

A stylized world map composed of a grid of dots. Most dots are light gray, but several are colored red, notably in North America, Europe, and East Asia, highlighting specific regions.

On the Road to Sustainable Development

How to Reconcile Climate Protection and Economic Growth

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- The impact of global warming in many countries is preventing sustainable development or even destroying existing development gains. Increasingly, droughts and flooding are depriving people worldwide of their natural bases of life or their dwellings and increase the risk of migration or displacement, not to mention conflicts over dwindling resources.
- Climate change represents a grave development problem as well because it hits hardest poorer countries and particularly vulnerable population groups. They have the lowest coping capacities and have contributed least to global warming.
- This disparity raises the question of how burdens and opportunities for climate protection and adaptation are to be distributed fairly among the various actors or how the right to wellbeing and development can be reconciled with the principle of sustainability. The strong interdependence of climate change and development leads to the necessity for an integrated approach in order to generate synergies.



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Foreword

Climate change and development policy cannot be considered in isolation from one another. Efficient and equitable climate policy and the implementation of eco-friendly and inclusive development models in all regions of the world must go hand in hand. Combining the two topics – which sometimes compete for financial resources and attention – underlay the establishment of a working group by the Friedrich-Ebert-Stiftung in 2010 on »Climate Change and Development«, comprising MPs and representatives of academia and civil society. The goal of the working group was to take up important issues at the interface of the two topics, to develop positions and to feed them into the public debate in order to integrate policy analysis, policy debate and policy action more closely. The group focused on five key issues:

- (i) How can a *just climate policy* be designed and implemented that fairly distributes the burdens – and opportunities – of mitigating climate change and adapting to the changes that have already taken place between the various actors and regions?
- (ii) How can transformation processes towards the development of *eco-friendly and socially just economies* be strengthened?
- (iii) What *financial, technological and administrative capacities* must be made available to developing countries by the developed and emerging countries to enable them to manage economic and energy policy transformation and climate-related adaptation measures?

- (iv) How are existing or proposed *climate policy incentives and instruments* to be assessed from a *development-policy standpoint* and what roles are to be played, in the first instance, by energy efficiency and renewable energy sources?
- (v) How can the *institutional structures of international environmental and climate policy* under the UN umbrella be supported, renewed and better reconciled with development agencies?

In recent months, the working group has been able to provide significant impetus with regard to specific aspects of these questions, for example, climate financing, environmental governance and the relationship between human rights and climate change. The group's work has also found its way into public and parliamentary debates, among other things on Germany's position in the climate negotiations or the future of the Millennium Goals in view of Rio+20.

The present volume reflects the breadth of the issues and debates covered by the working group and presents international energy and climate policy challenges from a development policy perspective. On some of the questions, whose urgency was highlighted once more at the UN climate summit in Durban, the authors formulate initial answers and outline sustainable policy approaches for a just climate and development policy.

Dr Bärbel Kofler MP and Nina Netzer

Climate Protection and Development Policy – New Allies in the Fight against Poverty?

Bärbel Kofler and Kristina Müller-Kuckelberg

Introduction

Combating climate change and the fight against poverty are among the biggest and most urgent challenges facing the international community at the start of the twenty-first century. Although the impact of global warming is not a new issue in development policy, the strong interdependence of environment policy and development policy has become increasingly clear in recent years because of rising environmental damage, increasing heterogeneity in the development dynamics of different countries and regions and the failure of unsustainable development models. Furthermore, progress is sometimes prevented in both domains by conflicts of aims between mitigating climate change and combating poverty, as well as the debates on burden-sharing between North and South, which tend to take place on the climate and environmental policy stage. Without an integrated approach that combines environmental and development policy strategies and thus focuses on people, sustainable development cannot be fostered worldwide. On the contrary, if the two major challenges of combating poverty and climate change are not resolved amicably, gains in social or economic development will be nullified by the effects of progressive ecological damage.

In recent years, public awareness that global climate change is an urgent problem has increased. Scientific findings on global warming and anthropogenic CO₂ concentrations go back to the early nineteenth century and build on the discovery of the greenhouse effect by French scientist Jean-Baptiste Joseph Fourier in 1824. The parallel processes of advancing industrialisation in the nineteenth and twentieth centuries, which dramatically increased carbon dioxide emissions, as well as increasing recognition of the connection between climatic changes and the rising concentration of greenhouse gases in the atmosphere clearly show the need for sound scientific evidence. Thus in 1988 – the warmest year since records began – the so-called »World Climate Council« (Intergovernmental Panel on Climate Change – IPCC) was founded jointly by the United Nations Environ-

ment Programme (UNEP) and the World Meteorological Organization (WMO). Its main function is to compile the main global research findings on climate change and to establish a broad-based consensus. The IPCC's independence and consensus-orientation thus takes account also of scientific currents – even if they represent a minority so far – that are sceptical of predictions of the future impact of global warming.¹ There is now such a strong scientific consensus that advancing global warming is to be attributed to anthropogenic greenhouse gas emissions that the search for ways of reducing CO₂ emissions and new growth paths relinquishing fossil energy sources has been given a major boost. However, it remains to be seen whether the search for solutions to the upcoming challenges is being undertaken seriously enough and whether it is progressing quickly enough. Despite the increasing certainty about the facts concerning the impact of global warming, hitherto countermeasures have fallen far short of what is needed. Global CO₂ emissions continue to increase and there have been virtually no binding resolutions at the international level. Nicholas Stern (2009: ix) presents the discrepancy between knowledge and action as follows:

