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International Climate Finance: Policies, Structures and Challenges

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Abstract

Continuing negotiations in the climate change debate have prominently exposed the topic of climate financing. It is broadly accepted that mitigation and adaptation activities require large volumes of capital. The International Energy Agency estimates that the total cost of investment to meet climate goals may amount to US$ 220 billion per year between 2010 and 2020 and to almost US$ 1 trillion per year between 2020 and 2030. Being aware of the financial needs, the international community has come up with a variety of climate financing instruments and mechanisms over the last two decades.

After familiarising the reader with the basic financing provisions of the climate change framework and the guiding principles of climate finance, the article presents recent international developments with regard to climate finance including the latest financial commitments of the international community and the establishment of the Green Climate Fund (GCF) as a new and comprehensive funding mechanism. The article subsequently gives an overview over the various public and private sources of climate financing and over the multitude of channels, mechanisms and actors involved in disbursing climate finance. In this context, the contribution focuses on those disbursement entities specifically designated for mitigation and adaptation issues within the international climate change framework. A separate part deals with the topic of accountability, transparency and corruption as both the large volumes of financial transfers and the complexity of the present climate finance architecture give rise to concern. Since the ambitious commitments of the international community and current estimates of future climate-related investment require a substantial increase of private sector capital, the article finally elaborates on the topical issue of private climate finance. After stressing the importance of the investment climate for climate investments, current barriers for private investment and the measures required for overcoming those barriers and mobilising private sector engagement are described. The success of the new GCF which is supposed to play

a key role in channelling new and additional financial means will also depend on whether the instrument is able to mobilise additional private investment on a substantial scale.

A. Introduction

Mitigation and adaptation activities require large volumes of finance and innovative financial mechanisms. For these purposes, the term *climate finance* is commonly used, though not clearly defined. In a nutshell, climate finance covers financial support for mitigation and adaptation activities, including capacity-building, research and development and broader efforts to facilitate transition towards low-carbon, climate resilient development.[1]

Historically, only a very small share of climate finance has gone to adaptation efforts: the larger proportion being used for mitigation measures[2] – arguably because it is rational to invest more in mitigation as long as the negative effects of climate change can still be reduced by enhancing GHG reductions. Buchner et al.[3] estimate that climate finance flows in 2012 have added up to US$364 billion, of which only US$14 billion have been used for adaptation.

Latest estimates of the total investment needed to tackle climate change draw a clear picture about the situation: the International Energy Agency estimates that the total cost of investment to meet climate goals may amount to US$220 billion per year between 2010 and 2020 and to almost US$1 trillion per year between 2020 and 2030.[4] With regard to adaptation, the World Bank's World Development Report estimates costs to range from US $75 billion to 100 billion per year.[5] A United Nations Framework Convention on Climate Change (UNFCCC) review concluded that "the additional investment and financial flows in 2030 to address climate change amounts to 0.3 to 0.5% of global domestic product in 2030 and 1.1 to 1.7% of global investment in 2030".[6]

1 Buchner et al. (2011:1).
2 (ibid.:7).
3 (ibid.:1).
4 International Energy Agency (2010).
5 World Bank (2010).
6 UNFCCC (2009:1).

In this light, the question that needs to be addressed is how to generate sufficient funds to address climate-change-related challenges. A variety of proposals has been suggested to generate climate finance. Global funding is derived from the public and the private sector,[7] while the amount of private finance is almost three times greater than that of public finance.[8] Main approaches towards generating capital include international taxation or international carbon markets. Official Development Assistance, as one source of climate finance, is unlikely to reach the scale necessary to meet high-level international climate finance commitments.[9] The UN Secretary General's High Level Advisory Committee has thus considered private finance to meet the targets. However, doubts remain on how private sector financing can be effectively mobilised and channelled, especially towards adaptation in developing countries.[10]

This article gives an overview of the climate financing framework. In its first parts, it presents the relevant provisions within the legal framework as well as the underlying basic principles. The chapter then focuses on the sources of climate finance and mechanisms, before finally highlighting the crucial issue of private climate finance.

7 Trying to classify climate finance offers several options. One indicator can be the dividing line between public funds and private investor commitment. This division based on the origin of the funds, however, remains cursory and imprecise. A second classification could be based on the primary purpose of the funds. The dividing line can be drawn between financial instruments that originate from the climate change framework such as the Clean Development Mechanism (CDM), official development assistance (ODA) related to climate change projects and other national and international funding dedicated to climate change mitigation and adaptation.This attempt to classify climate finance also remains vague. Moreover, it adds to the already controversial debate on the relation between climate funding and ODA. For any classification of climate finance, it will be necessary to emphasise that it consists of public funds as well as private sector capital and that it can be differentiated from ODA without losing an integrated perspective, which is particularly important for developing countries.

8 Buchner et al. (2011:III).

9 Energy and Resources Institute (2012:25).

10 Atteridge (2011:25).

B. The Legal Framework for Climate Finance

The UNFCCC provides for basic rules on climate financing. When the UNFCCC was adopted, the parties acknowledged that the climate change phenomenon calls for the "widest possible cooperation between the countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions."[11] These words from the preamble already link cooperation and participation to specific responsibilities and respective capabilities, as well as to economic conditions of the countries involved. Responses to climate change have to consider financial implications for and financial responsibilities of different state actors. Financing matters therefore play an important role in combatting climate change. Accordingly, the legal framework provides financial assistance for developing countries to support the implementation of adaptation and mitigation programmes and projects under the UNFCCC.

The main provisions in the UNFCCC regarding climate finance are Article 4 paragraph 3 and 4 and Article 11 UNFCCC. Additional regulations are stipulated in Article 7 paragraph 2(h) and Article 21 paragraph 3 UNFCCC. The Kyoto Protocol also provides for the mobilisation of financial resources.[12] Article 4 UNFCCC contains the commitments of the parties under the climate change regime. In terms of financial commitments Article 4 paragraph 3 of the UNFCCC stipulates a comprehensive framework for financial assistance by developed country parties. Firstly, developed country parties and other developed parties included in Annex II are required to provide new and additional financial resources to meet the agreed full costs of developing country parties related to the required communication of information under Article 12 paragraph 1 UNFCCC.[13] Secondly, and more broadly, those parties are also asked to provide such financial resources as are needed by the developing country parties to meet the agreed full incremental costs of implementing measures that fall under Article 4 paragraph 1 UNFCCC.[14] These measures comprehensively cover mitigation and adaptation approaches and policies. As a further requirement the measures must be agreed between the developing country party and the entity running the

11 Preample to the UNFCCC.
12 Article 11 Kyoto Protocol.
13 Article 4 para. 3 UNFCCC.
14 Article 4 para. 3 UNFCCC.

financial mechanism, currently the Global Environment Facility (GEF).[15] Article 4 paragraph 4 UNFCCC specifically emphasises the financial support for those developing country parties that are particularly vulnerable to the adverse effects of climate change. Developed country parties are required to assist the countries concerned in meeting the costs of adaptation to those adverse effects.[16] Financial assistance under Article 4 UNFCCC therefore is intended as full financial support of developed countries for developing countries living up to their commitments under the climate change regime. The need for financial assistance is reaffirmed in Article 11 Kyoto Protocol with regard to its specific regulatory content.

The organisation and management of the financial mechanism is regulated in Article 11 UNFCCC. This provision defines a mechanism for the provision of financial resources on a grant or concessional basis, which is supposed to function under the guidance of, and be accountable to, the Conference of the parties (COP).[17] While the COP decides on the policies of the financial mechanism as well as its programme priorities and eligibility criteria for funding, Article 11 paragraph 1 UNFCCC requires the operation of the financial mechanism to be carried out by one or more existing international entities. For an interim period, the GEF, the United Nations Environment Programme (UNEP) and the International Bank for Reconstruction and Development (IDBR) were defined as the international entities entrusted with the operation of the financial mechanism.[18] At present, the operation of the financial mechanism is still entrusted to the GEF. The financial mechanism as such and the commissioning of the international entity is under review every four years.[19] Article 11 paragraph 2 UNFCCC requires the financial mechanism to "have an equitable and balanced representation of all Parties within a transparent system of governance." Accordingly this requirement has to be met by the international entity to be entrusted with the operation of the financial mechanism. For the GEF, this was specifically stipulated in the interim arrangements in Article 21 paragraph 3 UNFCCC.

