ADAPTATION FUND

AFB/EFC.9/Inf.1
29 May 2012

Ethics and Finance Committee
Ninth Meeting
Bonn, Germany, 26–27 June 2012

Adaptation Fund Board
Eighteenth Meeting
Bonn, Germany, 28–29 March 2012

OPTIONS FOR A FUNDRAISING CAMPAIGN AND STRATEGY

CALL FOR PUBLIC INPUTS
Compilation of Submissions

I. Background

1. The Adaptation Fund Board (AFB), at its 17th meeting, requested the secretariat to prepare a briefing note, for presentation at the next meeting of the EFC, on relevant ongoing mechanisms being discussed in various fora, assessments of how the Fund might benefit from selected mechanisms, and inputs from all interested stakeholders that have been collected through a public call for comment.

2. Following this request the secretariat has issued a call for public inputs which extended until 30 April 2012.

3. 6 submissions have been received by the secretariat and they are listed in the following table below. All these submissions are included in this document without any change and in the same format they were submitted. The list does not follow any particular order.

No.	Representative	Organization
1	Ms Suman Apparusu	(own behalf)
2	Ms. Irene Suárez	The Nature Conservancy
3	Mr. Koji Fukuda	Institute for Global Environmental Strategies (IGES)
4	Dipl.-Ing. Sonja Butzengeiger-Geyer	Perspectives GmbH
5	Mr. Roland Mader	The Higher Ground Foundation
6	Ms. Suleika Reiners	World Future Council

Nr. 1
Ms Suman Apparusu

In response to the call for public inputs, please find below a couple of very high level ideas on potential fund raising strategies.

1) Stock Exchange Turnover % Contribution : About 20 world wide stock exchanges trade in stock volume in the range $ 60,000 USD billion.

   Say if a 0.25% of this turnover can be accessed , the AF may well reach its target for the year.

2) Commodities Exchange Turnover % Contribution : ~ 65 world wide commodities exchanges operate in the world. A similar % (as indicated at 1 above) if accessed from these exchanges, the fund raising target could be met.

3) Mandatory Employer and Employee Green Climate Contributions : A simplified , standardized personal and corporate emissions calculation tool needs to be devised for the purpose.Based on this, both employees and employers may then calculate a emission charge (say at a flat rate in the range $ 2-5 USD/t-CO2-e). This calculated charge can then be contributed to the individual governments as part of their statutory/tax mandates. Individual governments may then contribute a % of this pooled amount to the Adaptation Fund.

Ms Suman Apparusu

Nr. 2
The Nature Conservancy

Generating new and additional financial flows for adaptation to climate change
Submission[1] of The Nature Conservancy to the Adaptation Fund Board and its Secretariat
April 30, 2012

Introduction:
In one of the moderated studies of costs of adaptation to climate change, the UNFCCC has estimated annual global costs of adapting to climate change to be US$49-1710 billion per annum by 2030. The gap between funds currently allocated to adaptation and the identified current and future needs presents a challenge. As an organization involved in climate change adaptation, and other development related issues, The Nature Conservancy (TNC) shares concerns with others regarding the challenge faced to generate and ensure effective access to financial resources to develop adaptation action. The Nature Conservancy welcomes the call for submissions[2] made by the Adaptation Fund Board to compile adaptation funding options, and we believe the compiled responses can become a wealth of information useful for many users. TNC sees this as an opportunity to share information on two specific financial mechanisms that bring together private and public funding sources in innovative ways to generate funding for adaptation.

This submission is based on The Nature Conservancy´s on-the-ground experience on both conservation and climate change. For consideration of the Adaptation Fund Board and its Secretariat, TNC submits for consideration two financial mechanisms: 1) Debt for Adaptation Swaps and 2) Water Funds. There are of course a wide variety of existing and potential mechanisms to generate funding for adaptation activities, and TNC is working with others in the development of some of these, including:

- risk insurance schemes with private sector for vulnerability reduction
-innovative financial mechanism to support forest stewardship management in indigenous and peasant territories such as CONSERBO
-other payment for ecosystem services that contribute to vulnerability reduction

For purposes of this submission, however, TNC has focused on Debt for Adaptation Swaps and Water Funds because these mechanisms have considerable potential to generate new and additional financial resources and nevertheless have received relatively little attention in the climate adaptation discussions to date.
Each of these mechanisms lies in a different stage of development. TNC's perspective offered in this submission is a result of our many years of experience with these two mechanisms:

1. TNC is in the process of brokering numerous debt for adaptation swaps with roles that include fundraising, swap design, and introducing this concept to potential private sector investors. There are four debt for adaptation swaps under development with one prospect expected to be closed in the second half of 2012
2. Since 2000, TNC has played a role, with partners, in 11 water fund initiatives in countries such as Mexico, USA, and Brazil. These include water funds that benefit major cities such as Bogota and Quito, as well as funds protecting hydropower and flood control investments in more rural landscapes such as Chiapas. TNC is now exploring establishing one or more water funds in Africa.

This submission describes these two mechanisms by covering three sections: general aspects (including how adaptation strategies are addressed within these); operational aspects of each mechanism and the feasibility of each mechanism (including potential roles for the Adaptation Fund and/or its Implementing Entities).

[1] For further details on this submission, please contact Irene Suarez, Senior Policy Advisor of the International Climate Policy Team of The Nature Conservancy based in Costa Rica at isuarez@tnc.org
[2] http://adaptation-fund.org/media/call-public-inputs-options-fundraising-strategy-and-campaign

1. Debt for adaptation swaps

A debt swap, also known as debt conversions, is a financial mechanism by which debt owed by a debtor (e.g. a developing country government), can be renegotiated with the creditor (e.g. developed country government or private/commercial note holder) to fund development processes. In general terms, debt swaps have been done using either bilateral or commercial debt. This financial mechanism, directs and/or leverages public and private grant funding as well as private capital (loans) towards the development of actions and programs which are defined by a country driven process (ensuring that funds will be allocated to development needs in the developing country).

As developing countries advance poverty alleviation and sustainable development goals, reassignment of funds originally allocated to pay external debt to the funding of climate change adaptation actions can contribute to achieving its development goals by helping to increase resiliency of development efforts to existing and, future climate change impacts. The United Nations Framework on Climate Change recognizes the specific needs and special circumstances of developing countries, especially those that are particularly vulnerable to the adverse effects of climate change. These particularly vulnerable developing countries are often those mostly highly indebted. This high vulnerability to climate change makes them more prone to requiring further debt assistance after suffering further impacts of climate change.

a. General aspects of debt for adaptation swaps:

I. The debt swap mechanism contributes not only to reducing external debt, but by creating capitalized endowments it creates funding streams into perpetuity for adaptation to climate change priorities defined by developing country needs (under a framework defined by parties involved in the swap).

II. The provision of financial resources to address climate change is called to be predictable, sustainable and additional[3], characteristics of the funds within debt for adaptation swaps.

III. This financial mechanism could facilitate laying the foundation of climate resilient development because of diverse reasons including how :
   a) Funds provided in perpetuity enables the design of adaptation programs within broader horizons of time, and, can facilitate mainstreaming adaptation into development planning processes.
   b) These funds allow financing of adaptation programs, opposed to business as usual funding of "stand-alone" adaptation projects.
   c) In most cases, Ministries of Finance or Central Banks are involved (due to the nature of the transaction) which could facilitate design of cross sectoral adaptation programs.

IV. Funds can be set out in perpetuity facilitating stable funding for both in upfront and recurrent adaptation costs and needs.
   a) Some climate change adaptation activities that could be funded with upfront/initial disbursements could include:
      (1) Vulnerability assessments of key economic sectors and areas such as coastal marine zones
      (2) Establishing/improving systemic observation and climate monitoring systems
      (3) Strengthen local capacities to design, implement and monitor adaptation measures through "train the trainers" activities
      (4) Design and implementation of adaptation strategies (including those based on natural solutions such as reef and mangrove revival) specific to key regions
      (5) Establishment/strengthening early warning systems
   b) The periodic disbursements could include funding for ongoing adaptation activities such as:
      (1) Design of local climate change adaptation plans led by local governments and communities
      (2) Periodic capacity building at different levels of government, ministries and civil society
      (3) Monitoring and evaluation of local/sectoral adaptation plans and strategies
      (4) Maintenance of systemic climate observation
      (5) Maintenance of vulnerability reduction projects such as using natural areas management techniques to protect key natural infrastructure.

[3] Decision 1. CP13 of UNFCCC calls for, "Improved access to adequate, predictable and sustainable financial resources and financial and technical support, and the provision of new and additional resources, including official and concessional funding for developing countries."

V. There are three types of potential debt for adaptation swaps, and the operational aspects and parties involved vary slightly for each:

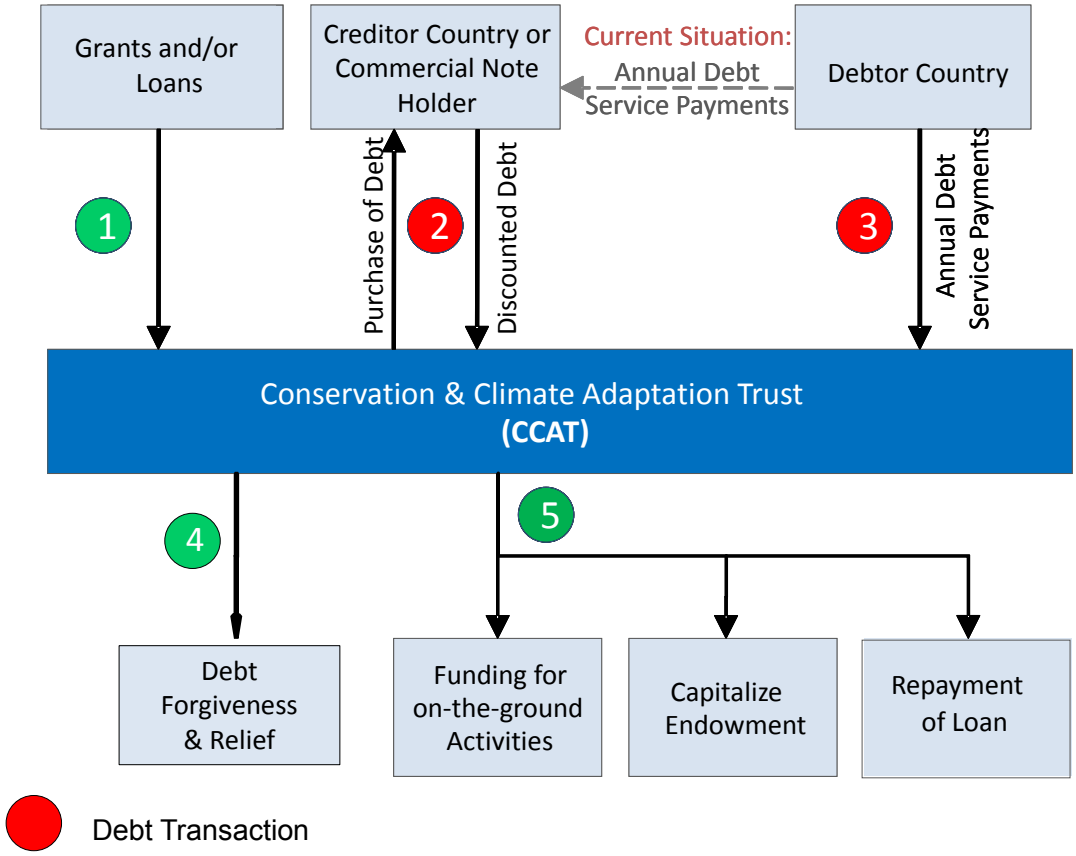
1. **Bilateral swaps:** the creditor government agrees to cancel ("forgive") debt, in exchange for the debtor government's agreement to spend an amount (usually with some portion in local currency) on adaptation to climate change activities that is equivalent to a fraction of the face value of the debt.
2. **Commercial swaps:** willingness of commercial note holder(s) to sell debtor country debt at discount to a third party (inherent to this is the ability of third party to raise funds from donors and/or investors to buy the discounted debt), with an agreement by the debtor country to create new note – often partially payable in local currency - to fund adaptation to climate change activities, in return for the third party canceling the original debt.
3. **Bilateral swap funded by a third party:** similar to a commercial swap, but involves a third party buying bi-lateral debt at a discount (inherent to this is the ability of the third party to raise the funds from donors and/or investors to buy the discounted debt), with an agreement by the debtor country to create new note – often partially payable in local currency - to fund adaptation to climate change activities, in return for the third party canceling the original debt.

b. Operational aspects of the debt for adaptation swaps

Debt swaps usually can be managed by relatively small-scale institutional arrangements (public private partnerships, in the form of a "Trust", with majority non-government boards) that include an oversight committee which disburses funds. Oversight committees are comprised of the parties to the financial mechanism itself and other stakeholders agreed to by those parties (e.g. members of civil society, governments), and allocate the funds in an agreed-upon framework. The ability and funding (usually endowment funds) to develop capacity of local stakeholders to identify needs, package projects, manage resources, and actually implement projects can help overcome the challenge of absorptive capacity that some developing countries face in the use of climate funds. Figure 1 illustrates a sample swap as a general scheme to explain operational aspects of a debt for adaptation swap.

There are a number of advantages of debt swaps, including 1) donors can leverage their funds to fund more activities then giving direct grants (see below section of financial feasibility); and 2) for debtor countries, it is a mechanism for them to reduce foreign currency debt and replace with local currency (or combination local and foreign currency) debt to fund worthy projects in the country.

