



TAIF – Technology, Adaptation & Insurance Fund

A concept note

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Background

As agreed by the conference parties to the UNFCCC in the Bali Action Plan, evidence for the planet warming is "unequivocal", and any delays in reducing emissions increase the risks of "severe climate change impacts".

Science now tells us that we are pushing beyond the limits of dangerous anthropogenic interference with the climate system with potentially catastrophic consequences. That is why action on reducing Greenhouse Gas Emissions (GHGs) is needed so urgently to stabilize GHG levels below 450 ppm, a near universally agreed target in order to try keep global warming below the crucial 2 degree Celsius level.

The Bali Action Plan states that "Deep cuts in global emissions will be required to achieve the ultimate objective" of the UN climate convention, namely "avoiding dangerous climate change".

While a global emission reduction target of 50% by 2050 is more or less uncontroversial, emerging scientific evidence is now increasingly pointing to the need for a much greater reduction of 80% if we are to be reasonably confident about preventing warming from exceeding the 2 degree Celsius mark with potentially disastrous consequences. Clearly urgent mitigation action is required by conference parties.

However, the lack of mitigation action thus far has meant that global warming is already a reality and is already having severe negative consequences in the form of falling yields, loss of potable water and more extreme weather events amongst others. While this is a global problem, developing countries are disproportionately affected not just because of more vulnerable geographic location but also because of more vulnerability to economic and other shocks and fewer domestic resources available to cope.

Clearly, mitigation alone is not enough and urgent steps need to be taken to help adapt developing countries to the reality of climate change. For developing countries, mitigation is a long and arduous challenge while adaptation is a realistic and imminent task. The transfer and deployment of appropriate technology and the provision of an Insurance mechanism against growing climate risks also clearly result in better outcomes for developing countries.

These countries, despite their limited historical responsibility for climate change, face the highest costs regarding its impacts. This, along with the fact that adaptive capacity to climate change is uneven across countries, requires enhanced international cooperation to face increasing adaptation needs. Clearly, a central feature of this international action is the provision of new and additional financial resources is central to the commitments of the Parties under article 4 of the Convention.

Articles 4.3, 4.4 and 4.5 in particular place the burden of providing such resources for meeting the costs of adaptation and technology transfer on the developed country Parties. Article 4.7 inherently recognizes that the overriding priority of developing country Parties is economic and social development and poverty eradication, and states that effective implementation by developing country Parties of their commitments will depend upon how effectively the developed country Parties meet their commitments related to provision of financial resources and transfer of technology.

While there are many similarities between adaptation interventions and development actions and accelerated development may be the best response for enhancing adaptation, there is little doubt that climate change poses a large, additional burden. That is why there is an urgent need to reach a fair and equitable sharing of this financial burden. In the next section we discuss this might be achieved especially across developing and developed countries.

Burden Sharing

In light of emerging scientific evidence of faster than expected warming and the potentially catastrophic consequences of a greater than 2 degree rise in global temperature, we firmly believe that only a target of 80% not 50% global reduction in GHG emissions by 2050 is morally and scientifically justifiableⁱ.

The principle of common but differentiated responsibilities and respective capabilities manifests itself in the very structure of the UNFCCC. It is based on elements such as distinct historical responsibilities regarding global warming, distinct financial and technological capabilities and distinct national development challenges. The Bali action plan specifically provides for taking into account social and economic conditions as well as any other relevant factors.

Even taking account of these fundamental differences between developing and developed country parties the conclusion that both will need to make sacrifices is inescapable. This can be gauged simply by the fact that even if all developed country party emissions were to magically go to zero today, developing countries would still need to decarbonise their economies to have any hope of preventing catastrophic climate change.

Any agreement that requires mitigation commitments from developing countries is not by definition unfair.

- Firstly China, for example, is now the biggest emitter of GHGs and clearly any agreement which does not have provide for emission cuts by China and other large emerging economies such as India, Brazil, Mexico etc is bound to fail to curb emissions to the extent needed.
- Secondly, in terms of capacity, many of the emerging market economies such as those mentioned above have a significant number of millionaires and billionaires who clearly have the capacity to share some of the burden even as the average citizen would not.
- Finally, in order to retain development equity within a severely carbon constrained world, it is essential for most developed country parties not just to reduce their emissions to zero but to take deep negative cuts. Against this, the scenario of significant but still positive cuts by emerging economies no longer seems that unfair.