15 The Global Environment Facility (GEF) was established as a programme in the World Bank and later restructured as a separate institution. Presently, the GEF is a financial mechanism for several global environmental conventions, including the Convention on Biodiversity and the UNFCCC.
16 Article 4 para. 4 UNFCCC.
17 Article 11 para. 1 UNFCCC.
18 Article 21 para. 3 UNFCCC.
19 Article 11 para. 4 UNFCCC.

In their interaction, the COP and the GEF are responsible for arrangements that give effect to financing activities of climate change mitigation and adaptation. These arrangements include modalities to ensure that the funded projects are in conformity with the policies, programme priorities and eligibility criteria for funding, as well as modalities by which a particular funding decision may be reconsidered in light of these policies, programme priorities and eligibility criteria.[20] Initially, the interaction between the COP and the GEF was determined in a memorandum of understanding.[21] Further communication involves regular decisions of the COP, providing additional guidance to the GEF, as well as the GEF's annual reports to the COP, in order to meet the accountability requirement laid down in Article 11 paragraph 1 and 3 UNFCCC.

Finally, Article 11 paragraph 5 UNFCCC and Article 11 paragraph 3 Kyoto Protocol clarify that, in addition to the envisaged financial mechanism, financing can also be provided through bilateral, regional or other multilateral channels. This provision offers many opportunities for state actors and other stakeholders to play an active role in climate financing. Thus, a variety of programmes and activities are carried out through channels other than that of the official financial mechanism provided for by the UNFCCC.[22] Selected financing mechanisms under the UNFCCC framework will be presented below.

C. Guiding Principles of Climate Finance

As indicated in the Preamble to the UNFCCC, the topic of climate finance is linked to the guiding principle of the climate change regime, the concept of common but differentiated responsibilities and respective capabilities. This principle reveals that the climate change debate is strongly influenced by ethical considerations around responsibility, justice and fairness.[23] While responsibilities for climate impacts can be attributed to the developed world

20 Article 11 para. 3 UNFCCC.

21 Decision 12/CP.2 and decision 12/CP.3, available at http://unfccc.int/cooperation_support/financial_mechanism/guidance/items/3655.php, last accessed 24 January 2013.

22 See http://unfccc.int/cooperation_and_support/financial_mechanism/bilateral_and_multilateral_funding/items/2822.php, last accessed 24 January 2013.

23 For an elaborate discussion on ethical considerations regarding negotiations on climate finance, see Grasso (2011:361–377).

to a large extent, climate vulnerabilities are unevenly distributed and predominantly feature in developing countries. Correspondingly, Article 4 paragraph 4 UNFCCC contains a specific value of the principle of common but differentiated responsibilities and respective capabilities in that developed countries are obliged to assist the developing country parties – which are particularly vulnerable to the adverse effects of climate change – in meeting adaptation costs. Climate financing, therefore, is guided by the question on how to share burdens fairly and to distribute costs related to climate change.

The main indicator for a distribution of climate change costs has been the responsibility of developed countries for historical greenhouse gas emissions which have accumulated since the beginning of carbon-based industrial activity. These emissions have contributed to adverse changes in the climate system and weather patterns. In the light of common environmental law principles, like the polluter pays principle and the no-harm principle, the climate change regime follows up on the responsibility of developed countries for past and present greenhouse gas emissions.[24] This responsibility not only involves obligations concerning emissions reductions and limitations, but is also a basis for financial obligations. Accordingly, the industrialised countries, which have primarily contributed to climate impacts, are also held financially responsible for them. Under the climate change regime, they are obliged to give financial assistance to the more vulnerable developing countries, which face the major damage caused by changes in weather and climate patterns. Consequently, financial assistance particularly needs to support adaptation efforts in countries which do not have the resources to adapt to the impacts of climate change.

The principle of common but differentiated responsibilities and respective capabilities is the central concept within the climate change framework to strike a balance towards a fair and just allocation of financial responsibilities. Aspects of justice and fairness play an increasingly important role in negotiations on the further development of climate financing within the climate change regime owing to the growing awareness that strengthening adaptation is crucial. In the past, by far the largest share of financial means has been spent on mitigation efforts in industrialised and large developing coun-

24 While the polluter pays principle is not explicitly mentioned, the no-harm principle features in the Preamble to the UNFCCC and the precautionary principle are included in Article 3 para. 3 UNFCCC.

tries such as China, Brazil and India.[25] The diagram presented in the introduction indicates the small share of climate finance which supports adaptation measures. According to newest findings, in 2010 to 2011, mitigation activities attracted US$350 billion, predominantly focusing on renewable energies and energy efficiency, while financing for adaptation covered US $12.3 billion to 15.8 billion.[26] The figures in this report also reveal that, in 2010 to 2011, the private sector contributed 74% of the finance for mitigation measures, while in adaptation finance, public financial institutions were the predominant sources, accounting for 77.5 % of the total.[27]

Recent negotiations of the climate change regime have focused on increasing the financial capacities and have also strengthened the case of adaptation.[28] The way of administering adaptation funding, especially, has become a crucial element for the development of international climate policy.[29] As soon as discussions concern increased funding for adaptation measures in developing countries, they touch on issues around responsibility, justice and fairness. Whereas mitigation is still mostly a topic in industrialised countries and larger developing countries, adaptation measures are needed particularly in less developed regions.[30] Moreover, developing and especially least developed countries are most vulnerable to climate change impacts, although they contributed least to historical greenhouse gas emissions that are responsible for climate change at present.[31] Fairness, therefore, demands an increased transfer of financial resources from industrialised to developing countries. Accordingly, the challenge for the parties and stakeholders involved in the climate negotiations is to develop secure, adequate and predictable funding streams for the financing of adaptation needs in poorer, more vulnerable countries with least adaptive capacity.[32]

25 Von Bassewitz (2011:316–318). Von Bassewitz states that the Clean Development Mechanism (CDM), established under the Kyoto Protocol, has been the largest mechanism to transfer funding from industrialised to developing countries. The CDM has however often been criticised as favouring projects in large developing countries, while being unattractive for projects in smaller developing and least developed countries.
26 Buchner et al. (2012:49).
27 (ibid.:50–54).
28 For the recent developments, see the following part of this chapter.
29 Grasso (2011:362).
30 Dellink (2009:411).
31 (ibid.).
32 Grasso (2011:362).

D. Recent International Developments Concerning Climate Finance

Since the 1990s growing awareness in the climate change discussion has also exposed the topic of climate financing. The permanent discussions and negotiations in the climate change debate have led to a variety of climate financing instruments and mechanisms. Adjustments of old and introduction of new climate-related funds have been on the agenda at regular intervals. With the decisions taken at the 16th COP to the UNFCCC in Cancun, the international community embarked on the development of a new funding framework, stating that a scaled up, new and additional, predictable and adequate funding is envisaged.[33]

Developed countries committed themselves to fast-tracking the provision of funding in the amount of US$30 billion for the period 2010 to 2012 in the Cancun Agreement. The decision refers to new and additional financial resources and aims at "a balanced allocation between adaptation and mitigation".[34] For the most vulnerable developing countries, the commitment states that funding for adaptation is regarded as a priority. Beyond that fast-track pledge, the Cancun Agreement also contains a commitment of the developed country parties to "a goal of mobilizing jointly US$100 billion per year by 2020 to address the needs of developing countries". This pledge of the international community, in principle, represents one of the largest development programmes in history.[35] However, the international debate also acknowledged that there are "no individual sources that can simultaneously deliver the US$100 billion target and meet the full range of end-use requirements".[36] Correspondingly, the Cancun Agreement also reaffirmed that funding may derive from multiple sources, including public and private, multilateral and bilateral, as well as alternative sources. In this context, the Cancun Agreement acts on the specific financing provisions in the Bali Action Plan. These provisions call upon enhanced action on the provision of financial resources, including, inter alia, improved access to adequate, predictable and sustainable financial resources, the provision of new and addi-

33 UNFCCC, Decision 1/CP.16 The Cancun Agreements, Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, 16, available at http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf, last accessed 24 January 2013.