»What is more, climate change is a problem which arises from a build-up of greenhouse gases over time and the effects come through with long lags of several decades. If the world waits before taking the problem seriously, until Bangladesh, the Netherlands and Florida are under water, it will be too late

1. See Stern, Nicholas (2009): *Climate Change and the Creation of a New Era of Progress and Prosperity*. Stern refers to the four IPCC Assessment Reports – most recently 2007 – that demonstrate the causal connection between increasing emissions as a result of human activity and further global warming; see also WBGU (German Advisory Council on Global Change) (2011): *Global Megatrends*, Factsheet No. 3/2011: »There is a scientific consensus about the fundamental processes underlying anthropogenic global warming. As a result of human-induced emissions, atmospheric CO₂ content is already one-third higher than in the millennium preceding the onset of industrialisation. For reasons of basic physics, a rise in atmospheric greenhouse gases causes a warming of the climate at the Earth's surface. Since the start of the 20th century, global mean temperature has increased by 0.8°C above pre-industrial levels and this rise is unabated. It is essential to limit global warming to 2°C in order to avoid incalculable risks.« Available at: http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/factsheets/fs2011-fs3/wbgu_fs3_2011_en.pdf (last accessed on 6.3.2012).

*to back ourselves out of a huge hole. So the special challenge is to change behaviour and make new policy before the crisis erupts with full fury, and not responsively and retrospectively. We cannot wait for the climate crash to happen before we start to try to deal with it. We have to anticipate the catastrophe to avoid it. We are fast approaching a crisis which requires decisions and action **now**, before we fully experience the dangers we are causing. And let us be clear, these dangers are of a magnitude that could cause not only disruption and hardship but mass migration and thus conflict on a global scale. They concern us all, rich and poor [emphasis in original].«*

Action is urgently required not only in the form of immediate and drastic emissions reductions, but also accompanying development-policy measures. In particular, the realisation that the impact of climate change – which to some extent can no longer be halted – will affect poorer countries and population segments hardest shows that measures must also be taken on the part of development policy. This is indispensable simply because otherwise development-policy measures could be nullified by the effects of the growing environmental burden. Although substantial progress has been made in many areas of human development in recent decades, the problem is that these growth and development gains have been achieved largely on the basis of finite fossil fuels or resource exploitation. The new development gains are therefore not sustainable and run the risk of being undermined by resource scarcity or the increasing impact of global warming. For long-term gains we must pursue sustainable development paths.

Halting Climate Change – We Can Only Do It Together

International climate change cannot be tackled by individual states. A global effort is needed by every country in the world to combat this phenomenon. The international climate conferences under the UN umbrella are an attempt to establish an international framework within which global solutions might be found. However, conferences in recent years have also highlighted the difficulties that a multilateral and unanimity-oriented negotiation process brings with it. The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 at the first UN Conference on Environment and Development

in Rio de Janeiro, coming into force in 1994. It has now been ratified by 194 states, including those states with the largest share in global greenhouse gas emissions: the United States, Russia, the European Union, China and India. The main aim of the UNFCCC is to stabilise the atmospheric concentration of greenhouse gases at a level that prevents dangerous disruption of the global climate. In order to keep the global temperature rise within the 2°C limit, which is internationally recognised as critical, global greenhouse gas emissions must be reduced by at least 80 per cent by 2050 in comparison to 1990. However, this can be achieved only by means of an international agreement within the framework of the UNFCCC, with legally binding emissions reduction targets.

Since the coming into force of the UNFCCC in 1994, so-called »Conferences of the Parties« (COP) have been held annually. The protocol adopted at the international climate conference in Kyoto in 1997 – although it came into force only in 2005 – for the first time established targets binding under international law and implementation instruments for global climate protection. The agreement provides for an annual reduction (in comparison to 1990) in the developed countries' greenhouse gas emissions of an average 5.2 per cent during the so-called first commitment period (2008–2012). This represents a decisive step towards international responsibility for climate change – even though the United States still refuses to ratify the protocol.

Seeking Consensus – From Bali to Cancún...

After various follow-up conferences in the ensuing years, which dealt with points not resolved by the Kyoto Protocol, new impetus was given to the discussion on progressing towards a Kyoto successor agreement at the Conference of the Parties in Bali in 2007. The negotiation period for this purpose was set at three years and was supposed to be concluded within the framework of the Copenhagen COP in 2009. But instead of a legally binding agreement, all that could be managed was the Copenhagen Accord, which is merely a voluntary declaration of intent by 131 states. This left many people disappointed and disillusioned. Even the EU, which had set out with high expectations, failed in its efforts to find agreement on binding international emissions reduction targets. The EU representatives at the Cancún conference in 2010 therefore set themselves the goal of converting the agreements

reached on a voluntary basis in the Copenhagen Accord into a UN consensus. Due also to Mexico's outstanding handling of the negotiations in Cancún progress was possible in some areas with important resolutions, such as a package of adaptation measures for countries particularly hard hit by climate change (Cancún Adaptation Framework), a package on technology cooperation, measures on protecting the rain forests and the establishment of a Green Climate Fund. One of the main achievements, however, was that the 2°C limit previously established only as a voluntary commitment in the Copenhagen Accord was anchored in a UN consensus as a benchmark for the international community's climate mitigation activities. This has made it possible to get the UN process back on track after some faltering in the wake of Copenhagen. Another important step was the establishment of emissions reduction targets for the parties to the Kyoto Protocol and the United States in a UN consensus that in Copenhagen had been agreed only on a voluntary basis. Furthermore, all states are to enhance the ambition level of the voluntary reduction targets they agreed to meet by 2020 in order to remain within the 2°C limit. Between 2013 and 2015 this will be scrutinised in a review process.