Figure 1. Sample debt for adaptation swap. Source: TNC



1 **Funds to CCAT to purchase debt:**

- Private and Bilateral Grant Funds: US$30 million
- Private Loans: US$30 million (Venture Philanthropists, Social Impact Investors, Development Banks, etc.)
- Total: US$60 million

2 **Debt Purchased by CCAT:**

- US$133.3 million (at 45 cents on the dollar)

3 **Debt repayment by Debtor Country (after debt relief):**

- US$188.5 million (Principle and Interest over 17 years)

4 **Debt relief to Debtor Country:**

- Immediate Forgiveness: US$40 million (via bonds returned to Debtor Country), approx. 2.5% of GDP
- Debt relief over next 17 years: US$40.8 million (via interest savings), approx. 2.5% of GDP
- Total: US$80.8 million (30% of deal cash flow)

5 **CCAT Cash Flow Activities:**

- Funding for on-the-ground activities: US$70.6 million (26% of deal cash flow)
- Capitalize endowment: US$81 million (30% of deal cash flow)
    - Endowment ending value (2029): US$124.8 million (at 7% per annum post expenses)
- Repayment of Loans (at 4%, 10 years): US$37 million (14% of deal cash flow)

c. Feasibility of debt for adaptation swaps to be implemented

- Although debt swaps are innovative mechanisms for adaptation purposes, this financial mechanism has been used for other development purposes including education, conservation amongst others for many years.
- Debt swaps have been negotiated and concluded in a relatively short period of time for other development purposes. There are precedents of debt swaps that have been negotiated in a framework of six months, in which TNC was a party as it was a debt for nature swap between the USA and Costa Rica. Currently there is an ongoing debt for adaptation swap negotiation expected to be terminated by half of 2012, and other swaps which negotiations and conditions are in the process of being considered.

In terms of financial feasibility, as the sample (based on case from a small island developing state) debt for adaptation swap in figure 1 demonstrates, the leverage (be it grant and/or loan funds) and activities funded are both fairly significant. In this case , the US$60 million in loan and grant funds used to purchase the commercial debt at a significant discount (45 US cents on the US dollar), results in almost US$233 million in activities (equivalent to 14.5% of GDP) over 17 years, including:

- US$81 million in debt relief for the debtor country (equivalent to 5% of GDP, in this case)
- US$71 million to fund adaptation to climate change activities (equivalent to 4.5% of GDP)
- US$81 million to capitalize an endowment (equivalent to 5% of GDP), that has an ending value of US$125 million (assuming 7% per annum post investment management expenses), with the endowment paying out up to US$6 million in the first year after the cash flow ends from the note, thereby creating a funding stream to support adaptation to climate change into perpetuity.

Another way to look at this, every dollar invested and/or granted to this swap, results in almost four dollars of activity, roughly split between debt relief, funding climate adaptation activities on the ground, and capitalizing an endowment (which results in a funding stream into perpetuity).

Furthermore, half of the funding in this example comes from private investors, who would be repaid at 4% over 10 years (in comparison, US Treasury Notes currently pay 2.5% over 10 years) for their investment. As far as we are aware, this would be one of the first examples of private capital being invested in adaptation to climate change projects.

For this financial mechanism, the Conservancy's overall goal is to raise at least US$500 million (evenly split between grant and loan funds) towards concluding at least US$1 billion of debt for adaptation swaps in the coming years, which would result in the following:

- US$500 million in immediate debt relief
- US$550 million to fund climate adaptation activities
- US$550 million to capitalize endowments for the countries to fund climate adaptation activities into perpetuity (after cash flow from the new notes ends), which will translates into $27.5 million/year (5% payout) of dedicated funding thereafter

- Initial thoughts of possible roles of the Adaptation Fund in debt for adaptation swaps could include:
  - Adaptation Fund could allocate funding to debt for adaptation swaps leveraging its own financial resources AF can be involved in this mechanism by contributing grants to the Trust (which is a national mechanism and country driven) preferably through the involvement national implementing
  - Adaptation fund can mobilize adaptation funds and actions. For instance, any given developing country who has or is negotiating a debt for adaptation swap could present project to adaptation fund which could endorse the idea but due to lack of resources the AF cannot approve funding for this initiative. Hence the AF can act as a mobilizer of funds by connecting this project that it has endorse with ongoing or existing debt for adaptation swaps.

2. Water funds

a.General aspects of water funds as a financial mechanism[4]:

Water Funds are an innovative way of paying and compensating for the services that nature provides to humans (TNC, 2012). They attract capital contributions from large water users such as water supply companies, hydropower plants, irrigation districts, corporations with significant water needs and agricultural associations, among others, in an organized and transparent manner. In work to date, the funds are used to protect natural resources that regulate the hydrologic cycle, thereby ensuring year-round water flow, reducing flooding, erosion and sedimentation, and improving water cleanliness, thereby reducing treatment costs.

The capital raised is typically invested in the financial market through trust funds to create the needed long term financing to maintain ecosystem services. Interests from the funds are used to leverage public and private funds to improve conservation practices in watersheds. For example, funds have been or are proposed to be used to create or strengthen management of public protected areas, to pay for conservation easements, to restore vegetation in steep or eroded watersheds, to provide financial and technical support needed to promote more sustainable agriculture and livestock systems (which also often improve productivity), and to develop community adaptation initiatives.

Water funds are an ideal tool to develop climate change adaptation strategies because they are long-term investment mechanisms. With the relevant knowledge of current hazards and probabilities of future climate change impacts water fund board could develop adaptation strategies and mitigate impacts such as increased sedimentation, reduction of water baseflow, increased floods, etc. However, not all existing or planned water funds address adaptation to climate change. As much hydrologic management is based on past history of water flows that may no longer be predictive of current conditions, a climate lens can help ensure that the strategies implemented deliver the desired outcomes. For water funds to address adaptation to climate change these should be designed to specifically address existing or anticipated climate impacts on the relevant watershed.

As a concrete example of how water funds address climate change, at the Water Fund for Life and Sustainability, TNC carried out a joint study with the International Center for Tropical Agriculture (CIAT) and the Natural Capital Project to analyze possible future impacts of climate change in the supply of environmental services in a set of watersheds in the Cauca Valley of Colombia. These results are used to prioritize areas and strategies that will help the fund adapt to potential future changes. These results help the fund prioritize intervention strategies to enhance resiliency against climate change impacts. Emphasis is placed on strategies aimed at reducing sediment production, such as reforestation, stream buffers, and conservation of natural ecosystems.

Most adaptation strategies developed with water funds are ecosystem based adaptation approaches (but the adaptation strategies financed through water funds are not limited to these approaches exclusively). Ecosystem-based adaptation is a concept that factors biological diversity and environmental services into a general adaptation strategy that applies a range of actions in sustainable management, conservation and restoration to supply ecosystem services that will help people adapt to climate change impacts (AHTEG, 2009)[5]. Some examples of these strategies include:

- Conservation and restoration of riparian corridors to diminish impacts of floods
- Conservation or restoration of forests within a watershed to avoid an increase in sediments during heavier rainfall periods and to help maintain dry-season baseflows, and
- Conservation and restoration of mangroves and coastal wetlands to diminish the impact of sea level rise

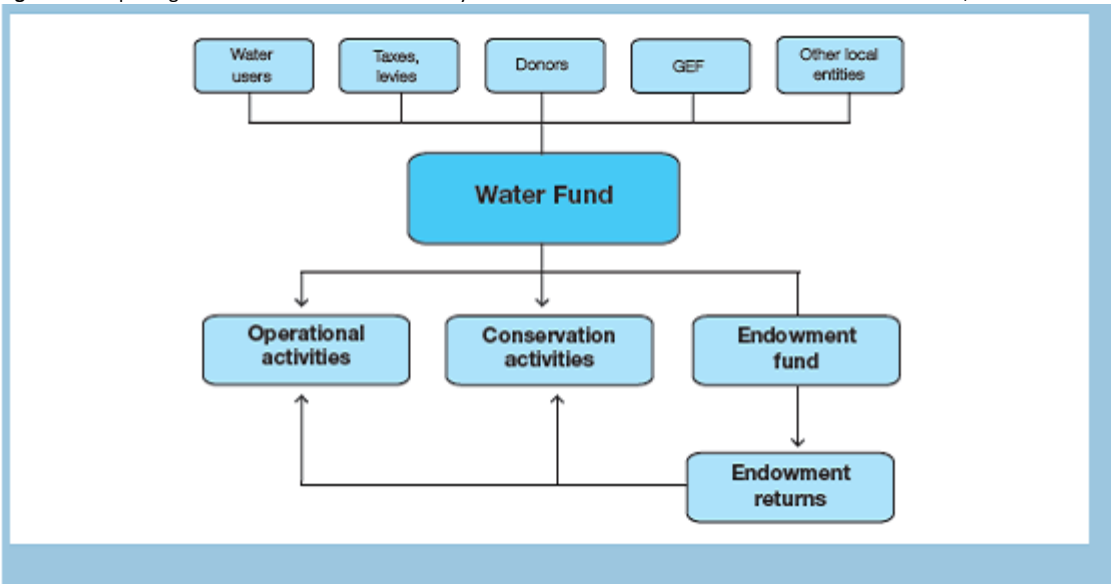
[4] For further information please see http://conserveonline.org/library/water-funds-conserving-green-infrastructure.-a/view.html

5 EBA definition in "Connecting Biodiversity and CLIMATE CHANGE MITIGATION AND ADAPTATION- Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change under the Convention on Biological Diversity (CBD)

b. Operational aspects of water funds

Water funds vary from place to place depending on local opportunities and regulations[6]. Investors – primarily large businesses and government agencies – see the funds as a smart way to minimize treatment costs and reduce the chance of water shortages in the future. These funds collect investments from water users and direct the funding toward conservation of key lands upstream that filter and regulate water supply through simple institutional arrangements. In figure 2 a sample institutional arrangement is illustrated to facilitate understanding of the structure to manage water funds.

Figure 2: Sample organizational structure and delivery mechanisms for water funds Source: Water fund manual,2012[7]



Water funds can receive financial resources from tariffs, levies, water users, other local entities and multilateral and bilateral agencies amongst others. These funds are managed by a board comprised of representatives from the sources of funding, local governments, communities involved, technical representatives (i.e. NGOs, academia) amongst others this depends on each water fund. Likewise, as can be appreciated in figure 3, the organization that administers the fund varies according to each fund.

Among the technical studies that should be conducted to establish a water fund is the valuation of environmental services and the inclusion of environmental costs in decision-making by the fund's partners. As stated above, for water funds to address climate change, an essential study will be that of anticipated climate impacts for the relevant watersheds so that with these results, the adequate adaptation strategies are designed and approved by the Board so resources are allocated to implement, monitor and evaluate these strategies. Funds are disbursed by the Board to operational, conservation/adaptation activities and to the endowment fund, whose funds are also invested.

[6] These financial mechanisms in Brazil are slightly different from those of the water funds of the Northern Andes region. In general, the funds use an annual distribution model where fees or other sources of funding are collected and distributed each year rather than going into a trust. The payments are direct and are used to both conserve standing forest and to reforest critical areas.

[7] Calvache, A., S. Benítez y A. Ramos. 2012. Fondos de Agua: Conservando la Infraestructura Verde. Guía de Diseño, Creación y Operación. Alianza Latinoamericana de Fondos de Agua. The Nature Conservancy, Fundación FEMSA y Banco Interamericano de Desarrollo. Bogotá, Colombia.

Figure 3. Examples of water fund's delivery mechanisms. Source: Water fund manual,2012 [6]

Water Fund	Organization that administrates the resources	Type of entity
FONAG (Quito)	Private trust fund.	Private financial commercial organization.
FONAPA (Paute)	Public trust fund: National Financial Corporation.	Public financial commercial organization.
Agua Somos (Bogota)	Existing environmental fund: Patrimonio Natural.	Private foundation, created to strengthen the National Protected Areas system.
Water Fund for Life and Sustainability (Cauca Valley)	Private trust fund.	Private financial commercial organization.

c. Feasibility of water funds to be implemented

-As can be seen in Figure 4, there are more than 32 Water Funds in Latin America in different development stages of the mechanism, including 11 created and are operational and 21 are in design or under negotiation (the first water fund in Latin America was established in 2000 in Quito, Ecuador). TNC's goal is that with partners there will be 32 Water Funds in operation by 2015.

-Water funds have proven to be feasible financial mechanisms. These funds represent an attractive option for its partners in terms of environmental, social and economic benefits. Therefore, it is important to determine what those benefits are, based on biophysical information, and to include clear indicators of the socioeconomic aspects that should translate into benefits for the partners as well as for the ecosystems in general. This involves identifying the business opportunities that will make a positive difference in the watershed and, who should pay, and how much should be paid for those environmental services.

- To facilitate understanding of feasibility of this mechanism and for reference, it is important to highlight that Water Funds are currently under development in other continents. TNC is beginning a process to develop water funds, with partners, which improve the lives of local communities in Africa. The Conservancy's Africa Program began scoping and refining potential water fund projects in Kenya (potentially in Upper Tana River), Zambia and Tanzania. A comparison of the challenges of replicating Latin American water fund experience in Africa, includes both opportunities such as interest and challenges including less demand, information, higher transaction costs and in some cases fewer buyers. The potential and need for water funds is evident in each of these three countries and upon review of the initial scoping and feasibility studies, priorities have been selected to move forward. The next steps that are being implemented is to bring Latin America's Water Fund expertise to Africa through technical cooperation and explore additional partnership opportunities, with multiple other agencies such as water focused companies.

Initial thoughts of possible role of Adaptation Fund with Water Funds in general could include:

- Adaptation Fund allocates adaptation funding to existing water funds (preferably towards endowment funds) leveraging its own financial resources by using the water fund structures (institutional framework established will be able to receive and process the funding) to channel funds for adaptation activities which would provide benefits to specific geographies. As the Water Funds are already established and in majority of places they count on local institutional support, reduce those expected transactions costs as well as matching with funds received from other sources (local, international and also from public and private sectors).
- Adaptation Fund could invest collaboratively its resources to create new water funds through the leadership of the national implementing entity with financial participation of other stakeholder previously confirmed.
- Implementing entities of Adaptation Fund could explore collaborative efforts with water fund Boards including: local fundraising activities, creating local funding proposals and mobilizing local adaptation efforts led national institutions, private sector or community efforts.