34 (ibid.).

35 Donner (2011:908).

36 UN Secretary General (2010:35).

tional resources, as well as the mobilisation of public- and private-sector funding and the facilitation of climate-friendly investment choices.[37] The ambitious US$100 billion target will require that the envisaged funding sources are secured well in advance of 2020 "in order to allow for sufficient time to develop both the capacity to deliver and the capacity to use wisely the flow of funds made available".[38]

Another important decision in the Cancun agreement is the establishment of the Green Climate Fund (GCF). This new financial instrument will channel both the initial US$30 billion and a substantial fraction of the envisaged US$100 billion per year.[39] The Cancun agreement also points out that the GCF will be in charge of a significant share of new funding for adaptation.[40] According to the Cancun agreement, funding is proposed to flow through multiple channels including public, private, bilateral, and multilateral sources.[41]

The implementation of the GCF under the guidance of – and accountable to – the COP with a balanced and comprehensive governing instrument as well as an intermediary process to get the Fund up and running as quickly as possible has been one of the results of the climate negotiations held at the 17th COP in Durban, South Africa.

Recent decisions taken at the 18th COP in Doha, Qatar, (dubbed the Doha Climate Gateway) emphasise the importance of financing mechanisms in the field of climate change. In the Work Programme on Long-Term Finance it has, for example, been decided:[42]

> to extend the work programme on long-term finance for one year to the end of 2013, with the aim of informing developed country Parties in their efforts to identify pathways for mobilising the scaling up of climate finance to USD 100 billion per year by 2020 from public, private and alternative sources in the context of meaningful mitigation actions and transparency on implementation, and informing Parties in enhancing their enabling environments and policy frameworks to facilitate the mobilization and effective deployment of climate finance in developing countries.

37 UNFCCC, Decision 1/CP.13 *Bali Action Plan*, para. 1 (e), p. 5, available at http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf, last accessed 24 January 2013.
38 UN Secretary-General (2010:35).
39 Donner (2011:908).
40 Van Kerkhoff et al.(2011:19).
41 Donner (2011:908);Van Kerkhoff et al. (2011:19).
42 UNFCCC draft decision -/CP.18 Work Programme on Long-term Finance, Advance unedited version, available at http://unfccc.int/files/meetings/doha_nov_2012/decisions/application/pdf/cop18_long_term_finance.pdf, last accessed 24 January 2013.

The agreement also encourages developed countries to increase efforts to provide finance between 2013 and 2015 at least to the average annual level at which they provided funds during the 2010 to 2012 fast-track finance period. This is to ensure that there is no gap in continued finance support while efforts are being scaled up. Furthermore, governments will continue a work programme on long-term finance during 2013 to contribute to the on-going efforts to scale up mobilisation of climate finance and report to the next COP on pathways to reach that target. Germany, the United Kingdom, France, Denmark, Sweden and the European Union Commission announced concrete finance pledges in Doha for the period up to 2015, totalling approximately US$6 billion.

COP18 has also taken note of the first annual report of the Board of the Green Climate Fund to the Conference of the parties and endorsed the consensus decision of the Board of the Green Climate Fund to select Songdo, Incheon, Republic of Korea, as the host of the Green Climate Fund, on the basis of an open and transparent process.[43]

Moreover, the UN Climate Change Secretariat and World Economic Forum have launched an initiative called Momentum for Change: Innovative Financing for Climate-friendly Investment, which aims at identifying and highlighting creative financing models that enable adaptation and mitigation activities in developing countries.

E. Sources of Climate Finance and Selected Disbursement Channels

The landscape of climate finance is complex and manifold. Buchner et al.[44] have described and surveyed the difficult material in detail, establishing the diagram presented in the introduction. A closer look at this diagram reveals the complex structure. The following part aims at giving an overview of the different sources of climate finance and the specific disbursement channels implemented under the UNFCCC and the Kyoto Protocol.

43 UNFCCC Draft decision -/CP.18 Report of the Green Climate Fund to the Conference of the Parties and guidance to the Green Climate Fund, Advance unedited version, available at http://unfccc.int/files/meetings/doha_nov_2012/decisions/application/pdf/cop18_report_gcf.pdf, last accessed 24 January 2013.

44 Buchner et al. (2012).

I. Sources of Climate Finance

Funding for climate change mitigation and adaptation can derive from a variety of sources, including public and private, bilateral and multiple, as well as alternative sources.[45]

In the debate on climate finance, the main differentiation is made between public and private sources. In the period 2010 to 2011, public sources such as government budgets and development finance institutions provided 26% of total climate finance of US$343 billion to 385 billion.[46] In this context, the specific contribution of government budgets ranged between US$16 billion and 22.6 billion (5% of total climate finance), including direct public investments and north-south aid flows.[47] Public funding through development finance institutions accounted for US$76.8 billion.[48]

In the public sector, funding through government budget particularly derives from domestic revenues through direct budget contributions.[49] Scaling-up public finance requires stakeholders to break new ground to increase funding through government budget. In addition to general tax revenues provided for climate funds, new public instruments need to be introduced or, if already applied, expanded. The introduction of instruments based on carbon pricing not only raises revenue, but also provides incentives for mitigation actions.[50] These carbon-related instruments may vary in their design and follow different approaches, e.g. tax-based approaches or the introduction of carbon markets. According to new findings for the period 2010 to 2011, carbon taxes account for US$7.3 billion, while carbon market revenues contribute US$2 billion.[51] The largest amount of the latter derives from the European Union Emissions Trading System, accounting for US$1.62 billion.[52] The further expansion of carbon market instruments, such as international or domestic auctioning of emissions allowances and emissions

45 For example, UNFCCC, Decision 1/CP.16 The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, p 16, available at http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf, last accessed 24 January 2013.
46 Buchner et al. (2012:18).
47 (ibid.).
48 (ibid.).
49 UN Secretary-General (2010:7).
50 (ibid.:12).
51 Buchner et al. (2012:22).
52 (ibid.:20).

trading schemes, as well as carbon taxes, was regarded to have the potential to contribute significantly to raising the envisaged US$100 billion per year.[53] Other prospective instruments for raising revenue include, inter alia, taxes on international aviation and shipping, charges on electricity generation, fossil fuel extraction royalties, the removal of fossil fuel subsidies and an international financial transaction tax.[54]

Main contributors in the public sector are development finance institutions providing 21% of total climate funding. The multilateral, bilateral, subregional and national finance institutions falling under this category are generally dominated by national or member governments who fund their capital base.[55] They operate as a crucial link between public and private finance in that they add significant value to financing packages by subsidising interest rates, transforming the maturity of loans to long-term, and absorbing a share of the risks of the loans handed out to the private sector.[56] Thus, development finance institutions have the capacity to leverage large additional amounts of public and private investment in a way that integrates climate action into development programmes.[57]

The private sector, including, inter alia, corporate actors, project developers, commercial financial institutions and households, is the dominant source, providing US$250 billion to 286 billion out of the total climate finance of US$343 billion to 385 billion in the 2010 to 2011 period.[58] Project developers account for the largest contribution in the private sector (34% to climate investments flows in total).[59] In the period 2010 to 2011, they provided US$115 billion to 129.3 billion for designing, commissioning, operating and maintaining emissions reduction projects.[60] The second largest contribution in the private sector is made by corporate actors. In the period 2010 to 2011, they provided 21% of global climate finance by investing in emissions reduction projects such as renewable energies or energy efficiency measures, as well as by financing of own technologies in the case of manu-

53 UN Secretary-General (2010:12).
54 (ibid.:20). The report (at page 15) particularly highlights "carbon pricing of international transport as an important potential source for climate financing (and mitigation) that could contribute substantially towards mobilizing US$100 billion".
55 Buchner et al. (2012:24).
56 (ibid.).
57 UN Secretary-General (2010:32).
58 Buchner et al. (2012:18).
59 (ibid.:29).
60 (ibid.).

facturers of renewable energy systems.[61] Commercial financial institutions and households accounted for 10% and 9%, respectively, of total climate finance in the years 2010 to 2011.[62] These figures reveal that private investment is already quite substantial. However, findings also indicate that most of the private finance is currently invested in mitigation projects in developed countries.[63] Consequently, it will be necessary to scale-up private capital flows in order to meet the goal of mobilising US$100 billion per year by 2020 to address the needs in developing countries.[64] Part G of this chapter will focus on this challenge and the important role of the private sector in scaling-up climate finance, especially for adaptation needs in developing countries.