Although the abovementioned points do represent progress, overall the gains of the Cancún conference are muted by the fact that a number of key issues remain unresolved. For example, there was no clarification of where the 100 billion US dollars a year promised by the developed countries to fund mitigation and adaptation measures in developing and emerging countries from 2020 will come from, or of how the money will be divided up between adaptation and mitigation. Furthermore, it was not possible either to agree on a specific global reduction target for 2050 or to establish when the emission peak will be reached.

Climate Summit in Durban – International Consensus at a Crossroads

At the climate summit in Durban in 2011 agreement was reached at the eleventh hour to prolong the Kyoto Protocol beyond 2012. Although key issues – such as the length of the commitment period (2017 or 2020) and the level of emissions reduction targets – remain to be clarified in 2012 before a second commitment period can actually come into force and Canada's official exit from the Kyoto Protocol once more made it clear that it is not a viable model

for ambitious and effective climate change mitigation the decision in principle to prolong the Kyoto Protocol, which the emerging and developing countries had repeatedly cited as the condition of their participation in a binding international climate treaty, made possible some headway towards a legally binding agreement for all UNFCCC signatory states. With the establishment of the *Ad Hoc Working Group on the Durban Platform for Enhanced Action* it was decided to negotiate a legally binding global agreement by 2015, to be implemented from 2020.

However, against the background of the conflicts between the various national interests that once more were clearly evident in Durban, the continued unwillingness of the United States to participate in mitigation efforts, China's uncertain role, and India's rejection of binding reduction obligations for emerging countries, the chances of reaching a comprehensive new agreement are anything but assured. Therefore, the fact that the demand for a new climate agreement is based on a new alliance forged in Durban between the EU and the states most strongly affected by climate change, supported by emerging countries Brazil and South Africa, is likely to be of particular significance for the future of the international climate negotiations. It would appear that in future the developing countries will no longer be willing to support the demands of the emerging countries – in particular those of China and India – if they stand in the way of their own interests. Much will depend on how far it will be possible thus to overcome the well-established cleavages between the developed countries, on the one hand, and the emerging and developing countries, on the other, in the interest of effective climate protection.

Another key outcome of the Durban negotiations for overcoming the continuing mistrust between the developed countries and developing countries in international climate policy is the founding of the Green Climate Fund. From 2020 at the latest the Fund is to administer and distribute an annual 100 billion US dollars to finance adaptation and climate protection measures in developing countries. As regards how these funds are to be mobilised a work programme on long-term financing was agreed in Durban which, among other things, will analyse potentially innovative funding sources.

Although a number of steps in the right direction were taken in Durban, the negotiations once more highlighted a structural necessity: the institutions of global environ-

mental policy under the UN umbrella must be developed further and reinforced in order permanently to break through the recurring obstacles.² The question of how global governance structures in the environmental domain can be strengthened will also be the subject of the Rio+20 summit in June 2012, one of whose declared key issues is the institutional framework for sustainable development.

Climate Change and Development – Two Sides of the Same Coin

The world's poorest countries are also those hardest hit by climate change. For many countries and regions not only economic development is at stake, but also social achievements – for example, in combating poverty and health care – as well as political and security-related stability. At the same time, the developed countries hitherto have been the biggest emitters of CO₂ and must accept the main responsibility for the impact of climate change.

In these circumstances, a joint approach to international climate and development policy is essential. Given the justified interests of the emerging and developing countries in their economic development and meeting their growing energy needs convincing answers must be found to the question of how climate protection and economic growth can be combined. In order to avoid negative consequences for the global climate a growth strategy is needed that no longer builds on the use of fossil energy sources, but on renewable energies and the application of energy-efficient technologies. Since the development and implementation of such sustainable growth strategies are impossible without corresponding financial and technological support from the developed countries, the question arises of how the climate and development regime can be usefully complemented and what lessons can be learned from the experiences of development cooperation for a successful climate policy.

Environment and Humanity – Mutual Development?

As a consequence of global warming, conflicts are intensifying concerning a fair distribution of scarce resources, especially the supply of clean drinking water.

In total, one-third of the world's population are threatened by water shortages, and around 1.1 billion people have no access to clean drinking water. This is not only a security policy problem but also directly affects what kind of stance we want to take on the environment in future.

Against the background of a need to use water resources more efficiently and the issue of food security there is also an urgent need to transform agriculture. According to UNEP, every year between 20,000 and 50,000 km² of land are lost, mainly due to soil erosion. In addition, around one-third of global arable land is affected by degradation and desertification is progressing, especially in arid regions. At the same time, as the world population grows, proportionately more land is needed for food production. It is extremely important that the countries most affected are provided with the know-how and technologies they need both to use their land efficiently and to conserve it in order to ensure an adequate food supply.

One look at the state of the world's forests makes it clear that there must be a fundamental change in how we deal with the natural bases of life. In particular, tropical forests and jungle are key factors in combating climate change and the loss of biodiversity. They serve as CO₂ sinks and thus as important climate regulators, but they are also significant economic factors. Ways must be found of reconciling countries' understandable interest in the industrial and commercial use of their natural resources to promote their economic development with the global need to maintain the forests as significant ecosystems, in such a way that economic development and climate change mitigation do not come into conflict.

Energy for All – But How?