Responsibility and Capacity Indicator

While it is clear that the GHG stock causing climate change has primarily come from the emissions of developed countries since industrialization started in the 18th century, it would perhaps be unfair to assign responsibility since scientific evidence for GHG related climate change has only recently become widely accepted. Cumulative emissions since 1990 is a relatively uncontroversial measure of relative responsibility and we stick to it. Developed countries need to be cognizant though that their real historic responsibility is greater.

In terms of capacity to bear the costs of mitigation, it is clear that all countries are not equal. Clearly, developed countries are far richer and more technologically advanced so have far greater capacities. However especially in light of the rising inequality of recent years not all citizens in any country are equal. A rich industrial billionaire in India, for example would have far more capacity to bear some of the costs of tackling climate change than a poor unemployed homeless American without health insurance.

A measure that combines the capacity of both countries and individuals is thus more intuitively appealing than one which is based on only one or the other. To arrive at such a measure, we use a baseline of \$9,000 Purchasing Power Parity (PPP) income line as a baseline for sufficiency below which individuals, no matter which country they live in, should not be required to cut consumption. Conversely, we assume that those with greater income levels have the capacity to share some of the gains. Using figures for average GDP per capita and measures of inequality in the form of Gini coefficient, we arrive at a measure of the capacity of citizens of each country to share the burden of emission cutsⁱⁱ.

Next we combine Responsibility and Capacity in a multiplicative measure weighing capacity slightly higher than responsibility and arrive at estimates of what we regard as a fair burden sharing formulaⁱⁱⁱ. These are listed in detail in the appendix and broadly show that high income developed countries need to bear a burden of about 80%, with middle income economies including China, India, Brazil, Russia, Mexico and others bearing about 20%. Low income countries including LDCs have a burden of about 0.5% which can and should be ignored.

The way forward

Clearly, ensuring that similar burden sharing arrangements between developed and emerging economies win broad support in the conference of parties will not be easy. That is why we think that rather than an exact formula, our methodology provides a reference point.

Another point to note is that we are living in a world where countries have recently seen widely divergent growth rates of GDP, Emissions, GDP per capita and populations etc. Under such circumstances, it makes sense to include a provision to revisit the burden sharing arrangements once every 5 or at most ten years.

One possible way to get emerging economies on board would be getting them to agree to the principle and formulaic approach to burden sharing while at the same time offering a moratorium for 5-10 years.

Burden sharing for adaptation, technology transfer and insurance

While there may be a strong case for burden sharing between developed and emerging economies on mitigation, the case is much weaker for funding measures such as adaptation, technology transfer and insurance. Articles 4.3 and 4.4 and as well as the 'polluter pays principle' mean that funding for adaptation and related actions is the primary responsibility of developed country parties.

In this case how do we reconcile burden sharing between mitigation and adaptation? One way would be to ensure that the net funds disbursed under adaptation and related funding exceeds the net financial contributions of emerging economies to the mitigation effort. This would ensure that the final incidence of adaptation funding is borne only by the developed countries as seems more appropriate and fair. This should not be difficult to ensure under a scenario of sufficiently large adaptation funding which seems to be required.

It is critical to remember that Developed country parties cannot stabilize the climate without the full commitment of the Developing countries and they cannot make the commitment if doing so would threaten their development.

Adaptation

There is consensus that the funding currently available for adaptation under all mechanisms put together is orders of magnitude below what is needed for the financing of effective adaptation measures with the UNDP figure of at least \$85 bn by 2015 still considered conservative.

In contrast to mitigation where the potential of profit may attract significant funding from the private sector, adaptation financing would need to be primarily public in nature. There is, for example, little private funding available for activities such as shoreline protection, coral reef restoration, protection of coastal infrastructure and protection against saline intrusion etc critical for adaptation in Small Island Developing States.