II. Selected Disbursement Channels

The actors and channels involved in disbursing climate finance are manifold. It is beyond the scope of this chapter to give a detailed insight into the multitude of organisations and funding mechanisms. Therefore, the following part focuses on the entities specifically designated for climate change mitigation and adaptation issues within the UNFCCC and Kyoto Protocol framework.

In general, specific funding for mitigation and adaptation can be based on both international mechanisms and funding instruments under the UNFCCC framework, as well as bi- or multilateral arrangements. The general financing mechanism provided for in Article 11 UNFCCC is complemented by several specific funding instruments under the UNFCCC and/or the Kyoto Protocol, including, inter alia, the Climate Investment Funds (CIF), the Adaptation Fund, as well as the new Green Climate Fund (GCF), established at COP 16 in Cancun, Mexico. Corresponding to the multitude of funding mechanisms, a variety of organisations is involved in disbursing climate funds. They may be local, regional, national, or international organisations from the public and private sector, including, for example, public-private

61 (ibid.:26).
62 (ibid.:18).
63 (ibid.:26ff.).
64 UN Secretary-General (2010:5).

partnerships (PPPs), local financial institutions and banks, multilateral organisations, non-governmental organisations, and civil society.[65]

The financial mechanism under Article 11 UNFCCC promotes projects in energy efficiency, renewable energy, sustainable urban transport and sustainable management of land use, land-use change, and forestry.[66] The operating entity of the financial mechanism is the GEF.[67] The GEF was set up to provide grants for global environmental benefits and, presently, is the world's largest grant funding source dedicated to multilateral environmental agreements and public goods.[68] The daily business of the GEF is run by the World Bank serving as the facility's trustee. With regard to operating the financial mechanism of the UNFCCC, the main task of the GEF is to facilitate multilateral financial support for developing countries, including support for adaptation measures.[69] In doing so, the GEF allocates hundreds of millions of dollars per year for mitigation and adaptation projects in developing countries and economies in transition.[70] Concerning adaptation measures, the GEF initially focused on covering costs for capacity-building and research.[71] In 2005, the GEF expanded its portfolio and introduced the Strategic Priority on Adaptation (SPA), which marks a shift from focusing on planning and capacity-building towards practical adaptation measures.[72]

Several other mechanisms have been introduced to support the GEF's efforts in adaptation funding. In 2001, COP 16 in Bonn recognised the increasing importance of adaptation measures and building adaptive capacity and, consequently, introduced two special funds dedicated to adaptation: the Special Climate Change Fund (SCCF) and the Least Developed Country Fund (LDCF).[73] For both funds, the GEF is the designated operating entity.

The SCCF aims at supporting adaptation and technology transfer in all developing country parties to the UNFCCC.[74] The fund assists developing countries in diversifying their economies, in preparing their national communications to the UNFCCC and in strengthening implementation of adap-

65 Buchner et al. (2012:49).
66 See http://www.thegef.org/gef/climate_change, last accessed 24 January 2013.
67 For history and legal background, see part B. of this chapter.
68 Di Leva (2010:373).
69 McGoldrick (2007:52).
70 See http://www.thegef.org/gef/climate_change, last accessed 24 January 2013.
71 Bouwer & Aerts (2006:53).
72 McGoldrick (2007:52).
73 Bouwer & Aerts (2006:51).
74 See http://www.thegef.org/gef/SCCF, last accessed 24 January 2013.

tation activities related to their national communications.[75] Projects supported by the SCCF include both long-term and short-term adaptation activities in water resources management, land management, energy, agriculture and health, as well as in infrastructure development and fragile ecosystems.[76] According to the latest figures (June 2012), the SCCF adaptation programme had mobilised US$162.24 million for projects and programmes in non-Annex I countries, while the technology transfer window has supported six projects in total, accounting for US$26.64 million.[77]

The LDCF was established to support activities in least developed countries, drawing on financial contributions from developed countries.[78] The fund is specifically designated for the financing of the preparation and implementation of National Adaptation Programmes of Action (NAPAs) in least developed countries.[79] Latest figures (June 2012) reveal that, since its inception, the LDCF has funded the preparation of 48 NAPAs and, subsequent to adopting the NAPA, 46 countries have officially submitted NAPA implementation projects for approval.[80] Altogether, the LDCF now supports 74 projects and 1 programme in 44 countries, accounting for US$334.6 million in total and leveraging another US$1.59 billion in co-financing.[81]

Another fund specifically dedicated to adaptation measures in developing countries is the Adaptation Fund. Unlike the other UNFCCC funds for adaptation, the Adaptation Fund is not regulated by the Convention but by the Kyoto Protocol.[82] The Adaptation Fund is still a young financing instrument. Although already provided for in the 1997 Kyoto Protocol and being established at COP 7 (Marrakesh) in 2001, the final negotiations and decisions on the management and governance of the Adaptation Fund took place at COP12 (Nairobi) and COP13 (Bali) in 2006 and 2007, respectively.[83] The Fund therefore could only start operating in 2008. The operating entity of the Adaptation Fund is the GEF. Funding is provided for "the implementation of concrete adaptation projects in Non-Annex I countries, including activities aimed at avoiding forest degradation and combating land degra-

75 Bouwer & Aerts (2006:51).
76 See http://www.thegef.org/gef/SCCF, last accessed 24 January 2013.
77 (ibid.).
78 McGoldrick (2007:52).
79 See http://www.thegef.org/gef/LDCF, last accessed 24 January 2013.
80 (ibid.).
81 (ibid.).
82 Grasso (2011:363).
83 (ibid.: 363f.).

dation and desertification."[84] Since 2010, the Adaptation Fund has dedicated more than US$165 million to increase climate resilience in 25 countries around the world.[85] Provided for by Article 12 paragraph 8 of the Kyoto Protocol, resources for the Adaptation Fund partly come from a share of 2% of certified emissions reductions issued for Clean Development Mechanism (CDM) projects.[86] Further resources for funding are contributions from governments, the private sector, and individuals.[87]

Additionally, two Climate Investment Funds (CIF) established in 2008 address both mitigation and adaptation needs in developing countries through combining grants with highly concessional funding and risk reduction instruments.[88] The CIF consist of a pair of funds, the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF), which are channelled through the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, and the World Bank Group. The CTF focuses on mitigation actions and specifically supports low-carbon technologies in developing countries.[89] While the CTF therefore promotes concrete national investment plans for demonstration, deployment and transfer of clean technologies, the SCF serves as an overarching fund to support targeted programmes such as the Forest Investment Program (FIP) and the Program for Scaling-Up Renewable Energy in Low Income Countries (SREP).[90] Another programme promoted by the SCF is the Pilot Program for Climate Resilience (PPCR), which addresses adaptation needs of developing countries.[91] The financial resources for both funds amount to US$6.5 billion, pledged by 14 contributors.[92]

The youngest climate-related disbursement mechanism is the GCF.[93] This fund was established within the UNFCCC framework. Its purpose is to con-

84 Bouwer & Aerts (2006:52).
85 See https://www.adaptation-fund.org/about, last accessed 24 January 2013.
86 Grasso (2011:363).
87 See https://www.adaptation-fund.org/about, last accessed 24 January 2013.
88 Di Leva (2010:378).
89 (ibid.:378).
90 See http://www.climateinvestmentfunds.org/cif/designprocess, last accessed 24 January 2013.
91 Di Leva (2010:378).
92 See http://www.climateinvestmentfunds.org/cif/funding-basics, last accessed 24 January 2013.
93 For the relevant negotiations, see part D. of this article.

tribute to the achievement of the ultimate objective of the UNFCCC. The GCF will be an operating entity of the financial mechanism under Article 11 UNFCCC and will be governed and supervised by a board with full responsibility for funding decisions.[94] An interim secretariat runs the daily business for the Board of the GCF and, as an interim trustee, the World Bank manages the financial assets of the Fund. The main task of the GCF is to support projects, programmes, policies and other activities in developing countries relating to climate change by using thematic funding windows.[95] As the important role of the GCF with regard to mobilising new funding sources was emphasised during the climate change negotiations, the prospects of this new instrument will be evaluated separately at the end of the following part of this chapter, focusing on the need for increased private sector finance.