The constantly growing population, together with increasing urbanisation is confronting humanity with new challenges, in particular in relation to energy supply.³

3. On this see also: WBGU (2011): *Global Megatrends*, Factsheet No. 3/2011: »The world's population is projected to increase from the current figure of 7 billion to around 9 billion by 2050 and is likely to stabilise and perhaps even decrease thereafter. The growth to 2050 will take place mainly in urban centres, not in rural regions. For the first time in history, more people now live in cities than rural areas, compared with just 10–15 % at the start of the 20th century. Since then, the world's urban population has increased twenty-fold, from 165 million to 3.5 billion people; with affluence also on an upward trajectory, per capita energy and resource consumption has risen substantially as a result. Urban areas account for three-quarters of global final energy consumption. The anticipated growth to 2050 means that a further 2 billion people

2. See Netzer/Gouverneur (2011).



Given foreseeable growth, we must step up our efforts to find energy-policy solutions for emerging and developing countries. It goes without saying that their energy needs will increase significantly. The International Energy Agency (IEA) has calculated that – unless something is done about it – by 2035 global energy demand will have grown by 36 per cent. This rise will occur especially in the developing countries, whose energy supply continues to leave a lot to be desired. Since meeting this enormous energy demand primarily by means of fossil energy sources would have fatal consequences for global warming,⁴ joint efforts with partner countries are needed in order to satisfy the growing energy requirements with new, more energy-efficient technologies, as well as renewable energies.

Outlook

In order to avoid irreversible climate change the global average temperature must not exceed its preindustrial level by more than 2 °C. The IPCC thus recommends that by 2050 global greenhouse gas emissions be reduced by at least 50 per cent in comparison to 1990, thereby stabilising the concentration of greenhouse gases in the atmosphere at a value of 450 ppm. Worldwide emissions must reach their highest level considerably before 2020 and thereafter be drastically lowered. Against this background, the question arises of what a sustainable economy would look like in this »One World«, an economy that, beyond numerical growth targets, also seeks to improve quality of life for all. If convincing policy solutions are to be found we have to think outside the

box and assess individual climate policy incentives and instruments from a development-policy standpoint. We need a fundamental paradigm shift towards sustainable economic and social models.

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will have to be accommodated in urban areas, mainly in the developing world.« Available at: http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/factsheets/fs2011-fs3/wbgu_fs3_2011_en.pdf (last accessed on 6.3.2012).

4. See WBGU (2011): *Global Megatrends*, Factsheet No. 3/2011: »Energy is a key prerequisite for human development, and global energy demand is increasing. If this demand continues to be met primarily by fossil fuels such as coal, oil and natural gas, global warming well above 2 °C will be inevitable. The industrialised countries account for around 50 % of global energy consumption, although they are home to just 20 % of the world's population. Even today, 2.8 billion people in developing countries and emerging economies rely on health-damaging forms of bioenergy for cooking, and 1.4 billion people have no access to electricity. According to International Energy Agency scenarios, world primary energy demand is likely to increase by 36 % by 2035, mainly in the developing and newly industrializing countries, unless targeted action is taken to counter this trend. (...) In order to mitigate climate change and overcome energy poverty, it is essential to transform our energy systems and use, mainly through energy efficiency measures and more rapid expansion of renewable energies.« Available at: http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/factsheets/fs2011-fs3/wbgu_fs3_2011_en.pdf (last accessed on 6.3.2012).



Preparing for a Warmer World – Adapting to Climate Change by Using Local Resources

Anika Schroeder

Introduction

While the industrialised countries' energy- and resource-intensive modes of production and consumption are among the main causes of climate change it is the poor in the countries of the global South who are hit hardest by its effects. Although they have contributed nothing to the problem of global warming and are least able to halt or lessen its impact they are defenceless before it. The industrialised countries therefore have a responsibility to support the poorer countries in their adaptation to climate change. To that end, the capabilities and knowledge of those affected must be the focus of all efforts.

Climate change is already not only leading to higher average temperatures, but is also triggering storms, heavy precipitation or drought throughout the world. Sea levels are rising. Wet and dry seasons are shifting. Rainfall is becoming increasingly variable and unpredictable. Crops wither or are inundated. Diseases such as malaria are penetrating new areas. But the consequences of climate change are unequally distributed. One insidious consequence of global warming is the shifting of climate- and thus of cultivation zones for agricultural crops. While grain yields increase in temperate regions with a two to three degree Celsius increase, in most tropical and subtropical regions they decrease significantly since the plants there are already growing at their optimum temperature. According to current prognoses, however, the temperature increase will get even bigger unless drastic and immediate emissions reductions are implemented.

Besides the consequences of global warming themselves, the chances of dealing with them vary considerably. The poor in any case do not have sufficient crop yields and have no means of getting over bad harvests from what has been stored from the previous year or using financial reserves – moreover, they are not insured against yield losses. On top of that, they are frequently not in a position to quickly change their mode of cultivation or the range of products they cultivate. The main reason for this is that their access to knowledge con-

cerning new cultivation methods and to different seeds is limited because of their lack of financial resources, inadequate education and low access to the media. The only form of »adaptation« to climate change which remains to them, therefore, in the absence of external support, is to take their children out of school because they do not have money to pay for it or because their labour is needed in the fields. Many people therefore emigrate into the sprawling slums of the cities, where they have little chance of finding a decent life. This clearly shows that the negative consequences of climate change are having a dramatic effect on poverty and that the poor are most vulnerable to them.

We must not lose sight of the fact that this connection cannot be characterised as a law of nature. The options available to the poor to adapt to climate change depend more on whether they believe in themselves and have the chance to experiment with a range of new survival strategies. Another factor is the extent to which they receive support from their families and neighbours, local and national government institutions and the international community or, on the contrary, have their options restricted. The more creativity and solidarity there is and the better the political circumstances are, the better they will be able to stand up to climate risks and the better will be their ability to adapt – perhaps even in advance – to climate change. In order to boost these adaptation capabilities what is most needed are greater efforts to fight poverty and the integration of the consequences of climate change in development planning, at all levels.