It has sometimes been argued that because there is much uncertainty about the needs for and costs of adaptation, we should start modestly and then scale up as more information becomes available. While this sounds reasonable, it goes against the precautionary principle embedded in the UNFCCC. This principle has special implications for the implementation of the provisions of the Convention on adaptation. Article 3, paragraph 3, by making reference to precautionary measures to mitigate the adverse effects of climate change, explicitly mandates a precautionary basis for action on adaptation. This means that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing the implementation of adaptation provisions, including financial, under the Convention.

Hence substantial new additional and predictable funds for adaptation are needed and needed now. It is necessary to provide sufficient financial support to all developing countries to develop National Adaptation Plans of Actions (NAPAs) and support them to develop, demonstrate and implement adaptation projects and programs identified under these national plans.

In addition to making finance available, there is a need to provide expertise in the form of an **Adaptation Resource Centre** which will create and maintain register of suitable adaptation responses. This should be kept updated through a sharing of experiences, knowledge and data and will enable others to adapt better.

Technology Transfer

Developed countries clearly have much greater technological capabilities than most developing countries. These cut across the spectrum from clean energy technologies and energy saving technologies to technologies that might help a society adapt better to a changing climate.

The Bali action plan called for re-instating an expert group on technology transfer to advise developing countries on how best they can benefit from the transfer of some of this better technological capacity.

While there are financial incentives that will exist under a mitigation regime such as Cap and Trade for technology transfer, these incentives are much less relevant for actions to do with adaptation. That is why, it is likely that the private sector might play a strong role in the transfer of mitigation related technologies to developing countries, the public sector will have to bear the brunt of the burden for the transfer of technologies which are more relevant to adaptation but perhaps even more important from the developing country point of view.

Even under mitigation, the prevalence of security considerations, the intellectual property rights regime, the potentially small size of developing country markets and the lack of absorptive capacity might mean that there is a less than optimal transfer and use of clean technology.

That is why a publicly funded dedicated technology transfer mechanism is needed to ensure that technology best serves the needs of the UNFCCC in its efforts to curb climate change.

Insurance Provision

Even with the best of intentions, adaptation actions and precautionary measures, the increasing incidence of extreme weather events such as hurricanes, floods and droughts etc mean that many

people and even whole countries might find themselves exposed to drastic risks from such events. In such exigencies, it is critical to provide appropriate financial and logistical support to such countries. It is developing countries, especially within the AISOS and LDC groupings that are particularly vulnerable.

In most instances, no public or private mechanism exist to provide insurance against such outcomes and hence there is a need to establish a publicly funded vehicle under the aegis of the UNFCCC to provide such insurance in the event of extreme weather events and climate change related disasters.

The TAIF – Technology Adaptation and Insurance Fund

Based on the discussion above and as highlighted in the Bali Action Plan and several discussions of the working groups under the UNFCCC, there is an urgent need to provide significant funding for developing countries that is over and above funding needed for mitigation actions alone.

We believe that in the interest of efficiency, comprehensiveness and in order to exploit possible synergies, it is best to combine the funding mechanism for technology transfer, adaptation and insurance provision into one single financing vehicle namely the Technology, Adaptation and Insurance Fund. The three areas can be best thought of as windows under TAIF. Developing country parties have made it clear that funding outside of the UNFCCC would not count towards meeting convention obligations.

TAIF would be

The Funding for TAIF will need to meet the following basic criteria

- Sufficiency (ensuring that adequate resources are mobilized)
- Additionality (ensuring that ODA or investment flows are not cannibalized)
- Predictability (ensuring that there is certainty in terms of the amount and timeliness of money raised)
- Equitable (there is fairness in terms of both burden sharing and disbursement)
- Grant based resources (not loan or equity based)
- Scaleable (it should be possible to scale the funds up in a simple way if significant funding gaps are found)
- Public sector with possible additional voluntary but unconditional contributions from private actors
- Non Diminishing (As funding requirements for adaptation are likely to increase at least in the medium term, the source of funds should not diminish)