F. Corruption Risks in Climate Finance[96]

The previous section gave an overview of the substantial volumes of funding and the multitude of mechanisms involved in the climate finance arena. The overall climate finance architecture is becoming a giant platform for financial resources being shifted from developed countries to developing countries. The large volumes of funding, as well as the complexity of the climate finance architecture, increasingly raise questions about accountability, transparency and corruption.

Deficiencies in transparency and accountability are manifold. They start with the lack of clear definitions of what exactly constitutes climate change funding. Many COP decisions within the UNFCCC refer to new and additional funding. Subsequent to those decisions, it has often been disputed whether funding of climate change mitigation and adaptation is additional to the existing development aid architecture or whether it is possible for developed countries to label existing climate change induced activities as

94 UNFCCC, Decision 3/CP.17 Annex II. A. + B., available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=58, last accessed 24 January 2013.

95 UNFCCC, Decision 1/CP.16 The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, 17, available at http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf, last accessed 24 January 2013.

96 Parts of the following section are based on Ruppel (2013:308f.).

developing aid. Although the Cancun agreement now specifically states that the new climate change funding must be additional to existing aid commitments, the definition of additionality of climate change financing is still vague.[97] Beyond difficulties around definitions, other deficiencies result from the lack of consistent transparency requirements within the UNFCCC framework, as well as the existing multitude of funding flows, disbursement channels and actors involved. This complexity has led to a patchwork of incomplete, inconsistent, multiple and overlapping data standards and repositories, so that even where data is provided it is difficult to track, analyse and use.[98]

Lack of transparency and accountability within the complex architecture of climate financing increases the danger of the abuse of entrusted power for private gain. The *2011 Global Corruption Report: Climate Change*[99] addressed this danger and stated that corruption was indeed a risk in addressing climate change, since a risk of corruption always exists where "huge amounts of money flow through new and untested financial markets and mechanisms" – the latter sentiment being particularly true for recent, current and future financial flows related to climate change finance, technology and capacity-building meant to support developing countries according to the principle of equity. Indigenous and rural poor communities in remote locations, the urban poor living in precarious settlements, and displaced persons, especially women and children, are especially adversely affected by climate change and they are actually meant to be the main beneficiaries of adaptive action. However, corruption eventually puts at risk the rights of those most vulnerable to the negative effects of climate change. The reasons for the high risk of corruption with regard to climate finance are rooted in the level of complexity, uncertainty and novelty that surrounds many climate issues. A multitude of regulatory grey zones and loopholes exist that are at risk of being exploited by those with corrupt interests.

The report states that "US$250 billion per annum will eventually flow through new, relatively uncoordinated and untested channels" and that "[s]ome estimate total climate change investments in mitigation efforts alone at almost US$700 billion by 2020". Furthermore, carbon markets have been adopted in a number of regions and countries as one method of reducing GHG emissions and it is estimated that the value of leading carbon markets

97 Donner (2011:908).
98 Forstater & Rank (2012:23).
99 Transparency International (2011).

has now reached some US$144 billion. In order to ensure that the investments by the public and private sectors are properly and equitably managed, a system of good climate governance[100], with participatory, accountable, transparent, inclusive and responsive policy development and decisions and the respect of the rule of law, is essential.

G. Private Climate Finance[101]

Despite the substantial amounts of climate finance that are already spent, particularly in developed countries, the Cancun target of an additional US $100 billion per year for developing countries by 2020 remains an ambitious goal. Stakeholders in the international climate change debate, thus, have focused on the challenges connected to this target during the last COP meetings.[102] One of the major challenges in the near future will be the need successfully to leverage private investment in developing countries.

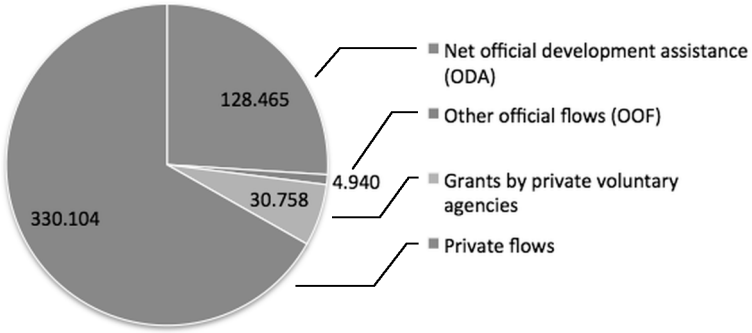
I. Climate Finance and the Role of the Private Sector

Previous to the Cancun COP, four groups of potential sources of finance have been identified: public sources for grants and highly concessional loans (including, inter alia, carbon taxation, auctioning of emission allowances and removal of fossil fuel subsidies); development bank-type instruments; carbon market finance; and private capital.[103] Accordingly, the Cancun agreements expressly include private investment as one of the sources providing funds to developing countries. The UN Secretary-General's High-Level Advisory Group on Climate Change Financing stated that private investment "in mitigation and adaptation activities will depend on a mix of Government policies, including regulation, standards, support for new technologies, implicit and/or explicit carbon pricing, improved investment cli-

100 *Climate governance* can be understood as the processes that currently exist at the international, national, corporate and local levels to address the causes and effects of climate change. See Transparency International (2011).
101 Parts of the following sections are based on Ruppel & Lüdemann (2013).
102 See part D. of this article.
103 UN Secretary-General (2010:9).

mate and the availability of risk-sharing instruments".[104] There is a large potential of sources originating from the private sector. In 2010, for example, private flows of development aid amounted to US$300 billion.

Figure 1: Development Assistance in 2010 in Millions of US Dollars



Figures from
Developement: Key tables from OECD
available at http://www.oecd-ilibrary.org/development/development-key-tables-from-oecd_20743866;jsessi%20onid=1ovg6qen403kx.delta, last accessed 10 May 2013

In the climate finance sector, private funding is in the form of debt investments and private equity. Further climate finance instruments include policy incentives, risk management facilities, carbon offset flows and grants. Innovative mechanisms to activate private capital need to be identified continuously. Ideas to tap private sources for climate finance have emerged, such as guarantees, funds of funds, project aggregation mechanisms, climate bonds and public-private funds.[105] All the aforementioned ideas require, above all, a reliable regulatory framework for attracting private sector capital to tackle climate change, particularly in developing countries. Political instabilities and financial flaws are major barriers for private investors. However, the ambitious Cancun commitments and the estimates of international institutions concerning required climate-related investment require a substantial increase of private sector capital. The fulfilment of climate change targets – be they financial commitments; be they the limitation of further

104 (ibid.:35).
105 See the more detailed discussion below under IV. 2. and Energy and Resources Institute, (2012:28ff.).

temperature increases – depend highly on the success in mobilising private capital. Therefore, it remains crucial to overcome barriers and create an enabling environment for private investor capital.

II. The Role of the Investment Climate for Climate Investment

Addressing the impacts of climate change requires substantial investment in new technologies, processes and services. Global new investment in clean energy is a good example of the high relevance of a favourable investment climate for climate change: new investment in the sustainable energy sector set a new record in 2010 by reaching US$211 billion, an increase of 32% from a revised US$160 billion in 2009, and more than 600% increase from 2004 (US$33 billion).[106]

Generating and allocating the investment and financial flows needed to attain the levels of growth necessary for job creation and poverty reduction and thus to meet the Millennium Development Goals (MDGs) and at the same time to finance significant climate change mitigation is not an easy task. Taking that the private sector is the major investor in renewable energy and energy efficiency worldwide and in developing countries, a country's investment climate is one essential factor for increased climate investment. A favourable investment climate is pivotal for investments, particularly from the private sector in clean and climate-resilient technologies and renewable energy. Innovative solutions and technologies can however only be implemented, if adequate framework conditions for inclusive climate investment, leveraging private sector resources, and seizing opportunities for innovation exist.

