of Responsible Investment, which embed environmental stewardship? All of South Africa's major banks have signed up to the Principles, applying these to project finance and infrastructure interventions.
- What is the role of export credit agencies (green asset and trade finance) in the provision of climate finance?
- What is the role of project finance bonds and developments in the insurance sector in terms of products and services for risk absorption?
- Explore the current and future role of venture capital, private equity, research grants, public finance and market-based mechanisms fully within the South African context.
- How would South Africa's ability to attract climate finance governed by the UNFCCC be affected if a more regional perspective was followed, with respect to the implementation of climate change related projects/programmes?

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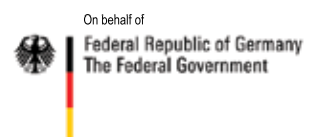
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