Adaptation to Climate Change ...

Reports by international and local development organisations (for example, CIDSE 2009; Pande 2009; Piepenstock 2009 and Yap 2009) show that people in developing countries long ago adapted to the consequences of climate change of their own accord and sometimes successfully. Increasing periods of drought, for example,



have been met with methods of improving soil humidity or the planting of other varieties; poor harvests are compensated for by temporary labour migration; and the increasing variability of precipitation is addressed through the cultivation of more rapidly ripening varieties. However, although societies are extremely adaptable with regard to gradual changes, extreme phenomena are a different matter and change dramatically from year to year (HDR 2007).

As those mainly responsible for climate change, the industrialised countries not only have the moral duty and the economic means to help developing countries to predict the consequences of climate change and to develop and implement adaptation measures with those affected, but they also have the responsibility to bear the costs of unavoidable damage. However, calculating the damage caused by climate change is difficult. For example, it is hard to evaluate which storms are of »natural origin« and which are triggered or amplified by climate change. Although there is no room here to go into more detail concerning the financing of adaptation to climate change these issues show clearly how difficult it is to distinguish it from other activities that would be necessary even without climate change – for example, disaster control, improving cultivation methods or protecting woodlands from flooding. Adaptation strategies are therefore frequently regarded as a form of risk management. In fact, adaptation is comparable to measures and strategies for reducing climatic risks, for example, through water saving measures in agriculture or the building of dams. However, the risks are changing in almost every part of the world with regard to their frequency and intensity, as well as the nature of the problems. Merely stepping up existing adaptation activities will therefore not suffice to protect people against the consequences of climate change or to enable them to recognise and exploit opportunities arising from it.

... a Task for Development Cooperation?

Even if support for adaptation measures is to be understood as additional to development cooperation and thus additional financial resources must be made available (VENRO 2010) development and adaptation projects cannot be planned and implemented separately from one another as regards contents. First, climate change is hindering numerous development projects

and programmes. Second, sustainable development cooperation can considerably boost adaptation capabilities in poorer countries (Ayers and Huq 2008). Third, the first step towards reducing vulnerability is fighting poverty – the main aim of international development cooperation.

The connections we have demonstrated make it clear that development cooperation will not be able to fight poverty unless it takes current and future climate change(s) into account in its planning. On the contrary, development policy measures could even lead to reversed impacts – for example, if small farmers are helped to use for irrigation increasing amounts of water from the streams that arise from the melting of glaciers. After such glaciers melt completely the small farmers are in a worse predicament than before because they have now switched their production to irrigated agriculture. This example shows that reactive adaptation can undermine long-term adaptation. But what would successful adaptation to climate change that is sustainable over the long term look like?

Principles for Successful Adaptation to Climate Change

Convey Knowledge Adequately

Even though people worldwide feel the effects of the changes in the climate and can sometimes counter them successfully, they are a long way from being able to grasp global climate change and its causes. Thus they cannot foresee whether the changes they are experiencing are temporary, permanent or even will intensify. This represents a considerable barrier to adaptation to climate change, since individuals cannot decide whether it is worth investing in new techniques or technologies. Both in public establishments and in organised civil society, however, there are only a few people who understand the complexities of climate change and can adequately convey its causes and consequences. The industrialised countries must take responsibility and get their act together, for example, by improving the research landscape and imparting knowledge to the institutions of developing countries. For sections of the population with high illiteracy rates and little access to newspapers the instrument of choice must be radio, comic strips, theatre or films, as well as the training of disseminators who can pass on the complex issues in an appropriate way.



Build on Experiences

Climate change has now reached a velocity at which autonomous adaptation is longer sufficient. This could result in whole areas becoming uninhabitable. However, so far climate change has given rise to no weather phenomena with which people do not have at least some acquaintance. Risk management strategies have already been developed at some point for most climates and risks. Local knowledge, as well as development cooperation activities and experience gained with communities, can therefore serve as an initial – albeit inadequate – starting point for developing and implementing effective adaptation measures for dealing with climatic risks. Agriculture is a good example here.

With the assistance of MISEREOR, small farmers worldwide, for example, have received, revived and developed ideas on sustainable land use that enable the poor in particular to minimise climatic risks. By means of sustainable cultivation methods fields can better withstand heavy precipitation, drought or strong winds. Furthermore, they are not threatened by debt in the event of failed harvests because they do not have to take out loans for external inputs, such as fertilisers or pesticides. Our experiences show that sustainable cultivation methods prove to be superior to energy- and capital-intensive agriculture precisely in relation to climate change since crop losses do not lead to debts.

Integrating Local Practical Knowledge in Research and Training

Another problem is the major gaps between research and local practices. For example, sustainable agriculture in particular receives little support from national research and training institutes. Small-scale agriculture is not taken seriously, investigated and developed in many universities and research establishments. Instead, training is oriented towards industrial agriculture. Agricultural technicians have acquired little knowledge that they might pass on to small farmers concerning poor soils and poor locations. »When I came from university and began working for Caritas in Santa Ana I had to realise that I knew nothing about agriculture«, says agricultural technician Carlos Gonzales from El Salvador. »First of all, I learned from the small farmers for six months and then – together with what I had learned from my studies –

I was in a position to advise others«. He simply cannot understand why the state, in training agricultural technicians, only takes account of employment with the big landowners and only considers difficult and expensive technologies, when »we ourselves have had and partly still have such a rich agrarian culture« (internal MISEREOR project report).