Conclusions

The Adaptation Fund plays an important role in catalyzing adaptation action. The Fund has also played a key role in facilitating climate change institutional arrangements in developing countries. Gathering different views on how to create new and additional funding sources for adaptation is another essential contribution the Adaptation Fund puts forth.

With this submission TNC contributes with two concrete financial mechanisms, the debt for adaptation swaps and water funds, both which have received relatively little attention thus far in adaptation discussions.

TNC would be interested to work together with the Adaptation Fund Board to further advance development of these mechanisms and/or to support and work with Implementing Entities to further put in practice these ideas.

These two financial mechanisms bring private and public sectors together to work on climate change adaptation in the hope that collaboratively we meet the challenge of financing and catalyzing vulnerability reduction across the globe.

Annex 1. Water funds in America according to stage of development. Source: TNC, 2012

Nr. 3
Institute for Global Environmental Strategies (IGES)

Views and Inputs on Options for a Fundraising Strategy and Campaign for the Adaptation Fund

By the Institute for Global Environmental Strategies (IGES)

In response to the Call for Public Inputs: Options for a Fundraising Strategy and Campaign, announced by the secretariat of the Adaptation Fund Board dated 30th March 2012, the IGES Climate Change Group is hereby submitting its views. The submission is composed of two parts. The first part calls for using a longer term perspective to frame the fundraising issue, the second part as an annex describes our initial assessment of the proposed fundraising options suggested in the document AFB/EFC.8/6.

Need for Considering Financial Sustainability from a Longer Term Perspective

The options suggested in the document AFB/EFC.8/6 have potential to be future financial sources for Adaptation Fund operations. However, realizing such options at a global scale within the required timeframe (by the end of 2013) seems very challenging (as indicated in the Annex 1), given the time required for establishing a global framework and gaining consensus among stakeholders on the new proposed arrangements/schemes. In this regard, the most realistic approach to achieving the 2013 target of securing additional US$100 million is to rely on public resources utilizing conventional channels, possibly supplemented by individual donations.

More importantly, we believe that the discussion on options to ensure financial sustainability of the Adaptation Fund should be framed in terms of the big picture: the overall financial landscape under the climate regime as well as over a longer time span beyond 2013. While it remains a challenge for the Adaptation Fund to explore reliable additional fundraising options aside from the conventional SoP of CERs, it is advisable that the Fund considers constructing a stronger argument for why potential funders *should* provide finance or invest in the Adaptation Fund given the competitive environment surrounding adaptation finance.

Such arguments must clearly demonstrate the comparative advantages and structural uniqueness of the Fund design and operations. Its contribution to meet the adaptation needs and concerns of recipient countries, realize developmental co-benefits, and enhance county ownership and participation of target entities/communities on the ground also should be clearly demonstrated. Above all, the Adaptation Fund should step up its effort to communicate its unique features to potential funders.

Annex. Brief Assessment of Fundraising Options proposed in AFB/EFC.8/6

In order to supplement financial resources for the Adaptation Fund until 2013, four options were proposed in the document AFB/EFC.8/6: (1) individual donations, (2) issuance of Adaptation Certificates, (3) Adaptation Fund Bonds, and (4) promissory notes. While options (1) and (2) intend to draw resources from private sources, options (3) and (4) aim at utilizing public financial systems to mobilize grants from developed donor countries.

Three additional options were also suggested for further analysis and exploration: (5) debt for adaptation swaps, (6) disaster risk insurance, and (7) investment guarantees for adaptation. Option (5) envisages cancelling debts developing countries owe to developed countries in exchange for implementation of adaptation projects to be approved by the Adaptation Fund Board; while options (6) and (7) intend to leverage private finance for the Adaptation Fund through private-public partnerships (PPP).

The following table summarizes our initial assessment of strengths and potential challenges of each of the proposed options.

Initial Assessment of the Proposed Fund-Raising Options (AFB/ERC.8/6): Advantages and Challenges

Options	Advantages	Challenges
Individual donations (UN Foundation)	✓ Quick acquisition of finance ✓ Easy payment system and direct money flow into the account of the Adaptation Fund by utilizing the existing payment facility and registry of the UN Foundation	✓ Lower predictability for securing finance as a donation is at the discretion of the country in question ✓ Difficulty in securing a large volume of donation ✓ Presence of lead time before the Adaptation Fund is widely recognized as the destination for donation ✓ Difficulty in securing committed individuals who donate specifically to the Adaptation Fund among other competing destinations and thematic issues
Issuance of Adaptation Certificates	✓ Quick acquisition of finance ✓ Enhancing transparency on CSR through transaction of certificates in exchange for CSR activities	✓ Possible competition with existing certificates in other thematic areas (biodiversity, forest conservation). Need for the Adaptation Fund to demonstrate clear comparative advantages

Adaptation Fund Bonds	✓ Able to tap financial resources from the bond market ✓ Be able to secure a provision of a certain amount of pledge in advance ✓ Obtain a certain amount of money from the market as upfront finance	✓ Relatively high risks that donors will follow through on pledged funding due to reduction in development assistance resources and aid-fatigue. ✓ Higher risks and lower incentives for private companies if the scheme sets low interest rates ✓ Takes time for establishing bond architecture (i.e. scheme building, consensus among market stakeholders, selection of financial institution)
Promissory notes	✓ Increased feasibility and predictability that anticipated financial resources will be acquired due to gradual payment scheme	✓ Dependent on fulfilment of pledged amount in the future by donors ✓ Due to its phased approach, it may take some time to reach target volumes unless supplemented by other sources
Debt for adaptation swaps	✓ Granting extra public expenditure in domestic currency for recipient governments in exchange for debt repayment in foreign currency terms	✓ Time-consuming process to reach agreement between debtor and creditor ✓ Requires expertise and relevant information (i.e. financial transaction, regulatory systems) ✓ Requires sound monitoring and evaluation framework for implementation of adaptation measures and impact generation by debtors
Disaster risk insurance	✓ Potential to leverage risk insurance investment for recipient countries	✓ Difficulty in obtaining additional finance from the existing insurance initiatives due to the economic scale and coverage of the insurance as well as the premium paid by the insured
Investment guarantees for adaptation	✓ Potential to tap private finance	✓ May require changes in project/programme design to attract commercial-based resources

Individual Donations and the Issuance of Adaptation Certificates

While the options for individual donations and the issuance of Adaptation Certificates have the advantages of gathering financial resources in a shorter time period which might be able to respond to immediate financial needs of the Fund, questions remain on the volume of finance since the option relies on charitable environmental and aid organisations. The Adaptation Fund might face difficulties in mobilizing funds from such resources unless these organizations see value in selecting the Adaptation Fund among many other charitable organizations. At the same time, it should be noted that the potential volume of resources is

difficult to predict with any certainty as they are dependent on funder preferences and CSR strategies.

Adaptation Fund Bonds and Promissory Notes

The strength of the Bond option lies in its potential of tapping market-based finance which is much larger in volume than public resources. Promissory notes also increase the predictability of directing financial flows toward the Adaptation Fund. However, these options face many challenges, including uncertainty over fulfilment of pledge amount by donors regardless of economic circumstances. For the Bond option, adequate design of the bond scheme includes, for example, i) setting interest rates to maintain incentives for investors, ii) analysis of market risk information, iii) selection of a financial institution as an underwriter, and iv) dissemination of the new financial instrument to market players. Designing such a scheme in the short timeframe (by the end of 2013) remains as an additional challenge. Mobilizing resources at scale, particularly for the initial stage, is also a challenge for the Promissory Notes option.

Debt for Adaptation Swap

This financial arrangement requires an agreement between the indebted country governments (recipients) and the creditor country governments (donors). While the swap option certainly could free up fiscal resources for the indebted governments, and the Adaptation Fund Board and NGOs could play facilitating roles for the operationalization of such scheme, it may take time to reach such an agreement. In addition, since an indebted country commits to reallocate a specific amount of resources from existing external debt obligations to an adaptation project, the indebted country government needs to build a consensus around prioritizing adaptation projects over other development projects. Building such a consensus usually requires significant coordination within the government. Additional costs are also expected to establish, maintain and monitor the mechanism for this financial arrangement, as well as monitor its effective and efficient implementation.

Disaster Risk Insurance

The proposed introduction of a specialized funding window for disaster risk insurance by building on existing and on-going initiatives can potentially facilitate PPPs. However, in case of using the existing risk insurance initiatives, the difficulties stem from how to obtain extra finance from private (insurance) companies. The economic scale and coverage of the insurance and the premium paid by the insured is small in developing countries. In reality, without public financial support, the insurers cannot cover the high risks embedded in social

and economic structures in developing countries. Therefore, it might be difficult to obtain extra finance from the existing or on-going insurance mechanism.

Investment Guarantees for Adaptation

While the investment guarantees also have the potential of tapping private finance, this requires changes in project/programme design to attract commercial-based resources. There is less of a likelihood that the provision of investment guarantees to the projects/programmes approved by the Adaptation Fund Board would contribute to create new investment markets due to the small size and limited commercial viability of individual projects/programmes. Care should also be paid to whether approved adaptation projects under the Adaptation Fund can be financed by commercial loans.

The fundraising options suggested in the document AFB/EFC.8/6 present various strengths, but also challenges in terms of institutional design and implementation. Experiences in present conventional official development assistance (ODA) and other support schemes suggest that it takes a considerable amount of time before each of the proposed options would be fully operational. In this regard, it is advisable that the Board considers these options from a longer term perspective beyond 2013. In closing, we hope that our call for a broader perspective and assessment of options facilitates the discussion of fundraising opportunities and ultimately improves the operationalization of the Adaptation Fund.

Institute for Global Environmental Strategies (IGES)
Climate Change Group
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Driving Meaningful Adaptation Action through an Adaptation Market Mechanism

Sonja Butzengeiger-Geyer, Michel Köhler and Axel Michaelowa

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perspectives climate change

Driving Meaningful Adaptation Action through an Adaptation Market Mechanism

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- Approaches and criteria for allocating adaptation funds vary significantly among current sources – UN-backed funds and bilateral cooperation – and to some extent lack transparency and consistency. Such funding risks being spent in a haphazard way that repeats many of the mistakes made in development assistance over the past decades.
- An Adaptation Market Mechanism (AMM) could contribute to efficient allocation of adaptation funds, promote adaptation activities by private and public actors through additional financial incentives, and raise additional and reliable adaptation money. This would help to avoid future public criticism of the effectiveness and efficiency of spending adaptation funding.
- The proposed AMM would specify mandatory adaptation targets, on international, regional or domestic level. Participants who achieve their targets either by generating adaptation units or by buying them in the market would incentivize private, commercial and institutional actors to develop adaptation projects that create verified adaptation units.
- A universally accepted and verifiable trading unit applicable to all types of adaptation activities would help to maximize the cost reduction potential for the AMM. We suggest applying net present value (NPV) for property saved; Disability Adjusted Life Years Saved (DALYS) for health benefits; and potentially a separate unit to consider the environmental benefits of an adaptation activity.

*The **Fridtjof Nansen Institute (FNI)** is an independent, non-profit institution engaged in research on international environmental, energy and resource management politics. **Perspectives** is an independent service enterprise that works in consultation with the private sector as well as governments and NGOs in realizing and enhancing instruments in the international greenhouse gas market. **FNI** exercises quality control and editing of the papers, but the views expressed are the sole responsibility of the authors.*

Driving Meaningful Adaptation Action through an Adaptation Market Mechanism

Background: market mechanisms in the context of adaptation

Despite two decades of climate policy, global greenhouse gas emissions are creeping upwards. The 2008 financial crisis failed to curb this increase, and even rapid successes in greenhouse gas mitigation will not prevent significant anthropogenic climate change. Recent analyses of pledges made under the Copenhagen Accord show that they are unlikely to keep global temperature increase below 2°C. And whether these pledges will be kept depends on the political salience of the climate change problem, which has decreased considerably in recent years. Moreover, the Fukushima nuclear accident has called into question an emissions mitigation technology deemed important by many analysts.

Therefore, adaptation to climate change becomes increasingly important, especially as many developing countries in the tropical latitudes are likely to be hard hit by even relatively low levels of climate change. Poor countries already suffer from an 'adaptation deficit' to current climate variability. For the year 2030, the UNFCCC has estimated annual global adaptation costs at USD 49 to 171 billion. The estimate of USD 27 to 66 billion of this accruing in developing countries contrasts with World Bank[1] estimates of USD 70–100 billion.[2] Other researchers support this, arguing that the UNFCCC figures exclude the impacts on mining and manufacturing, energy, retailing, tourism, and neglect of various vector-borne diseases.

In that context, developing countries have consistently asked industrialized countries to provide financial resources for adaptation. In the Copenhagen Accord, industrialized countries pledged USD 30 billion as 'fast-start finance' for mitigation and adaptation in developing countries, aimed at increasing funding to USD 100 billion annually by 2020. However, the modalities of financing remain vague and all types of channels are included – bilateral, multilateral, concessional, private and even market mechanisms. So far, industrialized countries have preferred bilateral financing modes, which suffer from lack of transparency, to multilateral channels (for exceptions, see Box 1). Non-Annex I countries may fear a re-labelling of official development assistance, or other types of political double-counting.

Box 1: Overview of multilateral funds for adaptation

The few multilateral funds are dispersed among several funds. Three multilateral funds have each around USD 150–250 million of funding: the Adaptation Fund financed by a levy on Clean Development Mechanisms (CDM), the Least Developed Countries Funds (LDCF) and the Special Climate Change Fund (SCCF). While the Adaptation Fund might become the largest of the three due to the steady inflow of the CDM levy – if there is an ambitious agreement on the international climate policy framework at the UN level – it may need some time to reach the Program for Climate Resilience (PPCR), part of the Climate Investment Funds which has raised more than 900 million USD, of which 300 are deposited.