A number of instruments to improve the investment climate have emerged at global, regional, national and sub-national levels. Various factors result in an unfavourable investment climate, including poor governance, institutional failures, macroeconomic policy imperfections and inadequate infrastructure, as well as rampant corruption, bureaucratic red tape, weak legal systems and a lack of transparency in government departments. The World Bank's *Doing Business Report* is one of the instruments to analyse the business climate by tracking a set of indicators, for ranking purposes combined in nine topics, namely starting a business, dealing with construction permits,

106 UNEP and Bloomberg New Energy Finance (2011:12).

registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and closing a business. In the past five years, about 85% of the world's economies have made it easier for local entrepreneurs to operate, through improvements to business regulation. The rankings for 185 countries in 2012[107], however, reveal that of the 33 countries classified as low-income countries only two are within the rankings and lie between 50 to 100 (Rwanda 52nd and Kyrgyz Republic 70th); 17 of the 33 low-income countries rank among the last 50 of 185 countries in total. Of the 50 lowest ranking countries, 32 are in Africa, a continent most vulnerable to the negative effects of climate change. When comparing the World Bank's African 'Ease of Doing Business' ranks of 2011 and the previous year, it can be observed that 10 African countries retained the same ranking they had received in 2010, 24 African countries have been downgraded, while 17 African countries could obtain a higher rank as a result of policy reforms and initiatives with positive impact on the investment climate.

The figures above correspond to those on Foreign Direct Investment (FDI) in Africa, as contained in the United Nations Conference on Trade and Development's World Investment Report (2012). Having reached a peak in 2008, the FDI inflows to Africa continued to decline in 2010, with divergent trends among subregions. "The fall in FDI flows to Africa seen in 2009 and 2010 continued into 2011, though at a much slower rate. The 2011 decline in flows to the continent was due largely to divestments from North Africa. In contrast, inflows to sub-Saharan Africa recovered to $37 billion, close to their historic peak."[108] Although it remains difficult for the African continent to attract foreign capital and mobilise adequate and sustained levels of domestic private investment, some African countries including Mauritius, Botswana, Ghana and Tunisia have made progress and could achieve higher levels of investment.[109]

III. Investment Barriers

Investment barriers have to be evaluated according to the respective country specifics. Several attempts have been made to categorise investment barriers. A survey of those attempts reveals that the barriers are interrelated and,

107 See http://www.doingbusiness.org/ranking, last accessed 24 January 2013.
108 UNCTAD, World Investment Report (2012).
109 Ruppel (2011).

therefore, cannot be strictly divided into groups. However, certain features allow for a categorisation into political/regulatory, project-related and financing barriers, bearing in mind that single risks correlate and especially the group of financing risks to a certain extent results from political and project-related barriers.[110]

With regard to a first category, key risks for private sector investors evolve from political and/or regulatory instabilities. This group of barriers includes, inter alia, political instability, insecurity of property rights, lack of knowledge of legal systems, currency risks, as well as the instability and uncertainty of the regulatory and policy environment, including, for example, the duration of incentives programmes.[111] Another group of barriers is connected to the respective project. In this group, technology risks such as limited performance track records or limited market penetration may have negative effects.[112] Technology risks usually come with high initial costs for the developer. Other project-related risks include execution inefficiency and unfamiliarity risks based on insecurity concerning the capacities and experiences of local project developers, but are often also based on the lack of investor experience in an unknown field.[113] The third group of barriers is related to financing risks and partly results from regulatory and/or project-related barriers and partly from original risks. This category, particularly, features technology cost gaps between high- and low-emission alternatives.[114] Although some renewable energy technologies nowadays expand fast, they are still in their infancy in respect of their market performance. Like with any new technology, project developers are confronted with higher market volatility. Consequently, a market entry entails capital intensity. In addition to this specific technology cost gap, the financial challenges are substantially increased by market distortions based on the market maturity of conventional high-emission technologies and subsidies for the fossil fuel sector, which fall under the first group of regulatory barriers and have to be addressed by the policy maker. Further financial risks include, inter alia, debt availability, reasonable debt terms and equity availability.[115] Particularly

110 This categorisation is based on and reflects Patel (2011:7). See also Brown & Jacobs (2011:2); Sierra (2011:7f.).
111 Brown & Jacobs (2011:2).
112 Patel (2011:7).
113 Brown & Jacobs (2011:2).
114 Sierra (2011:8).
115 Patel (2011:7).

developing countries often feature incomplete financial markets, which makes reliable estimates for risk-adjusted returns difficult and results in a lack of financial instruments to diversify risk over long-term projects.[116]

IV. Targeting Investment Barriers

Mobilising private sector engagement in climate change mitigation and adaptation requires political and financial programmes to overcome substantial barriers on different levels. A catalogue of coordinated and integrated measures must aim at developing a supportive and enabling environment for climate change-related investments. Support policies have to be identified for each category of barriers, and implemented at different levels. While designing strategies and programmes generally emanates from the policy level, project developers and private investors are inclined rather to demand concrete financial instruments to support engagement in climate change-related activities.

1. Policy Reform towards Climate Resilience

At the policy level, governments have to design and implement strategies and policies for low-emission development to enhance an enabling investment environment.[117] Strategies and policies for low-emission development include, inter alia, measures like reforms of fossil fuel subsidies, renewable energy feed-in tariffs and energy efficiency programmes. The policy maker has to coordinate these measures and integrate them in a coherent policy framework. Without government intervention working in that direction, low-emission alternatives will not be competitive. Removing fossil fuel subsidies and pricing the carbon externality adequately will alleviate pricing distortions that currently work against renewable energies and energy efficiency and contribute to creating a level playing field between energy sources.[118] However, the extent to which policy support measures can contribute to market transformation depends on the strength of the leadership

116 Sierra (2011:8).
117 (ibid.:10).
118 Patel (2011:8).

and the reform programme.[119] Support measures will only reach maximum efficiency and vigour if the regulatory framework is strict and transforms markets according to climate change necessities. Only markets that provide a level playing field between energy sources will attract private investors on a large scale. Regulatory measures therefore have to apply market-wide, instead of being directed to single projects or technology solutions in particular.[120]

The requirement of an integrated policy reform and a coherent regulatory framework poses great challenges on developing countries. Climate change actions and strategies cannot be separated from each country's broader economic and social development programmes, but have to be closely integrated with development strategies and investment plans.[121] Attempts to coordinate climate change and development strategies are ambitious and test the already existing financial constraints. Correspondingly, climate finance already plays an important role at this early stage. In this context, financial assistance does not provide direct funding for private sector activities, but goes into national government budget accounts to support policy reform.[122]

2. Financial Instruments to Leverage Private Investments

In addition to budget support to create an enabling regulatory framework, it remains mandatory to leverage private investments in projects supporting a low-emission development. Only a stable and competitive risk-return profile of climate investments will mobilise private sector capital and thus contribute to achieving the significant investment volumes required in international climate finance.[123] Thus, for the design of any climate finance architecture, it remains crucial to ensure that scarce public funds are applied to mobilise and leverage private sector investments.[124]

A number of financial tools and initiatives are discussed to address investment risks and potential barriers. They follow different approaches in that they leverage either debt or equity through involving direct public fi-

119 Sierra (2011:11).
120 Patel (2011:10f.).
121 De Nevers (2011: 4).
122 Sierra (2011:10).
123 UNEP Finance Initiative (2011).
124 De Nevers (2011:3).

nancing or providing public guarantees. The different designs of the financial tools facilitate a flexible utilisation, depending on the specific conditions of the project or the specific needs in the particular country. In general, the financial instruments aim at strengthening the role of the private sector as an investor and focus on providing new sources of capital for developing countries.[125]