However, there are also examples of very good cooperation between scientists and small farmers with regard to adaptation to climate change or even of the enabling of research and development by small farmers themselves. A number of MISEREOR-supported projects can serve as models here: for example, the farmer organisation MASIPAG promotes development in the Philippines defined and developed at grassroots level. Small farmers themselves are breeding new varieties of rice based on old varieties and perfectly adapted to the local soil and climate risks. Successful varieties are exchanged among the farmers. In total, so far 500 varieties have been developed that are best adapted to local needs. Another example of successful investigation of new methods of minimising risk is the use of so-called bio-indicators. Many small farmers in remote areas have no access to meteorological information. Agrecol Andes records old knowledge of the specific behaviour of animals and changes undergone by plants when there is a sudden change in the weather and tests this knowledge via bio-indicators with regard to how it stands up today, ultimately in order to be able to help small farmers to decide when to sow or when to harvest and to reduce crop losses due to drought or heavy precipitation, including hail.

Facilitating Exchange between Those Affected by Climate Change

Knowledge of how to reduce climate risks can also be implemented in other places where there are similar climatic conditions or such are likely to emerge in future. Such exchange cannot be contrived by those affected alone. The MISEREOR experience shows that in particular exchange between communities or from farmer to farmer promises more success than the dispatch of advisers. Such an approach also seems very promising when it comes to adapting to climate change. Unfortunately, such measures are too little promoted at present: it is still more attractive for development organisations to send external advisers into villages.

MISEREOR, together with partners from many countries, has launched a pilot project in Sahel on adaptation to climate change. Within the framework of this project representatives of small farmers and nomads, as well as NGOs exchange ideas on how to be better able to deal with increasing droughts and variability, as well as extreme precipitation and the flooding that goes with it. Furthermore, the participating NGOs and farmers will cooperate with agricultural research institutes to locally develop new adapted seeds and test new cultivation methods. Experiences from this cooperation are intended to lead to joint lobbying in order to promote the effective use of resources for adapting to climate change. The abovementioned farmers' network MASIPAG is also committed to exchange: within the framework of the farmer-led approach a lively dialogue is under way between farmers in different and comparable climatic zones of the country. Thus farmers can find out how other climatic risks can be dealt with which affect them too. By means of soil protection, hedges to protect against the wind, the use of salt-resistant rice varieties and a capital-extensive form of agriculture MASIPAG farmers are much better equipped against climatic risks than other farmers (Bachmann et al. 2009).

Adapting to Climate Change within a Fair Framework

As already described, there is a strong case that adaptation should begin with those affected by climate change and that their experiences and capacities should be the starting point for any adaptation strategy. However, many activities are necessary to that end that exceed the capabilities of individuals or communities. Furthermore, the responsibility in many areas lies with the state – for example, with regard to infrastructural measures, such as the relocation of roads, the construction of dams and dykes or the building of secure emergency accommodation. In particular in developing countries, however, there is a lack of cartographic materials on land use and relief, meteorological data and information on settlement, not to mention social indicators concerning their inhabitants. Government planning has no chance of succeeding without the involvement of local knowledge. Moreover, development and adaptation measures can be implemented effectively only if local knowledge and experiences in dealing with climatic risks are included and taken into account in planning. Only in that way can bad investments be avoided and successful approaches be promoted.

The experiences of MISEREOR partners in the Sundarbans – Bangladesh's areas of estuaries and flood plains covered with mangrove forests – show, for example, how important the inclusion of local experience is in the development of national adaptation plans. National flood control programmes in Bangladesh follow on from the programmes supported so far without any evaluation having been made that might make improvements possible. These programmes sometimes interfere with traditional flood management systems which are not solely for the purpose of flood management. Rather, controlled flooding can lead to sedimentation, thereby increasing soil fertility and avoiding the need for cost-intensive fertilisers. Furthermore, roads are built without ascertaining the dynamics of the waters beforehand. Consequently, roads become dam walls that prevent water draining away from the fields to the sea.

In order that local knowledge can be better integrated in national plans. MISEREOR supports the organisation BARCIK, which develops *People's Adaptation Programs*. In local community workshops the consequences of climate change and current challenges are discussed and necessary measures are determined. The results are used to give decision-makers an understanding of local knowledge and to elicit the development of adaptation plans »from the bottom up«.

In this context it is of the utmost importance to develop transparent adaptation programmes in a participatory manner that support people-led development approaches. Furthermore, civil society must be enabled and encouraged to scrutinise adaptation strategies and monitor critically, to ensure the adequacy of measures and to bring it about that adaptation measures really reach those who need support and protection the most.

When Adaptation Reaches Its Limits

The abovelisted examples show that practical options and creativity certainly exist among those affected by climate change with a view to coping with moderate global warming with the relevant support. However, climate projections indicate that adaptation measures in many places may have only a limited or even no effect since much of the impact of climate change is too severe and irreversible. On top of adaptation efforts, therefore, political measures concerning risk management, insu-

rance systems, compensation for damage and managed migration are necessary. Resettlement can only be a last resort, when all other options have been exhausted. Before any planning is undertaken those affected must be fully and properly informed. Resettlements, needless to say, must never result in poverty and homelessness and any accommodation provided must meet international standards. Collective resettlement and settlement must always give preference to individual solutions in order to maintain social networks, cultures and languages (Biermann and Boas 2010).