With this unclear and heterogeneous financing situation comes the risk of funding for adaptation being spent in a haphazard way that repeats many past mistakes made in development assistance, including politics-driven allocation of funds and not needs-based allocation. New mechanisms are needed to avoid future problems with public reviews on the effectiveness and efficiency of spending the adaptation funding –in particular, taxpayer

[1] World Bank, 2010: *Economics of Adaptation to Climate Change*. World Bank, Washington, DC.

[2] UNFCCC (2007) *Investment and Financial Flows to Address Climate Change*. Climate Change Secretariat, Bonn.

doubts as to how their money is spent. Market mechanisms can also facilitate the participation of private industry and other non-governmental stakeholders – crucial for achieving the investment levels needed. Finally, it is worth noting that unit costs of adaptation projects may differ by several orders of magnitude: a recent paper on unit costs of hurricane damage protection in Florida estimates the cost-benefits ratio as ranging from 0 to 9.4.[3] *Adaptation funding can be made more efficient by choosing least-cost solutions, as through market-based mechanisms for resource allocation and even to raise funding.*

Trading adaptation?

Markets have not yet been used to promote adaptation, nor has the idea been examined in detail,[4] although quota trading has been applied to reduction of resource use in the case of water-rights. An exception is Schultz (2011), who proposes a market mechanism for mobilizing resources for vulnerability reduction based on the polluter pays principle.[5]

The discussion below is based on experiences with pollution abatement and greenhouse gas mitigation. While pollution is a 'bad' and tradable units are called 'licenses', 'allowances' or 'permits', adaptation is a good – and this has important consequences for instrument design. We focus on quota systems, on the design of an Adaptation Market Mechanism (AMM) in particular.

The key feature of market mechanisms (or market-based instruments) is that a price signal is used to promote the production of a certain service or good, or to reduce it. Market mechanisms may take various forms. The purest one is the trading of quotas in form of obligations or permits. With obligations, each quota embodies the obligation to produce one unit of the public good. This needs definition of participants and a public regulation that requires surrendering quotas in a certain period. A participant who can produce the public good at low cost may sell quotas to another participant at market price.

Another form involves generating tradable units through projects that produce the public good. These units can be used to comply with a public regulation. Instead of obligations to produce a minimal quantity of the public good, quotas can be used to limit pollution: permits to produce a certain (maximum) amount of environmental pollution may be allocated to participants and the permits can be traded. A well-known example here is the EU Emissions Trading Schemes. Unlike mitigation of climate change, most forms of adaptation are not automatically a global public good. Adaptation may occur along a continuum ranging from a pure private good (protection of private property) to a global public good (breeding of drought-resistant cultivars). However, if adaptation is defined broadly as protection of societies as a whole against impacts of climate change, then it generally can be seen as public good, like the provision of public security.

Adaptation policies typically have one or several of the following main objectives:

- Fund-raising/mobilization for adaptation activities;
- Identification of vulnerabilities and incentivization of action to address vulnerabilities;
- Efficient allocation of funds available for projects aimed at avoiding climate-change-related damages – deciding which adaptation activities to support with available funds;
- Promotion of sustainable adaptation by various stakeholders – e.g. discouraging settlement in flood-prone areas;
- Sharing financial risks – e.g. transfer of risks through insurance-based mechanisms.

The objective of an Adaptation Market Mechanism (AMM) as suggested here is to *create a market that honours adaptation activities of private and public actors by providing financial incentives*. It can be designed to include not only the concept of tradable permits but also that of project-based offsets. A second, equally important aim is to *maximise cost-effectiveness of adaptation measures:* to direct funding to those projects that bring greatest benefits.

[3] Economics of Climate Adaptation (2009): *Shaping Climate-resilient Development: A Frame-work for Decision-making*. Economics of Climate Adaptation Working Group, p. 109.

[4] Without developing the idea further, it was introduced by Callaway, J. (2004): Adaptation benefits and costs: are they important in the global policy picture and how can we estimate them?, *Global Environmental Change* 14, pp. 273–282.

[5] Schultz, Karl Harvey (2011): Financing climate adaptation with a credit mechanism: initial considerations. *Climate Policy Online,* September 2011: http://www.tandfonline.com/doi/abs/10.1080/14693062.2011.605563, accessed 15 November 2011.

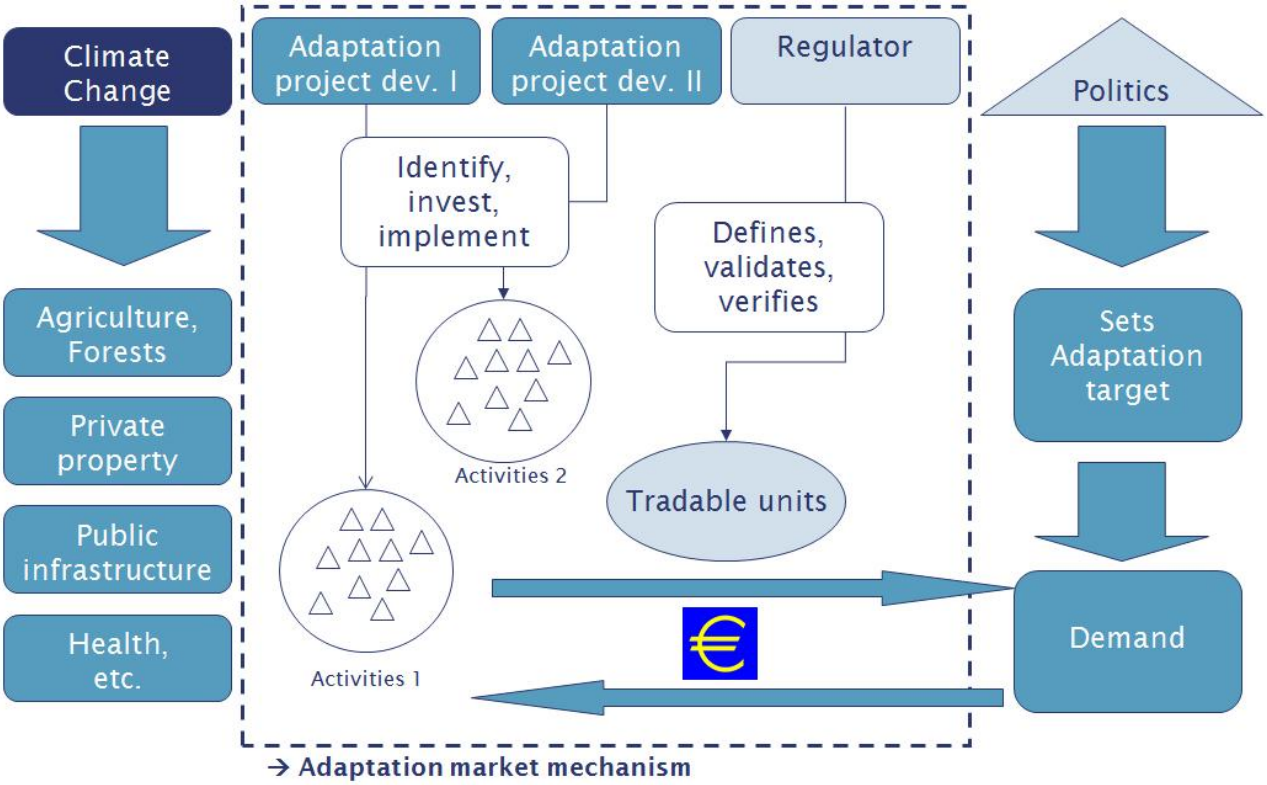

Figure 1: *Overview: functioning of an adaptation market mechanism.*

AMM in practice

A market mechanism requires a quantifiable policy target regarding the generation of a 'good', and an array of possibilities to contribute to this policy target whose costs per unit differ considerably. To avoid local hotspots of impacts, there should be only limited negative externalities involved in producing the good.

To promote adaptation, tradable units must be created through governmental regulation[6] specifying a quantity of adaptive benefits, determined in prevented 'climate change impacts'[7]. Certain entities would then be required by the regulators to take responsibility for mobilizing adaptation and to surrender sufficient units. Various principles exist for allocating these requirements to entities, including ability to pay, size of the entity (in revenue, inhabitants/employment numbers), the polluter pays principle, or simply a poll tax.

The entities that must surrender the adaptation units then have the option of embarking on adaptive activities themselves, or acquiring units from other entities capable of implementing adaptive activities at lower cost than the market price for the units.

Activities that are conducted under an AMM may cover many sectors, like agriculture, protection of private/public infrastructure against climate-change-related damage, improving cooling systems in building, improving medical care systems to save lives or avoid disability/sickness induced by climate-change-related events. Figure 1 summarizes the basic functioning of an AMM.

To ensure that the AMM delivers real impact on adaptation, a robust monitoring, reporting and verification (MRV) scheme is required, together with solid baselines for estimating the economic and social benefits of an adaptation activity.

Defining the unit to be traded

A universally accepted and verifiable trading unit is a precondition for any market mechanism. For an AMM, the unit should be applicable to all types of adaptation activities, for maximization of the cost-reduction potential.

[6] Theoretically, a voluntary market approach could be an alternative. However, as we doubt that such an approach could mobilize sufficient funds in the current political and economic situation, this paper focuses on a mandatory approach.

[7] A discussion of feasible units follows below.

An adaptation project is successful if it delivers protection against negative impacts of climate change. The protection might concern private and public property as well as human lives. A 'perfect' adaptation project would prevent any negative impact on those.

Theoretically, the trading unit could be denominated in net present value (NPV) of property and human lives protected, plus the NPV of environmental benefits like saved habitats and ecosystems. The challenge is how to value human life, human health and environmental benefits. With regard to human life, Fankhauser and Tol (1998)[8] have argued that 'values of a statistical life' embodying people's attitude to mortality risks should be used for that valuation. These values depend heavily on income, and are substantially lower for a poor person than a rich one, varying by a factor of 15 between China and OECD countries. This approach became controversial in the elaboration of the 2nd Assessment Report of the IPCC, when developing-country representatives strongly attacked what was seen as 'Northern arrogance'. Fearnside (1998)[9] then proposed separating human lives and property values – an approach that we follow to avoid endless political debates on equity issues. We suggest the following trading units:

- *Net present value (NPV)* of property saved, expressed in current currency units10
- *Disability-adjusted life years saved (DALYs)* DALYs calculate the number of years of life lost due to premature mortality and/or the number of years lived with disability or disease. The basis for comparison is standard life expectancy, and different types of disability / illness are accorded different weights (WHO 2010a, b).

Additionally, account can be taken of *environmental impacts* that cannot be directly measured in terms of monetary wealth.[11]

The concept of DALYs has been thoroughly tested by the World Health Organization, which has elaborated a comprehensive system and ready-to-use standard values for quantifying the level of disability through a given event.[12] Box 2 provides a numerical example. Since the criteria 'property saved' and 'DALYS saved' implicitly cover the risk and exposure of protected entities, there would be an incentive not only to minimize relative costs but also to engage in most effective activities: using those options for adaptation that have greatest impact in economic and social terms.

Box 2: Example of DALY calculation for a river embankment activity

A region in a river basin, populated by 0.5 million people, has historically not been affected by floods. Climate change is expected to change rainfall patterns in the country and independent studies project a strong increase in the frequency and force of flood events. As yet, no embankments have been established to protect human life and wealth.

Among the expected health damages from a flooding event: 2,500 people will die and 25,000 suffer severe diarrhoea with an average duration of 6 weeks (or 0.115 years).[13] Life expectancy in the region is 55 years, average actual age 28 years. For calculation of DALYS, we use the 'disability weights' (DW)derived by WHO for the health loss categories: death = 1, diarrhoea = 0.11.

Total DALYs achieved by the embankment thus reach the following value: DALY = YLL + YLD

[8] Fankhauser, S., Tol, R., Pearce, D. (1998): Extensions and alternatives to climate change impact valuation: on the critique of IPCC Working Group III's impact estimates, *Environment and Development Economics,* 3, pp. 59–81.

[9] Fearnside, P. (1998): The value of human life in global warming impacts, *Mitigation and Adaptation Strategies for Global Change,* 3, pp. 83–85

[10] For a more detailed discussion see Stadelmann et al. (2011/2012), Universal metrics to compare the effectiveness of climate change adaptation projects, forthcoming in *Climatic Change*. This paper also discusses distributional effects of different NPV approaches.

[11] There are other 'goods' that do not exactly match the above categories, such as cultural values. Given the challenges of quantifying these values and wishing to reduce the complexity of the suggested AMM, we do not consider such goods in this paper.

[12] See e.g. WHO, 2010a: Disability weights, discounting and age weighting of DALYs. http://www.who.int/healthinfo/global_burden_disease/daly_disability_weight/en/index.html, accessed 16 October 2010; and WHO, 2010b: Global Burden of Disease. http://www.who.int/healthinfo/global_burden_disease/en/, accessed 16th October 2010.

[13] These are highly simplified assumptions used for illustrative purposes only. In practice, one would derive probability-weighted damage functions.

where:

YLL (years of life lost due to premature mortality) = N (number of deaths) * L (standard life expectancy at age of death (in years)).

YLL = 2,500 * (55-28) = 67,500 DALYs

YLD (Years lived with disability) = I (number of incident cases) * DW (disability weight) * L (average duration of disability (years)).

YLD Diarrhoea = 25,000 * 0.115 * 0.11 = 316

Total DALYs of the project amount to 67,816. This amount of DALYS would count as 'Saved Health' adaptation units, and could be directly traded (see below).

The total value of an adaption activity or project (TV_{Adapt}) would be determined as:

TV_{adapt} = *Saved wealth* (public infrastructure, private property, income loss) + *Saved Health* (avoided disease, avoided disability, avoided deaths) + *Environmental Benefit* (saved endangered species and protection of habitat)

As the units of these categories differ significantly, they should be evaluated them separately from each other. Hence, the AMM should define targets for each of the categories.