Planned Sources of Funds

We assume that an international cap and trade system will be adopted for mitigation at Copenhagen in 2009^{iv}. We further assume that the cap sufficiently tight so as to generate a price for carbon significantly higher than that prevailing under the ongoing EU ETS where an excessively generous allocation of permits to emit caused the price of carbon to collapse. Under the Kyoto accord, for example, as much as 11.2 billion allowances were allocated for free, an amount nearly equivalent to 1990 emissions. It is anticipated that under the stricter cap and trade regime envisaged, the expected price of carbon is likely to lie at least in the range of \$70 / tonne rising to \$200 / tonne as projected in the Norwegian proposal. The total asset value of annual permits would then lie in the range of \$1 - \$3 trillion.

We envisage that a significant proportion of the permits will not be grandfathered or sold for free but rather will be auctioned creating the possibility of raising substantial sums of money which can then be allocated towards mitigation, adaptation, technology transfer and insurance provision. Since there is a degree of automaticity in terms of mitigation within the cap and trade system, but not so in terms of adaptation and technology transfer; it is proposed that funds for these be extracted and separated from the funds available for mitigation.

It is proposed that a proportion of these permits (AAUs) be set aside and transferred to the TAIF for auctioning. This would enable the TAIF to have a separate, independent source of funding that does not get caught in domestic politics so is stable and predictable. The amount that would need to be transferred would depend on the estimated revenues needs of the TAIF and the prevailing carbon price. We would like to propose an initial transfer of 5% per annum which should raise something in the order of \$30 bn - \$50 bn with the rate rising by 1% each year till 10% at which point the COP should review it in light of new information on adaptation needs and costs.

Depending on what sort of mitigation regime is agreed to, international aviation and international shipping might lie outside of these national targets but would of course need to also follow either cap and trade or face a carbon tax in order to play their part in reducing GHG emissions. In this case, levies on both provide internationally mobilized and internationally disbursed additional mechanisms to fund the TAIF.

So three potential sources of revenue for the TAIF, which fulfil most of the criteria listed above would be

- An allocation of AAU to the TAIF for auctioning to raise revenue (or a % contribution from a carbon tax)
- A similar allocation from quotas or levies on International Air Travel or jet fuel
- A similar allocation from quotas or levies International shipping or bunker fuel

(The exact shape of the cap and trade mechanism or an alternative tax does not matter much for the purpose of funding the TAIF)

Disbursement of Funds

This will need to meet the following criteria

- No conditionality (even when there is co-financing involved)
- Quick disbursements (the procedure for disbursements should not be too onerous)
- Efficiency (every effort should be made to make the best use of the limited funds available)
- Fair distribution (based on the needs and capacity of countries)
- Predictable (once disbursements are agreed, they should arrive on time unless there are some very serious problems)
- Flexible (the disbursement of funds, especially under the insurance window, needs to be flexible and adaptable to specific country circumstances)
- Direct Access (Developing country member countries should have direct access to TAIF funding and not have to go through third parties or organizations such as development banks etc)
- Funding Nationally Owned Plans (Only nationally owned plans should be funded especially under the adaptation window and disbursements should be demand driven)

The Governance of TAIF

We envisage that the TAIF – Technology Adaptation and Insurance Fund will operate under the authority and guidance of the COP and be fully accountable to it.

TAIF will operate at least three funding windows to address specific requirements namely Adaptation, Technology transfer and Insurance. There will be a possibility of having of sub windows under each funding umbrella for example for - Technology Acquisition, Technology Transfer Fund, Venture Capital Fund, Collaborative Climate Research Fund etc.

The TAIF shall consist of the following bodies all operating under the TAIF umbrella

- An Executive Board
- A Secretariat
- An Independent Expert Panel

- Trustees
- A Consultative or Partnership Forum

The Executive Board shall be appointed under the Convention to manage the day to day work of the TAIIF with a Professional Secretariat and an Independent Expert Panel to assist its work. This will be complemented by a broader Consultative or Partnership Council which will meet regularly and serve as a platform for debate, advocacy, fund raising and inclusion of new partners, and to provide feedback and non binding recommendations and advice.