Enhancing Survival in a Changing Climate

Although the efforts of governments, communities, individuals and development organisations throughout the world to facilitate adaptation to and to exploit opportunities arising from climate change are only in the early stages. The abovementioned experiences show that there is a lot of potential. In order to take advantage of this it is essential to begin with people themselves and not to destroy their creativity and capabilities through top-down vertical planning. The abovementioned principles derived from experience ultimately confirm that human rights principles must apply if measures to adapt to climate change are to be successful. First of all, it is the duty of every state to grant its citizens at least the minimum of rights recognised in human rights treaties. Every state is thus obliged to identify the population groups most affected by and vulnerable to climate change and to implement measures to improve their adaptation capabilities. Moreover, every state is obliged to provide its citizens with information on the effects of climate change so that they can demand and assert their procedural (participation) rights. There also arises a human rights obligation on the part of the industrialised countries to support the developing countries in adapting to climate change. Supported states in turn have an obligation to use these financial resources efficiently and purposefully for adapting to climate change and to be able to account for it properly so that civil society is able to call for improvements.

Whether it ultimately proves possible to enable all societies – and in particular the most vulnerable – to adapt to climate change will largely depend on the extent of climate change and of the financial support from the industrialised countries, not to mention the political will of all actors to shape adaptation jointly with those affected.

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The Sustainable Economy Today – From a Development Policy Standpoint

Hans-Jochen Luhmann

A sustainable economy is the only kind of stable economy. It is the only possible economy in today's one, interconnected world and has become imperative due to the emergence of a twofold challenge: (i) dealing adequately with man-made climate change, to the extent that it has already been caused or is inevitable, and (ii) avoiding further climate change as far as possible. The concept of a sustainable economy therefore points towards a new *development policy* model that must meet this dual climate policy challenge. A sustainable economy can be realised only at the global level and conditional on the »two-degree target« (UNFCCC Art. 2), which at the national level operationalises Article 20a of the German Constitution.¹ It concerns the protection of life.

The twofold climate policy challenge, which we are claiming is constitutive with regard to development policy, is characterised by two things in particular.

Adaptation

The main greenhouse gases have a very long retention time in the earth's atmosphere. As a result, the cause of climate change – increased concentration of greenhouse gases – is not manifested immediately in terms of its effects, but only after considerable delay. Furthermore, there are also counteracting greenhouse gases with a very short lifespan which mask the real effect and which keep showing up on the agenda as we continue to change horses in midstream. However, once we have succeeded with regard to our climate policy intentions they will inevitably disappear. At present, we have brought about an increase in concentration which – calculated without taking time delay into account – corresponds to a rise in temperature in relation to the preindustrial period of slightly more than two degrees. In fact, only 0.8°C of this – in other words, around one-

third – has manifested itself to date – the rest will do so in due course. Overall, perhaps twice as much as what has already become evident in terms of rising temperatures must be accepted as no longer avoidable.

In many regions of the world the consequences of this one-third of the man-made temperature rise are already discernible: extreme climate events, such as hurricanes, storms, extreme precipitation and flooding have increased, as expected. The hydrology of the atmosphere simply does not follow temperature proportionally, but very disproportionately (it exhibits, potentially, a cubic relationship).

Global warming also has effects on infrastructure and large-scale installations. These artefacts are exposed to the natural environment and thus to the climate and their robustness can thus be measured in accordance with specific criteria. For the purpose of such measurement we need an idea of the frequency with which extreme events occur in nature or how much force they exert on what is exposed to them. To date, all measurements have been guided by the basic idea that the human environment – in particular the earth's climate – only fluctuates stochastically around a pretty much constant basic state. Man-made climate change has acted to dynamise this state of affairs: in other words, it is no longer legitimate to assume constancy in this regard. Human influence has now taken on a magnitude that forces us to revise our design criteria in the construction of infrastructure and to take a new approach to protection regulations for buildings. This also necessitates a systematic »reevaluation of all (existing) values«.

Mitigation

The cause of climate change, as already mentioned, is not the amount of man-made greenhouse gas emissions, but the resulting increase in their concentration. This – like the water level in a bathtub – is the result of the ratio between inflow and discharge (capacity).

1. Art. 20a Basic Law (Grundgesetz): »Mindful also of its responsibility toward future generations, the state shall protect the natural bases of life by legislation and, in accordance with law and justice, by executive and judicial action, all within the framework of the constitutional order.«

At present, we find ourselves with an inflow volume of around 50 Gt CO₂ per year (around 30 Gt CO₂ a year of which comes from fossil fuels, with an upward trend); discharge capacity is below 10 Gt CO₂, probably much less. The level of manageable climate change taking into account the upper level of basin volume can thus be well described in terms of a remaining quantity of still permissible CO₂ emissions: it stands at about 600 (up to a maximum 750) Gt CO₂ from fossil sources. If the trend in current emissions is progressive or if changes are only minor this residual budget will be exhausted as early as 2030. As a consequence, an »overflow« – in other words, a »dangerous« level of climate change – can be avoided only if »major« changes are made in current forms of economic activity.

CO₂ emissions from fossil sources have a drawback: the burning of fossil fuels. A residual budget of CO₂ exhaust emissions in the amount of 600 Gt thus also has a drawback: the limited exploitability of deposits of fossil fuels. These deposits have to date been considered to be a valuable property of states possessing such resources; and as a result of increasing exhaustion and scarcity the value of these deposits is seen as continuously rising. Only in this way is the »fool's paradise« of rentier states possible. This is now coming to an end. This is because the mitigation policy imperative – the two-degree limit – enshrined in international law in Cancún reduced the value of these deposits to a considerable extent. All the quantities that in future must remain under the ground already have a value of zero. Anyone who calculates differently is contravening international law.