Allocation of adaptation targets

Once the units of an AMM have been defined, the next step is to specify mandatory adaptation targets. In principle, the AMM can be applied on an international, regional or domestic scale. Obviously, targets and covered entities will depend heavily on the geographical scale chosen. An international scheme that requires certain countries/country groups to deliver certain volumes of adaptation units could be implemented under the UNFCCC. Alternatively, a region or country could define adaptation targets e.g. for certain industries, sectors or companies.

For instance, the UNFCCC could set an annual target for protecting €50 billion of property ('saved wealth', SW) and 500,000 DALYs ('saved health', SH) per year[14]. Subsequently, these commitments would be allocated to a predefined group of countries. As noted, various technical allocation criteria could be chosen, like actual or cumulated historical emissions, level of economic development, per capita income, or a poll tax. Other possible allocation principles such as ability to pay and inverse of vulnerability appear less compelling.

Countries can meet the defined target by investing into adaptation activities that result in Saved Wealth and/or DALYS, or by buying tradable units from other countries with an AMM target, or by buying project-based AMM units ('offsets'). One option for countries with an AMM target is to pass on their responsibilities to sub-national entities such as companies. For example, if the EU has an AMM target, it may decide to pass on part of it to companies participating in the EU Emissions Trading Scheme (EU ETS), which would lead to approximately 11,000 emitting entities covered.

Politicians would have to determine the regional scope for adaptation project investment; e.g. if it is to be a truly global mechanism (allowing projects and funding from any country worldwide), or a regional one. For efficiency, global scope would be preferable; that would also make it possible to account for flows to developing countries as part of the financial pledges for mitigation and adaptation.[15]

Project cycle of AMM 'offsets'

The AMM offset cycle would bear many similarities to the Clean Development Mechanism (CDM) project cycle. Before a project can qualify for generating adaptation units, standardized documentation would need to be validated by an auditor who would check the assumptions and parameters underlying the estimates of Saved Wealth, Saved Health and Environmental Benefits. These parameters should be calculated on the basis of politically agreed climate models, to be updated periodically.

A key parameter for calculating Saved Wealth is the projection of the autonomous develop-

[14] For simplicity, we exclude environmental benefits from the example.

[15] If the adaptation benefit for a certain region or country is to be maximized, the scope should be limited to that region/country. However, that would raise the costs per adaptation unit, due to the lower number of projects.

ment of the property value of the relevant region over time. From this, and on the basis of a frequency distribution of climate-change induced events derived from the approved climate model, one can calculate the property that would be lost due to climate change if there were no adaptation project. Regional discount rates should be used to calculate the net present value of Saved Wealth. Hence, this process would be similar to the determination of baselines in the context of CDM projects.

To preserve the credibility of the trading scheme, the generation of adaptation units by projects should be subject to strict periodical verification by independent auditors. Audits would be based on standardized monitoring reports for outcome parameters of the project, cross-checked by a regulatory Adaptation Unit Panel (AUP). Like the CDM Executive Board, the AUP would be empowered to approve adaptation projects and to approve/ reject issuance of adaptation units. Given the high variety of possible adaptation action, AUP and auditors would need considerable expertise. For each distinct adaptation project type, monitoring methodologies must be defined. In the context of the embankment project example above, monitoring would check whether the embankment has been constructed as per the project design and whether its maintenance status assures stability as per the design parameters. If, for example, the verification should find a risk of the embankment failing the maximum design flood of 25%, the adaptation unit level would be decreased by 25% compared to the estimate in the validated project documentation.

Once the adaptation units have been issued, they can be transferred. As with the mitigation market, brokerage companies will emerge once a sufficient number of entities are covered by the AMM. At the end of each year, companies would have to surrender sufficient adaptation units to cover their targets. Non-compliance should be punished by strict penalties.

Conclusions

The introduction of an Adaptation Market Mechanism as discussed above can serve to

a) efficiently allocate available adaptation funds,

b) promote sustainable adaptation by private and public actors due to the additional financial incentives,

c) raise additional and reliable adaptation money.

Such a mechanism could bring new impetus to the UNFCCC talks and might help to overcome the current deadlock situation. Specifically, it could serve to build a bridge between Annex I and Non-Annex I countries discussing future commitments. Broadening the scope from a mitigation-focused approach to one that entails targets for both mitigation and adaptation could, for example, lead to the following compromise: Annex I countries accept stringent absolute commitments for mitigation and adaptation (implementation through the AMM), while advanced Non-Annex I countries accept effective and adequate absolute mitigation commitments. This would take into account issues of historical responsibility while also reflecting current and expected future emission realities.

Finding a compromise along this line would put adaptation activities on a more stable footing as well as safeguarding private-sector engagement in mitigation and adaptation. With many private actors already drawing back from carbon markets due to the lack of perspectives, relevant policy signals must be provided quickly.

The AMM will face various challenges – not least as regards the uncertainty of future climate change. Here, it must be recognized that adaptation and damage baselines are uncertain. In our view, a credible AMM can be set up even with this uncertainty – one just needs to acknowledge that the exact benefit of any activity cannot be accurately quantified. Since this uncertainty applies to all activities, it is still possible to undertake relative comparison of projects and select those with the highest predicted benefit. Other challenges might concern the project cycle, which might easily become complex and create relatively high transaction costs. Here it will be important to draw on the lessons learnt from the CDM when designing detailed rules for the AMM. Likewise, easy to handle but effective approaches must be elaborated for dealing with adaptation additionality. And finally, there will be the challenge of political debates about the allocation of adaptation commitments and the question of defining priority regions.

An AMM would complement current approaches of financing and implanting adaptation action: it would not replace current bilateral initiatives, but could channel the additional action required and pledged on the

UNFCCC level. Such a tandem approach could also ensure that some costly adaptation projects deemed necessary for political or social reasons could still be implemented.

Acknowledgements

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Nr. 5
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- stand up to climate change

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25 April 2012

Adaptation Fund Secretariat
Re: Call for Public Inputs - Response
Options for a Fundraising Campaign and Strategy

Dear Secretariat and Fund Board Members:

The Higher Ground Foundation is very pleased to submit the following proposal that offers an efficient, accountable and sustainable approach to resource the Fund's activities at sufficient scale to support identified projects and encourage development of new climate adaptation projects. In summary, we propose that the Adaptation Fund integrate results-based, vulnerability reduction targets employing "vulnerability reduction credits" (VRCs™)[1] and market these to governments and the private sector.

Your paper, "Options for a Fundraising Strategy and Campaign" does a commendable job outlining many useful options. In particular, and in light of the immense need for funding adaptation in the decades to come, we agree that it is important to test proposed mechanisms now. We also believe it is important to enlist both public and private sector support, and agree with the paper's contention that an "adaptation certificate" is a useful tool to serve as a basis for a potential market that has the potential to leverage further finance.[2]

Public institutions can play a critical role in catalyzing private sector involvement in developing country climate adaptation. Many public bodies, from the Dutch Government to the World Bank, set up facilities in the early days of the carbon market that provided much-needed resources for a carbon market, and governments continue to play an important role in capacity building and as purchasers of emission reduction credits. Likewise, the Adaptation Fund could spur public and private demand for VRCs that leverage finance in multiples of the value of VRCs. Below we outline a proposed approach.

<u>The Higher Ground Foundation's Proposal:</u>

To improve upon your paper's suggestion that the Adaptation Fund issue "adaptation certificates," the Higher Ground Foundation suggests that the Adaptation Fund employ VRCs™ and work with us on pilot projects that will establish baselines and quantifiable vulnerability reductions. In contrast to your proposal to issue certificates based on a monetary value of money spent on adaptation, we suggest issuance of VRCs will serve as a more effective tool, as they are based on outputs (vulnerability reduction), rather than inputs (money spent on project activities). VRCs are issued upon proof of sustained vulnerability reduction, and thus there is an incentive for projects to be sustainable and results oriented. They are also a valuable tool in prioritizing projects and monitoring and evaluating projects.

[1] VRCs™ are a trademark of The Higher Ground Foundation and references in here to VRCs shall mean references to VRCs™
[2] The World Bank estimates that CDM CERs from 2002-2008 valued at approximately $25 billion leveraged $100 billion in mostly private finance. See The World Bank, 2009, 10 Years of Experience in Carbon Finance, accessed at http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/Carbon_Fund_12-1-09_web.pdf

Further details of the VRC concept and how it could work in practice are found in a paper recently published in journal *Climate Policy*[3] and on our website[4].

The Higher Ground Foundation is kindly proposing that the Adaptation Fund works with us to create a viable framework for such a market. The way forward would include:

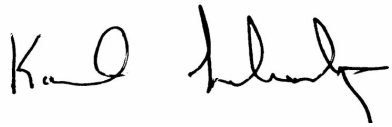
- Identifying projects proposed that would be good candidates for a pilot program,
- Engaging with governments and the private sector to educate them of the value of VRCs in unlocking support for vulnerability reduction activities, to elicit demand for VRCs through pledges to purchase a defined quantity of VRCs, and,
- Undertaking the necessary pilot assessments of baselines, creation of guidelines, and establishment of a governance regime that would include a review process for projects to be registered and for credits to be issued, third-party project-design validators and monitoring report verifiers, and establishment of a registry and governance board.

The Higher Ground Foundation has prepared a detailed business plan that outlines the required activities to launch such an initiative, and will be happy to share further details regarding how a vulnerability reduction credit regime could be effectively established. We shall be happy to partner with the Adaptation Fund to make this happen, and believe that with your leadership a significant share of the targeted finance you seek could be raised.

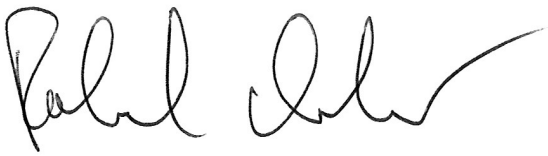
Don't hesitate contacting us to discuss further. We may be reached at +44 (0) 207 354 3595 or at karl@climateadaptationworks.com. The Higher Ground team is at your disposal.

Sincerely,

THE HIGHER GROUND FOUNDATION



Karl Schultz
Executive Chairman



Roland Mader
Chief Executive Officer

Attachment: "Financing Climate Adaptation Measures Using a Credit Trading Mechanism: Initial considerations."

[3] See Schultz, K., 2012, "Financing climate adaptation with a credit mechanism: initial considerations", *Climate Policy* 12 (2012) 187-197, downloadable at http://www.tandfonline.com/doi/abs/10.1080/14693062.2011.605563.
[4] See the Higher Ground Foundation website at http://www.thehighergroundfoundation.org/

Financing Climate Adaptation Measures Using a Credit Trading Mechanism: *Initial Considerations*

By Karl Schultz, Climate Adaptation Works

August 2011

Abstract

Climate mitigation credits have mobilized considerable resources for projects in developing countries, but similar funding to adapt to climate change has yet to emerge. The Cancun Agreements targets up to US$50 billion per year in adaptation funding, but commitments to date have been trivial compared to what is needed. While there are some studies and suggestions, it remains unclear where the money will come from and how it will be disbursed. Beyond this, many development experts believe that the main hurdle in climate adaptation is effective implementation. A framework, based on the polluter pays principle, is presented here regarding the mobilization of resources for adaptation in developing countries using market mechanisms. It is assumed that mitigation and adaptation are at least partly fungible in terms of long-term global societal costs and benefits and that quantifying climate vulnerability reductions is at least sometimes possible. The scheme's benefits include: significant, equitable, and flexible capital flows; and improved and more efficient resource allocation and verification procedures that incentivize sustained project management. Challenges include overcoming political resistance to historical responsibility-based obligations and skepticism of market instruments, and critically, quantifying climate impact costs and verifying investments for vulnerability reduction credits.

Keywords: adaptation finance, adaptation policy, market mechanisms, Climate Investment Funds, financial mechanisms, economic efficiency.

1 Introduction

The explosion in scale of international capital investment in greenhouse gas (GHG) mitigation measures began when the EU Emissions Trading Scheme (EU ETS) incentivized companies with emissions caps to identify low cost emission reduction options. The result has been the development of, and investment in, a variety of projects to generate certified emission reductions (CERs) under the Kyoto Protocol's Clean Development Mechanism (CDM). Approximately 2,500 projects have been registered by the CDM, which by 2012 will result in about 950 million tonnes of carbon dioxide equivalent emissions reductions, worth on the carbon market approximately €11 billion and leveraging much more than that in investment (UNEP Risoe, 2010; Point Carbon, 2011). With the International Energy Agency (IEA) estimating that it will cost an additional US$10 trillion in investment by 2030 to stabilize atmospheric concentrations and avert catastrophic warming, the private sector and indeed most governments accept the essential role of carbon markets in financing climate mitigation (IEA, 2009).

The cost of climate change impacts (CCI), and the investment needed to adapt to climate change, are similarly immense. Studies indicate investment costs could be between $50 billion/year and over $300 billion/year with two-thirds of these costs accruing in developing countries (Parry et. al., 2009). However, an analysis of existing climate funds finds that only about $1.3 billion of international assistance has so far been disbursed or approved for adaptation measures (Climate Funds Update, 2011). While the Copenhagen Accord targets $100 billion/year by 2020 to finance mitigation and adaptation, the known 'new' pledges total only $11.9 billion for the period 2010–2012 and the majority of known funding is for mitigation (Climate Funds Update, 2011; Fast Start Finance, 2011). There is already evidence that some of the pledged funds are reallocations from existing Overseas Development Assistance (ODA) commitments (Adam, 2010).

A debate is raging regarding the sourcing and disbursement mechanisms of the Copenhagen Accord funds (Brown and Kaur, 2009). The Accord notes that funding will come from a 'wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance' and establishes the Copenhagen Green Climate Fund through which a 'significant portion of such funding should flow' (UNFCCC, 2009). A UN High-Level Advisory Group on Climate Change Financing (UN, 2010) has proposed a variety of bold measures, including: taxing carbon transactions, international financial flows, redirecting fossil energy subsidies, and direct government treasury funding. However these suggestions have not yet led to funding decisions and, historically, governmental fiscal transfers for ODA have not met the governments' own commitments (Hamilton and Fay, 2009).