Among the financial tools leveraging debt, loan guarantees and policy risk insurances are most prominent. Both tools protect private capital investors against risks of default. By using loan guarantees, governments and other public finance institutions underwrite loans to projects and, in doing so, ensure that the loan will be repaid if the borrower is not able to pay.[126] Similar instruments which decrease risk of default for private investors are cash grants and concessional financing. Policy risk insurances are used for climate investments in developing countries to reduce political and even currency and legal risks in order to ensure private investors adequate returns.[127] This financing instrument can involve conventional insurances which cover the risk of policy change, e.g. the risk of abandoning or reducing an existing feed-in tariff supporting renewable energy projects.[128] Policy risk insurances are able to reduce certain risks included in the regulatory framework and provide investors with certainty. However, this option might not be feasible for every developing country. The insurance sector will factor the risks involved in every single country so that this financing instrument "is most likely to succeed in countries with strong regulatory systems and institutions, and where certain policies are already in place or under development".[129]

Equity-leveraging tools are either structured as funds, directly investing in companies and projects, or as a fund of funds that invests in commercially managed funds, which then invest in concrete projects.[130] Pledge funds are one of the instruments used for leveraging private equity. In this model, governments or international financial institutions act as public finance sponsors in that they provide an initial amount of equity to mobilise much

125 Sierra (2011:12).
126 Brown & Jacobs (2011:2).
127 UNEP Finance Initiative (2011).
128 Brown & Jacobs (2011:2).
129 (ibid.:2).
130 De Nevers (2011:24).

larger amounts of private capital.[131] Pledge funds are an interesting financing option in cases where projects have difficulties to access sufficient equity because capital investors are reluctant to invest owing to geographic, country and execution risks.[132] Pledge funds can also be applied for projects that usually have a strong rate of return, but still have limited access to equity because they are too small for private investors to be considered.[133]

Fund of funds approaches are an attractive solution for institutional investors as they allow for diversification of risks and greater investment scales.[134] In this model, a public funder invests as a limited partner into a private fund, which, in turn, invests in other private investment funds.[135] The selection of the second stage funds is supposed to offer different levels of risk profiles reflecting country or technology sector specificities. If managed successfully, the fund of funds model offers investors access to countries or sectors which they might otherwise not have considered owing to insufficient expertise to evaluate the risks of financial commitments.[136]

Another method of leveraging equity is the provision of subordinated equity. In this model, public finance is used under the condition that private equity investors have priority over public funds in the reimbursement. Thus, the so-called subordinated equity funds contribute to increasing the risk-adjusted returns of private equity investors by ensuring that they have first claim on the distribution of profits.[137]

V. Role of the GCF in Mobilising Private Sector Finance

In addition to the already diverse mix of funding mechanisms presented in part E II. of this chapter, the Cancun Agreements established a new funding instrument, the GCF. This fund is supposed to play a central role with regard to the ambitious US$100 billion funding target. Consequently, the GCF will also be an important player when it comes to mobilising private sector capital.

131 Brown & Jacobs (2011:2).
132 Sierra (2011:12).
133 Brown & Jacobs (2011:2).
134 De Nevers (2011:24).
135 Sierra (2011:12).
136 De Nevers (2011:24).
137 Brown & Jacobs (2011:2).

1. Current Framework

According to the Cancun decision, the GCF is supposed to channel a significant share of new multilateral funding for adaptation.[138] With regard to the substantial pledges of the developed countries in the Cancun agreement, the GCF will take over a central role in the climate change financing system. This central role was highlighted at COP 17 in Durban, when the GCF was officially launched and its governing instrument was approved. According to the latter, the purpose of the GCF is to make a significant and ambitious contribution towards achieving the goals of the international community in fighting the climate change challenge.[139] The self-conception of the GCF is to play a key part in channelling new, additional, adequate and predictable financial means from both public and private sources at the international and national level. Correspondingly, the governing instrument states that the Fund will receive financial inputs from developed country parties and, beyond that, is open to funding from a variety of other public and private sources.[140] In the long run, it is envisaged that the GCF is to become "the main global fund for climate change finance".[141]

As a consequence of the ambitious targets set out for the GCF, the governing instrument for the GCF provides for specific regulations concerning the integration of private financial resources. A private sector facility is established to finance private sector mitigation and adaptation activities directly and indirectly at the national and international level.[142] Furthermore, the facility will particularly support private sector actors engaging in developing countries.

The GCF governing instrument lists grants and concessional lending as financial instruments. Financing can also be provided through other modalities, instruments or facilities after approval by the Board. According to the governing instrument, financing of concrete projects has to cover the iden-

138 UNFCCC, Decision 1/CP.16 The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, p 17, available at http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf, last accessed 24 January 2013.

139 UNFCCC, Decision 3/CP.17 Launching the Green Climate Fund, available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf, last accessed 24 January 2013, Annex para. 1.

140 (ibid.:Annex para. 29f.).

141 (ibid.:Annex para. 32).

142 (ibid.:Annex para. 41).

tifiable additional costs of the investment, which are regarded as necessary to make the project viable.[143]

2. Key Issues

One of the main challenges of the GCF will be to find its place in the already diverse climate financing architecture. It will be interesting to follow how both relation to and delineation towards the other funding mechanisms mentioned above will develop. The GCF will only become the envisaged key financing mechanism if it manages to operate on a large scale. This development depends on the level of public funds contributed by the developed states, as well as "on the attractiveness of the vehicle, particularly as a catalyst for private sector investment".[144] Regarding the different levels of barriers, the GCF will have several opportunities for engagement. The support for public sector projects and policy reform programmes through tools like budget support will be a crucial element to build a consistent and reliable enabling environment for private investment.[145] In addition to the support of enabling policy and regulatory environments, the GCF will also have directly to leverage public climate funds through risk reduction instruments and new climate instruments to attract private investment.[146] Tools have been mentioned above and include, inter alia, risk guarantees and pledge funds or fund of funds. Correspondingly, it will be necessary that the design of the GCF incorporates ways of leveraging private capital by means of direct investments and by supporting the necessary enabling frameworks in developing countries.[147]

Another key issue follows from the GCF's envisaged role in channelling a significant share of new adaptation funding. For the GCF, the task of strengthening adaptation activities will translate into specifically focusing on private sector engagement. The most vulnerable countries are developing countries with low country creditworthiness and thus least able to attract private investment as they require adaptation investments (e.g. related to water or agriculture), which are less attractive to private investors than mit-

143 (ibid.:Annex para. 54).
144 Sierra (2011:16).
145 (ibid.).
146 De Nevers (2011:25).
147 UNEP Finance Initiative (2011).

igation activities, where large investments in infrastructure are needed (e.g. energy or transport).[148] This dilemma is illustrated by the fact that, in terms of pledges, mitigation globally receives ten times the resources of adaptation. And as mitigation finance is rather spent on fast developing economies, Africa, consequently, receives the lowest level of funding.[149] In this light, the GCF will need to break up the hitherto existing climate financing structures and make a strong case for adaptation. As has been discussed at earlier stages when introducing the Adaptation Fund, it remains crucial to develop secure, adequate and predictable funding streams for the financing of adaptation needs in poorer, more vulnerable countries.[150] The GCF, therefore, needs to develop structures and methods, ensuring that priority in the use of public funds is given to funding adaptation costs, particularly in the most vulnerable countries.[151] However, it will also be mandatory for the GCF to increase private sector engagement in adaptation activities. In order to attract private investments it is necessary to understand the role that private sector finance can play in the most vulnerable countries.[152] If the GCF manages to prioritise public funds for adaptation and to mobilise additional private investment on a substantial scale, it can make a strong case for adaptation. It will be a challenge for the GCF to rather complement and further than to duplicate and impede structures and activities of the Adaptation Fund.

H. Concluding Remarks

The International Energy Agency estimates that the total cost of investment to meet climate goals may amount to US$220 billion per year between 2010 and 2020 and to almost US$1 trillion dollars per year between 2020 and 2030. Mitigation and adaptation activities require large volumes of capital, innovative financial mechanisms and long-term commitment. Therefore both public and private funds have to be increased substantially.

Considering that the amount of private finance is almost three times greater than public finance, it is imperative to mobilise private sector finance for mitigation and adaptation continuously. To this end, it is pivotal to create

148 De Nevers (2011:9).
149 Whande & Reddy (2011:2).
150 Grasso (2011: 362).
151 De Nevers (2011:9).
152 Bird et al. (2011:6).

a favourable investment climate for investments, particularly from the private sector in clean and climate-resilient technologies and renewable energy. Only a stable and competitive risk-return profile of climate investments will mobilise private sector capital and thus contribute to achieving the significant investment volumes required in international climate finance.