The Independent Expert Panel will include climate experts, technological experts, disaster management experts as well as experts in the field of development who are able to assess how successful proposed programs are likely to be in meeting their objectives.

For the Executive Board, it is proposed that there will be a one country one vote rule and a majority representation for developing countries on the governing body with balanced geographic representation and the possibility of designated representatives from the two main recipient interest groups AOSIOS and LDCs. Additionally, just like with the Global Fund and UNITAID, a provision will be made for appropriate civil society representation.

Trustees needed to audit and verify programs and/or disburse funds will be appointed on a rolling five year basis based on international competitive tender and minimum qualification.

The TAIIF will work with principles of full transparency making the fullest disclosure of records possible. It will at a minimum disclose the Minutes of each Executive Board meeting, the text of all decisions adopted, approved proposals presented, the full budget and other documents helpful to understanding its working, activities and outcomes.

All approved proposals and signed grant agreements would be available for review in unedited form, as would all documents discussed at Board meetings. Additionally the public should be able to track the progress of local programs by reviewing ongoing grantee reports.

National Level Bodies and Disbursement of Funds

Just as under the Montreal protocol, Ozone groups were formed nationally, it is envisaged that in order to tackle the multifaceted and urgent challenge posed by climate change, it is imperative to form high level cross-ministerial and multi-stakeholder groups that include the government, technicians, representatives of the business community and civil society. These we call MoNaGs – the Multi Stakeholder National Groups which will act as the implementing partners of the UNFCCC and its subsidiary bodies such as the TAIIF.

The MoNaGs will be responsible for formulating NAPAs and other national plans and strategies w.r.t. technology and insurance and these will in turn be funded by the TAIIF to ensure national ownership and efficient implementation.

- *The governments of developing countries work with civil society organizations, experts and other partners through MoNaGs to prepare proposals and programs that fill financing gaps for adaptation, technology and insurance.*
- *Eligible proposals and programs submitted to the TAIIF will be reviewed for technical merit by the Independent Expert Panel.*
- *Those that are recommended would be considered by the Executive Board and approved based on available funds and any enshrined quotas*
- *The Secretariat would then negotiate a two-year grant agreement with the developing country government after which the MoNaG receives its first disbursement. The MoNaG will then make disbursements to local implementing organizations.*

- *The MoNaG will periodically request additional disbursements from the Secretariat, based on evidence of progress achieved*

Proposals would first be screened for eligibility by the secretariat and are then forwarded to the Independent Expert Panel which would assess proposals for technical merit and consistency according to proven best practices. Through this review process, proposals would be divided into four main categories: (1) ready and appropriate for funding; (2) appropriate for funding following a limited number of clarifications; (3) not appropriate for funding in the present round, but revision and resubmission is recommended; and (4) not appropriate for funding.

Quota Shares

The total pooled resources of the TAIF could either be fungible or divided into different windows i.e. the adaptation window, the technology window and the insurance window. If the COP makes a decision to make such a division, the initial recommended funding split between the three windows should be of the range of 60%-70%, 30% -20% and 10% respectively.

It is also recommended that LDCs and ASIOS be given a collective quota of at least 25% of the TAIFs total value with the possibility of additional funding.

It is further recommended that at least 30% but up to 50% of the funding provided by TAIF be automatic as per country need and the balance be disbursed based on performance.

All these quota shares should be periodically reviewed for suitability.

ⁱ That having been said, the burden sharing formula we present here is relatively robust to the absolute cuts in the levels of emissions so other negotiated targets could be easily accommodated.

ⁱⁱ Our results are not very sensitive to the chosen income range, especially for example between the \$6,000 - \$12,000 range.

ⁱⁱⁱ Again the results are not very sensitive to the relative weights of responsibility and capacity

^{iv} However this is not strictly necessary for the purpose of the TAIF. The TAIF could equally well be funded through and international pooling of a portion of the revenues from a carbon tax aka the Swiss proposal. A percentage of the tax revenue could be earmarked for the TAIF in the same way as the first 1% of VAT rate collected in EU countries is used to fund the EU budget