There are currently over 20 funds that manage climate programs. While their mandates and funds management vary and provide much needed support, two general criticisms are that they have high administrative costs and that their collective funding is inadequate (Baca, 2010). Funds typically provide resources (e.g. money, consultants) to national ministries and local governments for specific projects or building capacity. Research has shown that in order to be effective, climate adaptation must focus on local-level issues. Indeed, a major barrier in developing countries is their lack of adaptive capacity

due to backlogs in protective infrastructure and services, and limitations in governments' resources and skills (Adger et. al., 2003). In addition, many local governments are unwilling to work with the most vulnerable groups (such as slum dwellers), who they perceive to be part of the problem rather than as valued constituents (Moser and Satterthwaite, 2008). So while top-down financing and implementation has a critical role, adaptation measures may work best when the funders and project developers directly identify, work, and forge agreements, with affected communities.

Alternatives to top-down adaptation finance include: employing indices of vulnerability, to serve as benchmarks for insurance protection that farmers could purchase against severe weather events (Hellmuth et al., 2009); micro-finance facilities, which could resource the small-scale adaptation interventions of some of the most vulnerable households (Agrawala and Carraro, 2010); and government loan and equity guarantees, which could stimulate private investment in adaptation (Brown and Kaur, 2009).

Overall, although the funding on the table is necessary and worthwhile, it looks insufficient for what is needed. Indeed, while climate finance is a hot topic, there are only a few interesting alternatives to top-down funding and implementation. Consideration of the top-down funding structures that have so far been proposed, there is a risk that the resources that are allocated will be inefficiently and unfairly disbursed such that many communities will be left vulnerable to climate change.

Given this rather bleak assessment of the existing top-down options, what alternative mechanism could both raise the needed funds and efficiently mobilize these in a flexible, bottom-up and equitable way?

2 A Proposed Structure for Market-Based Adaptation Financing

Before proposing a market-based scheme to finance climate adaptation, it's important to introduce the four main assumptions that motivate the structure. The first is that the wealthier countries have a responsibility to support climate adaptation in developing countries. The higher income countries' development has been due, in part, to abundant use of fossil fuels during industrialization. Major industrialized nations are responsible for 74% of cumulative emissions from 1850-2000, compared with 10% from the largest-emitting developing nations (CAIT, 2010). Now that the science is robust, linking GHGs and climate change and while accepting that all countries eventually will have to limit their emissions, the 'polluter pays principle', as articulated in international law as Principle 16 in the Rio Declaration on Environment and Development, declares that "national authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of Pollution…." (UN, 1992). In other words, industrialized countries have a responsibility to pay for climate adaptation in the developing world.

A second assumption of the proposed structure is that decisions between financing mitigation or adaptation in developing countries are at least somewhat fungible and that to optimize results, they may often be made by a well-regulated market. To accept that only a certain level of warming is tolerable (e.g. 2°C), emissions must unequivocally decline to reach atmospheric GHG concentrations (e.g. 350 ppm) consistent with this level. Beyond this point, however, the theoretical global net social welfare utility can be achieved through the use of either adaptation or mitigation measures. Market players will make the most economically rational decisions to efficiently allocate scarce resources in addressing climate change.

The challenges to creating a market-based scheme include ensuring that it transparently, efficiently, and flexibly provides quantifiable and verifiable incentives, resulting in real and additional greenhouse mitigation and climate vulnerability reduction for poor communities. The third assumption is that quantifying vulnerability reduction is possible, at least in some key areas such as flood defence, the provision of water for human consumption and agriculture, and measures to prevent landslides destroying human settlements and transportation infrastructure. Over time, quantifying vulnerability reduction will improve for a wider variety of interventions.

The final assumption of the proposed structure is that a trade-able credit mechanism can improve the economic efficiency of climate adaptation (Baumol and Oates, 1971). Market-based environmental schemes, such as trade-able environmental permits, have been shown to provide cost savings, over non-market mechanisms, of between 50-90% (Tietenberg, 1985). Other research considering the variety of mechanisms (allowances, offset credits, etc.) have considered the efficiency benefits, but that certain conditions must apply to optimize these efficiency gains (Stavins, 2003). Efficiency gains may not occur if transaction costs are high, if there is insufficient monitoring and enforcement, if there is the possibility for market power, or if there are un-internalized externalities (Tietenberg, 2002). While program design may manage all of these concerns, and non-market regimes may also fall prey to these issues, credit mechanisms in the environmental area have also faced criticism for a variety of political, social and ethical reasons. For example, Bührs (2010) argues that such credit mechanisms are inherently unethical

because they neither stigmatize nor punish polluters who harm both people and their environment.

It is assumed here that other policies will limit future emissions, and that the principal risks to the proposed scheme consist in poor program design. As such, a review is warranted of the tools, players, proposed framework and of how the framework could be tested, followed by a discussion of design challenges.

The tools of this framework include:

- Emission allowances for polluters: a cap and trade scheme (C&T), and,
- Emission reduction credits and Vulnerability Reduction Credits (VRCs): offsets applicable for this compliance regime.

The players include:

- Industrialized nations with obligations based on their cumulative emissions to reduce emissions or reduce climate vulnerability in developing nations,
- Developing nations who will approve and host vulnerability reduction projects,
- Third-party project developers, investors, technology providers who together may provide the exogenous resources to reduce vulnerabilities,
- Communities in developing countries where vulnerability reduction activities are identified, negotiated, and undertaken,
- Third-party validators of projects for registration and verifiers of vulnerability reduction for crediting,
- International body to register projects, issue credits, manage an international credit transaction log, determine CCI costs, and set rules on baseline and monitoring methods.

The proposed framework applies the four assumptions and mobilizes the preceding tools and actors to form a demand and supply for VRCs as follows:

Demand creation:

1. Calculate cumulative emissions for industrialized countries.
2. Estimate and periodically revisit the future 100-year, cumulative costs of climate change impacts (CCI) for developing countries. Periodically redefine 'developing countries'.
3. Based on (1) and (2), calculate the CCI/t of CO_2 equivalent emissions.
4. Wealthy countries need, in the next 100 years, to pay back developing countries for all of their cumulative emissions by further reducing their own emissions, securing international emission reduction credits or emission allowances, or gaining VRCs from adaptation measures in developing countries.
5. VRC credit issuances are calculated, based on periodic assessments of the expected value of the CCI, for the remainder of the 100-year obligation. This incentivizes polluters seeking credits to identify, fund, and manage the most beneficial projects over time.

Supply creation:

1. Countries may finance these measures directly through government treasuries or delegate their obligations to a third party, such as an emitting facility.
2. Developing countries must review and approve all projects, and may create policies on the allocation of VRC funds. Countries may allow third parties (e.g. municipalities, private companies) to sell VRCs directly from the projects they own.
3. An international body runs mitigation and VRC credit registries, accredits third party validation and vulnerability reduction verification auditors, approves project registrations, and issues credits.
4. Adaptation measures are registered, based on reasonable baseline estimates (at project, program, or sector levels), and credits are issued based on activities resulting in additional reductions in vulnerability to climate change.
5. Calculations and issuance of the emission reduction credits may follow existing (e.g. CDM) or new approaches.
6. Issuance of VRCs follows verification by third party, accredited auditors of the estimates of the percentage effectiveness reduction in the vulnerability costs. The number of VRCs issued is based on this percentage and any changes in the residual average costs/t of global CCIs for the remainder of the 100-year obligation noted in the demand creation process.

Table 1 (see at the end of this article) uses a hypothetical case to illustrate the system in practice. Refinements should be made to the demand and supply methodologies based on further research.

This approach to issuing VRCs provides incentives for investors to sustain their projects as credits are only awarded after a project has demonstrated it has, for a defined period, reduced vulnerability to the impacts forecast in the design document. However, the project does not have to risk the possibility that project-level impacts of climate change differ from those expected in the project design document. Rather, third party accredited auditors will review monitoring reports on the ability of the investment to protect against the forecasted changes for the past period (e.g. year) that the project is seeking VRCs, not the actual climatic conditions and impacts.

A proposed pilot project might be the best approach for policymakers to gain empirical evidence and know-how prior to scaling up. Volunteer emitters from industrialized countries could be identified in order to engage with an auditing/engineering company, project developer, or investor to implement a relatively simple project. Based on what works and what does not, improvements to the scheme could form the basis of an international framework.

3 Challenges and Issues in System Design

The two most challenging demand side issues are first, getting developed countries to accept responsibility for the damage their historical emissions have caused to developing countries and second, estimating the CCI cost in them. Establishing an accepted global CCI cost estimate is both an analytical challenge (owing to omissions, double counting, scaling-up from limited empirical data, separating out climate impacts from others, see Argawala and Fankhauser, 2008) and a political challenge. Many studies have focused on adaptation costs rather than impact costs, or combined adaptation with residual impacts. As such, the proposed framework will benefit from improved global climate impact cost assessments. Political decisions need to be made. But to maximize CCI integrity, estimates would perhaps be best undertaken by the Intergovernmental Panel on Climate Change (IPCC).

On the supply side, creating baseline and monitoring methodologies for project level vulnerability reduction is challenging and sometimes impossible. Downscaled climate scenarios are essential, as are sound empirical estimates of the vulnerabilities and costs. Costs may be under counted as some are not easily quantified. However, by encouraging and implementing a pilot program a global regime of baseline methodologies can be formulated, one that may be improved based on project experience. The CDM, for instance, has resulted in the periodic revision of 203 baseline methodologies (UNFCCC, 2011). These methodologies will also provide a wealth of data to aid in improving global CCI cost estimates.

If VRC issuance is too low to justify investment, or there are project and country risks, the VRC trading scheme may not finance certain critical adaptation measures. While it does not matter where climate mitigation takes place to reduce global warming, the benefits of adaptation are mainly local. If there is a risk that a VRC market may ignore certain areas, countries, or project types, then both non-market measures and careful management of the VRC market are warranted. For instance, measures must be taken to ensure that, neither vulnerable communities in the least developed countries nor countries with corrupt or inept governments are ignored and simply because it is easier to work in middle-income countries with good governance regimes. This particular challenge is not unique to market-based adaptation finance and applies, equally, to the use of centralized funds. Thus, it is overcoming these investment disparities may be better achieved through the use of market approaches rather than the top-down funding of governments.

Regulatory certainty is also important and encourages private sector investment. The financing regime should include a commitment that VRCs can be issued for registered projects for the anticipated project lifecycle.

Furthermore, VRCs should only be issued for those projects that directly help the poor and materially vulnerable in developing countries. It would be improper for VRCs to be issued for investment in a port facility that only benefits international shipping conglomerates rather than in a storm drainage system that reduces flooding in a poor urban neighborhood. As such, the VRC market could have positive or negative lists of project types, or provide extra VRC issuances for projects meeting certain project-type, per-capita income or other criteria, to incentivize priorities or provide a more equitable distribution of VRC generating investments. Governments in developing countries need to be incentivized to encourage direct engagement between developers, investors and vulnerable communities. Moreover the registration process must ensure transparency.

In many cases, using conventional public-financing mechanisms or targeted debt and equity guarantees is the only way to fund certain projects or programs. Clearly resources must be mobilized for non-market interventions, in areas such as disaster preparedness, public health initiatives, and civil service capacity building.

One approach to incentivize pro-poor adaptation activities is the quantification of vulnerability reduction, based on average costs for a similar project in an industrialized country. This would overcome the risk that the poorest communities may be ignored due to the lack of exposed economic assets. In addition, it may also help to address the 'development deficit', while maintaining the kind of cost efficiencies

that a credit scheme offers (Bührs, 2010). To the extent that CCIs, but also adaptation costs per capita, are lower in least developing countries, and vulnerability reduction potential - per capita, if not based on asset protection, is most significant in poorer communities, this approach would create a greater incentive to support projects for the poor in the poorest countries, overcoming many of the (potentially greater) investment risks and challenges.

Some of the palpable benefits of the scheme thus include the potential for project-based VRCs to overcome or avoid some institutional barriers (e.g. the hostility of local government to supporting adaptation investments in informal settlements) the creation of incentives that provide direct benefit to the community involved, and the very involvement if the community itself. Companies (especially when they have caps on their emissions in industrialized countries), and third-party developers and investors will be highly motivated to identify and engage with communities where there is significant, and relatively low cost, vulnerability reduction potential. A rigorous VRC issuance regime will force them to maintain a keen eye on their projects if they wish to reap benefit; the result will be accountability and sustainability. As the finance does not need to be funneled through any particular organization, such as a local government that is hostile to vulnerable communities, funds can go where they are needed and, relatively speaking, where they should be well spent.

There is a risk that a disproportionate share of the investment is allocated for mitigation rather than adaptation. This should be avoided as there is a morally compelling need and obligation stemming from the polluter pays principle to finance adaptation in developing countries. The proposed credit mechanism offers an opportunity to effectively meet much of this need so system design should strive to incentivize adaptation.

A potential 'supply release mechanism' could be incorporated into the scheme to ensure that a minimum level of finance is allocated to adaptation, using conventional financing mechanisms (e.g. grants to government programs). Such a mechanism could be triggered for a given period, if the share of mitigation reduction credits exceeded a certain level such as 65% of all credits. At this point the capped entity could be required to pay, at the estimated adaptation cost/t, into a fund that could then allocate resources towards adaptation measures using grants, loans, or other means. Alternatively, as noted above, market regulations could be imposed creating greater issuance of VRCs per verified expected vulnerability reduction value. This latter measure could be undertaken in a flexible manner to target specific countries or project types, or be adjusted for the market as a whole.