Mobilising private sector engagement in climate change mitigation and adaptation requires political and financial programmes to overcome substantial barriers on different levels. Ideas to tap private sources for climate finance have emerged, such as guarantees, fund of funds, project aggregation mechanisms, climate bonds and public-private funds. Further approaches for tapping private capital will need to be designed in order to meet future climate-change-related challenges. Particularly with regard to the most vulnerable regions in the world, it will be important for countries which are affected most by the negative effects of climate change to address the split between financial resources spent on mitigation measures (approximately 95%) and those spent on adaptation. It is hoped that the Green Climate Fund will play a key part in channelling new, additional, adequate and predictable financial means from both public and private sources at the international and national level.

References

Atteridge, Aaron, 2011, Will Private Finance Support Climate Change Adaptation in Developing Countries? Historical Investment Patterns as a Window on Future Private Climate Finance, Stockholm Environment Institute, available at http://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2011-05-Private-Sector-Adaptation-Finance-ES.pdf, last accessed 24 January 2013.

Bird, Neil, Jessica Brown & Liane Schalatek, 2011, Design Challenges for the Green Climate Fund, Climate Finance Policy Brief No. 4 (2011), 6, available at www.odi.org.uk/resources/docs/6457.pdf, last accessed 24 January 2013.

Bouwer, Laurens M. & Jeroen C.J.H. Aerts, 2006, Financing Climate Change Adaptation, *Disasters* 30, 49–63.

Brown, Jessica & Michael Jacobs, 2011, Leveraging Private Investment: The Role of Public Sector Climate Finance, Overseas Development Institute (ODI) Background Paper, available at http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7082.pdf, last accessed 24 January 2013.

Buchner, Barbara, Angela Falconer, Morgan Hervé-Mignucci, Chiara Trabacchi & Marcel Brinkmann, 2011, The Landscape of Climate Finance, Climate Policy Initiative, available at http://climatepolicyinitiative.org/publication/the-landscape-of-climate-finance/, last accessed 24 January 2013.

Buchner, Barbara, Angela Falconer, Morgan Hervé-Mignucci & Chiara Trabacchi, 2012, The Landscape of Climate Finance 2012, Climate Policy Initiative, available at http://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2012/, last accessed 24 January 2013.

Dellink, Rob, Michel den Elzen, Harry Aiking, Emmy Bergsma, Frans Berkhout, Thijs Dekker & Joyeeta Gupta, 2009, Sharing the Burden of Financing Adaptation to Climate Change, *Global Environmental Change* 19, 411–421.

De Nevers, Michele, 2011, Climate Finance – Mobilizing Private Investment to Transform Development, Global Economic Governance Programme (GEG) Working Paper, available at http://www.globaleconomicgovernance.org/wp-content/uploads/Climate-Finance-for-Development_deNevers.pdf. last accessed 24 January 2013.

Di Leva, Charles E., 2010, International Environmental Law, the World Bank, and International Financial Institutions, in: Daniel D. Bradlow & David B. Hunter, *International Financial Institutions and International Law*, The Hague, Kluwer Law International, 343–385.

Donner, Simon D., Milind Kandlikar & Hisham Zerriffi, 2011, Preparing to Manage Climate Change Financing, *Science* 334, 908–909.

Energy and Resources Institute, 2012, The Climate and Development Research Review, Synthesis Report (2012), available at http://www.teriin.org/pdf/Synthesis_Report.pdf, last accessed 24 January 2013.

Forstater, Maya & Rachel Rank, 2012, Towards Climate Finance Transparency, Paper by aidinfo and Publish What You Fund, available at http://www.publishwhatyoufund.org/files/Towards-Climate-Finance-Transparency_Final.pdf, last accessed 24 January 2013.

Grasso, Marco, 2011, The Role of Justice in the North-South Conflict in Climate Change: The Case of Negotiations on the Adaptation Fund, *International Environmental Agreements*, 361–377.

International Energy Agency, 2010, World Energy Outlook 2010, available at http://www.iea.org/publications/freepublications/publication/name,27324,en.html, last accessed 22 February 2013.

McGoldrick, Will, 2007, Financing Adaptation in Pacific Island Countries: Prospects for the Post-2012 Climate Change Regime, *Australian International Law Journal* 14, 45–69.

Patel, Shilpa, 2011, Climate Finance: Engaging the Private Sector, International Finance Corporation (IFC) Background Paper, available at http://www1.ifc.org/wps/wcm/connect/5d659a804b28afee9978f908d0338960/ClimateFinance_G20Report.pdf?MOD=AJPERES, last accessed 24 January 2013.

Ruppel, Oliver C., 2011, Financing for Climate Change in Africa, in: AMCEN/African Union and UNEP/United Nations Environment Programme, *Addressing Climate Change Challenges in Africa,* Nairobi, AMCEN 127-169, available at http://www.unep.org/roa/amcen/docs/publications/guidebook_CLimateChange.pdf, last accessed 24 January 2013.

Ruppel, Oliver C., 2013, International Legal Climate Change Regimes and Climate Finance, in: Ruppel, Oliver C. & Katharina Ruppel-Schlichting (Eds), *Environmental Law and Policy in Namibia*, Windhoek/Essen, Orumbonde Press/Welwitschia Verlag Dr. A. Eckl, 287–308.

Ruppel, Oliver C. & Cord Lüdemann, 2013, Climate Finance – Mobilising Private Sector Finance for Mitigation and Adaptation, Institute for Security Studies (ISS) Situation Report, available at http://www.issafrica.org/uploads/SitRep2013_6May.pdf, last accessed 21 May 2013.

Sierra, Katrin, 2011, The Green Climate Fund: Options for Mobilizing the Private Sector, available at http://cdkn.org/wp-content/uploads/2012/03/The-Green-Climate-Fund_options-for-mobilizing-the-private-sector.pdf, last accessed 24 January 2013.

Transparency International, 2011, *World Corruption Report: Climate Change*, London, Earthscan, available at http://archive.transparency.org/publications/gcr/gcr_climate_change2, last accessed 24 January 2012.

UN Secretary-General, 2010, Report of the Secretary-General's High-level Advisory Group on Climate Change Financing, available at http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGF_reports/AGF_Final_Report.pdf, last accessed 24 January 2013.

UNCTAD, World Investment Report, 2012, Towards a New Generation of Investment Policies 4 (2012), available at http://www.unctad-docs.org/files/UNCTAD-WIR2012-Full-en.pdf, last accessed 24 January 2013.

UNEP & Bloomberg New Energy Finance, 2011, Global Trends in Renewable Energy Investment, available at http://fs-unep-centre.org/publications/global-trends-renewable-energy-investment-2011, last accessed 24 January 2013.

UNEP Finance Initiative, 2011, The Green Climate Fund (GCF): The Private Financial Sector's Perspective, available at http://unfccc.int/files/cancun_agreements/green_climate_fund/application/pdf/unep_fi_submission_on_private_sector.pdf, last accessed 24 January 2013.

UNFCCC/United Nations Framework Convention on Climate Change, 2009, Fact Sheet: Financing Climate Change Action, available at http://unfccc.int/files/press/backgrounders/application/pdf/fact_sheet_financing_climate_change.pdf, last accessed 24 January 2013.

Van Kerkhoff, Lorrae, Imran Habib Ahmad, Jamie Pittock & Will Steffen, 2011, Designing the Green Climate Fund: How to Spend $100 Billion Sensibly, *Environment* 53, 18–30.

Whande, Webster & Trusha Reddy, 2011, The Governance of Climate Finance in Africa, Asia and Latin America: Some Critical Reflections, Institute for Security Studies (ISS) Policy Brief No. 24, available at http://www.issafrica.org/uploads/No24Jun2011.pdf, last accessed 24 January 2013.

World Bank, World Development Report 2010, Development and Climate Change, available at http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/0,,contentMDK:23062354~pagePK:478093~piPK:477627~theSitePK:477624,00.html, last accessed 22 February 2013.