4 Conclusions

As with the case of climate mitigation, the use of market mechanisms alone to reduce vulnerabilities to climate change is insufficient. Even with the most cleverly designed schemes, funds cannot be allocated to protect all vulnerable communities or all natural systems. However, this is a problem for all financing alternatives. Requiring that polluters pay to reduce vulnerabilities is probably the fairest or most equitable approach. In addition, the proposed scheme promises to be flexible and efficient. It is also perhaps the best way to raise funds and does not risk the so-called 'donor fatigue' that plagues overseas development assistance.

To the author's knowledge, this is the first published paper on the design of a market-based vulnerability reduction crediting mechanism and it therefore constitutes a first step of an essential process of multidisciplinary research and debate on the economics, policy framework, and technical alternatives for baseline and crediting methodologies. Future key areas of work include: applying the lessons of project-based mitigation credit schemes; considering criteria for imposing cumulative emissions obligations; better understanding the extent to which supply and demand for adaptation investment is stimulated through the international framework and national policies; identifying the most appropriate project types; creating appropriate baselines and methodologies for measuring vulnerability reduction values; improving understanding of climate change impact costs and risks; modeling and performing scenario analyses against the alternative design options; and, coming up with governance and implementation frameworks at international, national, and community levels. A pilot scheme could address all of these issues.

References:

Adam, D., 2010, 'Climate fund 'recycled' from existing aid budget, UK government admits. Move appears to contradict repeated government pledges that climate aid would be additional to existing aid programmes,' *The Guardian*, 25 January [available at http://www.guardian.co.uk/environment/2010/jan/25/climate-aid-uk-funding].

Adger, N., Huq, S., Brown, K., Conway, D., Hulme, M., 2003, 'Adaptation to climate change in the developing world', *Progress in Development Studies* 4(3), 179-195.

Agrawala, S., Crick, F., Jetté-Nantel, S., Tepes, A., 2008, 'Empirical Estimates of Adaptation Costs and Benefits: A Critical Assessment', in: S. Agrawala, S. Fankhauser (eds), *Economic Aspects of Adaptation to Climate Change: Costs, Benefits and Policy Instruments*, Organisation for Economic Co-operation and Development, Paris, 29-84.

Agrawala, S., Carraro, M., 2010, 'Assessing the role of microfinance in fostering adaptation to climate change', Environment Working Paper No. 15, Organisation for Economic Co-operation and Development, Paris.

Baca, M., 2010, 'Call for a Pilot Program for Market-based Adaptation Funding', *International Law and Politics* 42, 1337-1381.

Baumol, W.J., Oates, W.E., 1971, 'The Use of Standards and Prices for Protection of the Environment', *Swedish Journal of Economics* 73, 42-54.

Brown, J., Kaur, N., 2009, 'Financing adaptation: matching form with function', Background Note, Overseas Development Institute, London.

Bührs, T., 2010, 'Sharing the atmosphere: A proposal for an equitable and sustainable global trading scheme for greenhouse gas emissions', Center for the Study of Globalisation and Regionalisation Working Paper 264/10, Department of Politics and international Studies, University of Warwick, Warwick.

CAIT (Climate Analysis Indicators Tool)), 2010, Version 3.0, World Resources Institute, Washington, DC

Climate Funds Update, 2011, 'Overall distribution of funds: December 2010', Climate Funds Update [available at: www.climatefundsupdate.org].

Fast Start Finance, 2011, *Contributing countries*, Fast Start Finance, The Netherlands [available at: www.faststartfinance.org/content/contributing-countries].

Hamilton, K., Fay, M., 2009, 'A Changing Climate for Development', *Finance & Development* 46(4), 10-12.

Hellmuth, M.E., Osgood, D.E., Hess, U., Moorhead, A., Bhojwani, H. (eds), 2009, *ANNEX Index insurance and climate risk: Prospects for development and disaster management*, IRI Technical Report 10-10, Climate and Society No. 2. International Research Institute for Climate and Society (IRI), Columbia University, New York, USA.

IEA (International Energy Agency), 2009, *World Energy Outlook – 2009*, Organisation for Economic Co-operation and Development/International Energy Agency, Paris.

Moser, C., Satterthwaite, D., 2008, *Towards pro-poor adaptation to climate change in the urban centres of low- and middle-income countries*, Climate Change and Cities Discussion Paper 3, iied Human Settlements Discussion Paper Series, International Institute for Environment and Development, London.

Parry, M., Arnell, N., Berry, P., Dodman, D., Fankhauser, S., Hope, C., Kovats, S., Nicholls, R., Satterthwaite, D., Tiffin, R., Wheeler, T., 2009, *Assessing the Costs of Adaptation to Climate Change: A Review of the UNFCCC and Other Recent Estimates,* International Institute for Environment and Development and Grantham Institute for Climate Change, London.

Point Carbon, 2011, *Point Carbon's OTC Price Assessments*, Point Carbon, Oslo, Norway [available at www.pointcarbon.com].

Stavins, R., 2003, 'Chapter 9 Experience with market-based environmental policy instruments', *Handbook of Environmental Economics, Volume 1*. 2003, 355-435.

Tietenberg, T., 2002, 'The Tradable Permits Approach to Protecting the Commons: What Have We Learned?', Working Paper No. 36. 2002, Fondazione Eni Enrico Mattei (FEEM), Venice, Italy.

UN (United Nations), 1992, *Report of the United Nations Conference on Environment and Development (Rio de Janeiro, 3-14 June 1992), Annex I: Rio Declaration on Environment and Development*, United Nations, New York [available at http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm].

UN (United Nations), 2010, *Report of the Secretary-General's High-Level Advisory Group on Climate Change Financing,* United Nations, New York [available at www.un.org/climatechange/agf].

UNEP Risoe, 2010, *CDM/JI Pipeline Analysis and Database,* United Nations Environment Programme Risoe Centre on Energy Climate and Sustainable

Development, Roskilde, Denmark [available at www.cdmpipeline.org].

UNFCCC (United Nations Framework Convention on Climate Change), 2009, *The Conference of the Parties Takes note of the Copenhagen Accord of 18 December* 2009, Decision 2/CP.15 Copenhagen Accord, UNFCCC secretariat, Bonn, Germany [available at http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf#page=4].

UNFCCC (United Nations Framework Convention on Climate Change), 2011, *Approved Methodologies by Scope*, UNFCCC secretariat, Bonn, Germany [available at http://cdm.unfccc.int/Statistics/Methodologies/ApprovedMethPieChart.html].

Illustration:

A Market Mechanism to Finance Adaptation in Developing Countries

Wealthy Nations cap their emissions to meet climate targets, and may delegate caps to industry.

Extra reductions are calculated based on the countries' historical emissions to pay to reduce climate vulnerabilities in developing countries or reduce impacts by further lowering emissions.

The extra target can be met in any of four ways:

1. Reducing emissions at domestic facilities
2. Trading allowances from other capped nations or facilities
3. Purchasing Credits from Emission Reductions in Developing Countries
4. Purchasing Vulnerability Reduction Credits (VRCs) from Adaptation Projects in Developing Countries

Allowances, Emission Reduction Credits, and Vulnerability Reduction Credits are Measured:

- Tonne of CO2 equivalent emission reduction, verified
- Tonne of CO2 equivalent emission reduction, verified
- Tonne of CO2 equivalent emission reduction, verified
- Accredited auditor estimate of reduced climate vulnerability from baseline level of vulnerability. The VRC is based on cumulative historical emissions/total cost estimate of global adaptation, revisited regularly

All projects – reducing domestic emissions, projects to reduce emissions in developing countries, and vulnerability reductions can be undertaken by any party, identifying any viable project if the baseline and emissions/vulnerability reduction activity can be satisfactorily be established, quantified, and verified.

Such a scheme may result in more efficient, innovative, and dynamic climate action that mobilizes resources from the polluters.

Climate Mitigation Works

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Table 1:

Table 1. Hypothetical Case of Vulnerability Reduction Credit (VRC) Project		
	Quantity	**Calculation**
Demand Drivers		
Global cumulative emissions, 1850 – 2000	1 trillion t CO_2e	
Wealthy Countries	750 billion t CO_2e	
Developing Countries	250 billion t CO_2e	
UN official estimate of developing country climate change impacts (CCI) costs	$200 billion/year	Average costs (that in practice would probably be broken down into periods). By year two this declines by 1% to $198 billion/year
100 year CCI costs	$20 trillion	100 years x $200 billion/year
Developing Country costs/t CO_2 equivalent caused by wealthy country emissions	$26.67/t CO_2e	$20 trillion/750 billion t CO_2e
Example of Wealthy Nation Liability and System: The "United European Principate" (UEP):		
Cumulative emissions 1850 -2000	60 billion t CO_2e	
UEP may for each year: • reduce its emissions by these 60 billion t/100 years (=600 million t), • secure allowances from other wealthy countries, • reduce emissions in developing countries, • secure VRCs reduce the expected value costs of climate vulnerability by 600 million t x $26.67/t = $16 billion, or, • a combination of the above. UEP chooses to reduce allowances by 600 million/year by facilities covered under an existing emissions trading scheme and have industry figure out how it will comply.		
Example of Company Covered by UEP's Compliance Scheme: CoalWindEnergy (CWE), an electric utility		
CWE baseline emissions	1.1 million t CO_2e	
CWE allocations under existing emissions trading scheme	1.0 million t CO_2e	
Further reduction under historical emissions retribution regime	0.1 million t CO_2e	
CWE total allocations	0.9 million t CO_2e	1.0 million t CO_2e – 0.1 million t CO_2e
Total emission "deficit"	200,000 t CO_2e	Of which 0.1 million t CO_2e must be met through existing ETS allowances or mitigation credits
CWE actions for the year:		
Reduce own emissions:	50,000 t CO_2e	Reduces coal burn by efficiency improvements and introduction of biomass
Purchase of allowances and emission credits	75,100 EUAs and CERs	
Purchase of VRCs:	74,900	From storm-drainage project in large city in a developing country

The Higher Ground Foundation
- stand up to climate change

The VRC Producing Project: Storm drains Project is for an informal settlement in a large secondary city. The settlement already suffers flooding and contamination of ground- water leading to health problems; both problems will increase with sea-level rise and more severe weather caused by climate change.		
Design document estimate of vulnerability reduction costs caused by project:	$1 billion over 50 year project life	This is reviewed an formally validated by a UN accredited vulnerability reduction auditor
Year one: UN accredited verification of % vulnerability protection from estimate in design document	94%	Verification showed that portions of drainage system not properly constructed and results in some storm-water exiting into community
VCRs issued for year one:	74,900 VCRs	1 year/50 year project life x 94% expected vulnerability reduction/$26.67 Climate Change Impact cost (CCI)
Year two % vulnerability protection:	104%	The above faults were fixed and extra maintenance resulted in protection exceeding design document's estimate
99 year future average Climate Change Impact costs (CCI) estimate, calculated in year two:	$198 billion/year average	A surge of adaptation investments and improvements in impact modelling result in a 1% drop in estimated impact costs/year. 99 years because first year of 100 years retribution "paid" by wealthy countries
Year two CCI/t:	$26.4/t	99 years x $198 billion/year/(750 billion t CO_2e – 1/100 years/750 billion t CO_2e)
Year two VRC issuance:	79,572	$2,000,000 x 104%/26.14/t
To consider project economics:		
Opportunity cost:	Allowance price = $50 Credit price = $45	
Life cycle cost of storm drainage project:	$15/VRC	

Nr. 6
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Breaking the Climate Finance Funding Deadlock

Financing climate protection with the help of Special Drawing Rights

A Proposal from the

World Future Council

World Future Council

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"Whatever a society can do, it can finance."

John Maynard Keynes

"Anyone can create money. The problem is getting it accepted."

Hyman P. Minsky

Breaking the climate finance funding deadlock

Introduction

The UNFCCC negotiations in Cancun in December 2010 resulted in a decision to establish a Green Climate Fund (GCF). Many are now looking to it as the solution to climate finance. But nothing has yet been paid into this fund, threatening to turn it into an "empty shell" (UNSG Ban Ki Moon). Indeed, there is "an 'ever-widening chasm' between what poorer countries need to adapt climate change and what wealthy countries are delivering". (FT. 17.11.11)

An effective policy to reduce climate change as far as still possible would require at least $ 100 billion a year, and it is not realistic to expect that this will come out of national budgets. Countries currently facing huge budget deficits find it politically very difficult to spend money on long-term climate related issues. An innovative solution is now needed to bridge the gap between the urgent financial requirements of less industrialised countries and the current political inability of rich countries to provide the required funding. The funding problem must therefore be solved at the international level. The only international organization that can create these necessary additional funds at once is the IMF.

The centerpiece of the WFC proposal is the innovative use of a financing tool that utilises the ability of the IMF to create new money in the shape of its own reserve currency: Special Drawing Rights (SDRs). Such new funding will not be inflationary if issued only against performance, i.e. to produce new goods and services with (mostly) unused productive capacities and unemployed labour.

The use and control of this new money could be coordinated by the Global Environment Facility, UNEP, UNDP or the new Green Climate Fund of the UNFCCC.

Why new money ?

At the COP 16 in Cancun $100 billion a year were pledged for climate finance. But where will this money come from? There are many proposals, like a Financial Transaction Tax and revenues from CO_2 emission trading and airline taxes. But all involve a redistribution of existing funds or expected cash flows. Every Dollar thus obtained must be paid by somebody else. Resistance and lobbying against such redistribution can be expected to be strong and the fulfilment of the pledge therefore very doubtful.

The key challenge is not a lack of liquidity in the international monetary system but a lack of funds for climate and energy projects that are immediately available. Therefore the World Future Council proposes using an existing mechanism to solve this new problem.

Why the IMF? What are SDRs?

Many measures which the IMF has implemented in the past decades have been controversial and are now seen as counter-productive. But the IMF was originally created to mitigate economic imbalances, making the world economy not only more stable but also fairer. The possibility of an international currency - "Bancor", as designed by Keynes – was already discussed at the founding of the IMF in 1944 in Bretton Woods. In 1969, with the introduction of Special Drawing Rights (SDRs) as an international reserve currency (or, to use IMF terms, an international reserve asset) this concept was revived. SDRs were reinvigorated in the 2009 financial crisis when the IMF was asked by its member governments to create new SDRs to the value of 250 billion Dollars. The strengthened role of SDRs in the international monetary system offers not only the possibility to finance climate change mitigation but also paves the way to a more stable and just global financial system.

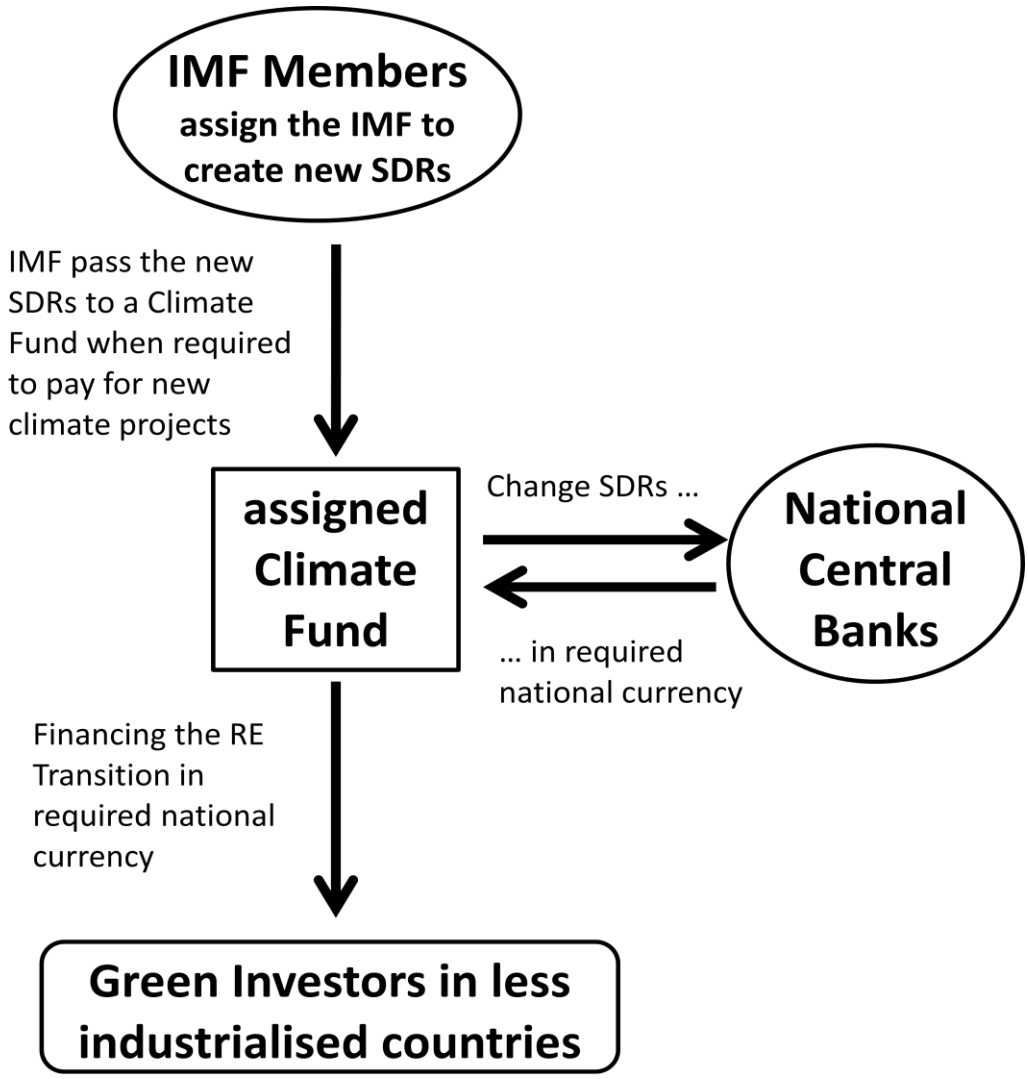
If governments can combat the financial crisis with newly created money, why can they not respond to the challenges of climate change in the same way?

The proposed mechanism

The centrepiece of our proposal is the establishment of a financing tool that uses the ability of the IMF to create new international reserve money in the shape of SDRs to meet the needs of climate finance. The IMF member states can agree on the issuance of new SDRs to themselves (proportionate to their quota shares).

However, in our proposal member states could commit themselves in advance to putting the majority of these new SDRs at the disposal of an assigned new Climate Fund. A small portion (e.g. 10% – 20%) could be allocated to them to finance agreed national climate protection projects.

Flows from new SDRs for green projects in less industrialised countries

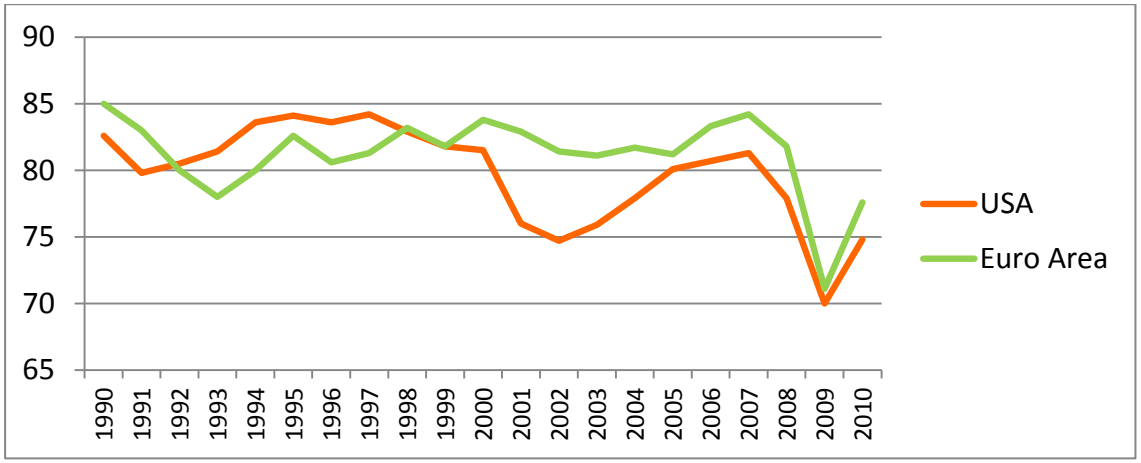


As SDRs are not currently a medium of payment, the **assigned Climate Fund** would change the newly obtained SDRs into the required national currencies at the respective central banks, when they are required to pay for agreed climate projects, e.g. renewable energy plants.

This exchange is based on existing agreements between the IMF and various member states as SDRs are accepted as part of national currency reserves. At that moment, the creation of new money in the currency of the IMF (SDRs) becomes a creation of new money in the equivalent national currencies. There is no excess money that potentially could finance new asset bubbles or other speculative activities. The rise in new money is equal to the rise in new production, and therefore there would be no inflationary impact from the monetary side.

There would also be no added indebtedness, as the new money is created interest-free. In the real economy an additional demand of $100 billion a year would not cause serious inflation, as global GDP is around $60 trillion and the average current utilization of industrial capacities is approximately only 80 percent (see ECB, Fed).[1]

Capacity Utilization in the Euro Area and the USA (in percent)



(Source: Fed, Statistical Release G.17; ECB, Monthly Bulletins)

At the theoretical level it could also be shown that in a normal economic situation an additional demand would lead to higher production rather than higher prices.

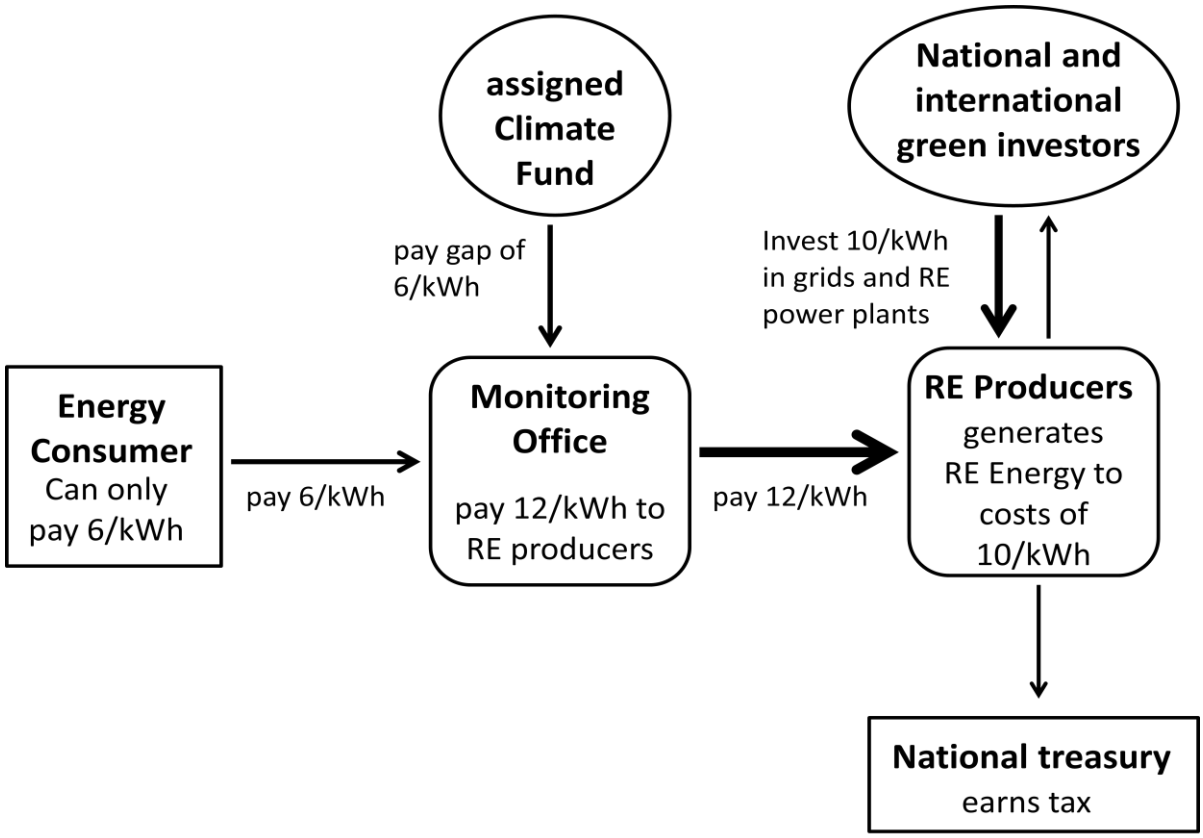
The basic principle of this proposal is that the new money should be paid only against performance

The **assigned Climate Fund** should ensure that new economic value and new green jobs (new wages and new revenues) are created in the less industrialised countries by using the additional funds it receives by exchanging SDRs created and provided to it by the IMF only to pay directly for renewable energy infrastructure projects.

[1] "Idled capacity in the U.S. automobile industry is sufficient to produce all the wind turbines the world needs (for) a crash program to develop 3,000 gigawatts (3 million megawatts) of wind generating capacity by 2020, enough to satisfy 40 percent of world electricity needs." (Lester Brown , "PLAN B 4.0 -- Mobilizing to Save Civilization", pgs. 116-17, W.W. Norton & Co. , New York 2009)

One possibility to achieve this imperative is the financing of feed-in-tariffs (FITs), because money is only paid out if the energy is in fact produced. In this case the **assigned Climate Fund** pays out the gap between the price for energy that consumers in poor countries can afford to pay and the price that covers all costs (including a sufficient yield) of the private green investors.

The financial flows using FITs (Prices are only exemplary)



Who profits from the new SDRs and how?

Industrialised countries profit because the biggest part of the additional demand for renewable energy investment goods will come to them because that is where most industrial capacities are located. With this additional demand and production, new incomes, profits and taxes materialize. Less industrialised countries profit from renewable energy installations where the necessary infrastructure is build at no cost to them. The resulting income will increase domestic purchasing power. New local production and service are stimulated as well as increasing the tax base.

SDR financing of new climate projects in less industrialised countries will lead to a resource transfer from industrial countries. The advantage of the financing through new money is that the transfer of (mainly) previously unutilized productive capital does not require increasing indebtedness or lengthy prior redistribution disputes.

Also, commercial banks benefit because the necessary pre-financing of FIT-based projects opens up a new field of business. The private sector benefits because the resulting increased demand for new climate projects provides many new employment and production opportunities, and the IMF benefits from its enhanced role in providing climate finance.

Most of all, we all benefit from reduced climate threats and the increased renewable energy (RE) production which is otherwise lost. (See WFC study on the cost of unused RE potential.)

Conclusion

The advantage of the WFC proposal can be summarized as follows: Resources of at least $100 billion a year would be immediately available. No country would be required to pay for this from its national budget or increased indebtedness. The new money would be equal to the rise in new production, and therefore there would be no excess money in the monetary system. Given the current under-utilization of global production capacities, no significant inflationary impulse is to be anticipated from the new demand. Over the longer term, it is to be expected that the industrial economies will respond to the increased demand for carbon-free investment goods with an expansion of their corresponding capacities such that excessive demand will not result. Less industrialised and industrialised countries will benefit from the new climate security investments made possible by the new financing mechanism.

The World Future Council

The World Future Council brings the interests of future generations to the centre of policy making. Its up to 50 eminent members from around the globe have already successfully promoted change. The Council addresses challenges to our common future and provides decision makers with effective policy solutions. In-depth research underpins advocacy work for international agreements, regional policy frameworks and national lawmaking and thus produces practical and tangible results. In close collaboration with civil society actors, parliamentarians, governments, business and international organizations we identify future just policies around the globe. The results of this research is then feed into our advocacy work, supporting decision makers in implementing those policies.

The World Future Council is registered as a charitable foundation in Hamburg, Germany. Our work is made possible by support from private and institutional donors. For more information see our website: www.worldfuturecouncil.org

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