The process of leaving fossil fuels behind will thus no longer – as previously imagined – take place within the framework of developing countries following on from the industrialised countries. The previous assumption is clearly reflected in the terms »developed countries« (industrialised states) and »developing countries«: this terminology suggests that the latter are emulating what the former have already demonstrated or »developed«. But there is simply no longer sufficient time for this kind of relationship, based on the causality of a dynamic succession in the community of states. A different model of »development« is therefore needed (in this one world) and, accordingly, a different development policy model in keeping with the meagre time we have left in which to act.

Strategies for Dealing with the Challenge of Man-made Climate Change

Characteristic of conventional adaptation strategies is that they envisage protection only against those consequences of climate change whose probability is already reflected in time series. Conventional mitigation strategies are characterised by their pursuit of emissions reductions as such, in other words, they are content with (comparative) diminution – and thus are directed towards halting climate change much too late. Both strategies are inadequate. Instead, we must think backwards from the state we are striving for in order to plan both the appropriate protection level and – calculating backwards – the (still possible) development paths that are capable of leading to the desired goal.

A paradigm change to a sustainable economic model is possible only if the industrialised countries – the forerunners in the past – decide to be forerunners in the future as well and consequently define a target state for themselves and impose it as a practical guideline, especially in infrastructure policy. There is an urgent need to work out a robust and workmanlike plan of this kind.²

This applies to all categories of state: industrialised, emerging and developing countries jointly face the task of environmentally restructuring the concept of fossil-based industrial societies stemming from the nineteenth century and first brought into being in Europe and of replacing it with a new one. Renewable energies will play a key role in this.

As far as quantitative targets are concerned, in accordance with international law the community of nations will remain committed to reducing greenhouse gas emissions globally by 80 per cent by 2050 in comparison to 1990 in order to keep below the critical temperature rise of 2 °C. However, the 2 °C target is an environmental quality objective from which the quantitative reduction targets with regard to greenhouse gases yet to be emitted are derived. The key parameter in this respect is the scientific standard used to assess climate sensitivity. As knowledge grows, it becomes more apparent how sensitive the climate's responses

2. Since COP 16 in Cancún this has been binding under international law. See Cancún Agreements (III.A.45): »(...) further decides that developed countries should develop low-carbon development strategies or plans«.



are. The calculation underlying the current policy position, originating in the IPCC's AR4 of 2007, is therefore already outdated. Today, it seems safe to assume that when the next IPCC WG1 report is published in September 2013 – in other words, before COP 19 – the projected emissions ceilings will turn out to be not nearly stringent enough. Given the lack of time, policy should not wait but anticipate this outcome. To that extent, it is a positive sign that, on the one hand, the document establishing the Ad Hoc Working Group on the Durban Platform for Enhanced Action recognises the existing shortcomings with regard to emissions. On the other hand, in Durban the IPCC and, in particular, its fifth Progress Report which will appear in 2013/14 were emphasised as key information sources for the first phase of the periodic review 2013 to 2015. By this means, more account is to be taken of climate science in the political negotiation process.

The term »low carbon society« (LCS) gained acceptance in the Visions element of the Bali Action Plan of 2007 to designate this target state of a turning away from a fossil-based society, even though the word »low« is somewhat unambitious. In particular for the industrialised states it must be a definite »zero« or even a »minus x«. For the industrialised countries this means that all industrial production, energy supply and the transport and housing sectors must in future be organised with virtually no greenhouse gas emissions.

Overall, this is a joint task, although industrialised, emerging and developing countries will play different roles in tackling it. The industrialised countries must transform themselves from the fossil-based economies they are today into low carbon societies. All other states – following in their footsteps – should not take the same detours as the industrialised countries on the way to sustainability: instead of relying on fossil-based and thus outdated infrastructures they should invest directly in sustainable, energy-efficient and CO₂-neutral technologies (environmental leapfrogging).

For the commitment to and planning of the path to a low carbon society precision is of decisive importance with regard to both the kind of goal setting and the difference between the territorial principle (»domestic« emissions) and the ownership or assignment principle (»their« emissions). The formulations in the *Uppsala Interfaith Climate Manifesto* of 2008 are exemplary

in this regard. Their »appeals to the Copenhagen process« are as follows, to cite the key passages in the Bali action plan:

»We ask the global political leadership for:

- Rapid and large emission cuts in the rich world. Developed countries, especially those in Europe and North America, must lead the way. *In the developed countries*, emissions should be reduced by at least 40 per cent by 2020 and 90 per cent by 2050 against 1990 levels.
- Binding cuts for the rich world *on top of their domestic obligations*. According to the principles of responsibility and capability countries should pay for international cuts in addition to their own domestic initiatives.«

The relevant commitments, even those of the leading industrialised countries, are not in keeping with this demand for duality. This applies both to Norway (minus 100 per cent by 2030) and the United Kingdom (at least minus 80 per cent by 2050). Also noteworthy is the recent Commission Communication corresponding to the demand for duality but which lays down only minus 70 per cent by 2050 with regard to EU territory. The commitment of the CEOs of most electricity supply companies in Europe – »carbon-neutral power supply in Europe by 2050« – contains an undetermined proportion for off-setting. For the purpose of encouraging emulation, however, only the territorial part of target setting is usable.

Something that applies specifically to developing countries is that the abovementioned »leapfrogging process« requires developed models. »Models« can be understood here in two senses: as (exemplary) policy measures, such as Germany's Law on Renewable Energy (EEG) or feed-in tariffs (FITs), or as a technical model. Here, the emphasis is on the latter. Imitable technical models do not emerge of their own accord in the industrialised countries' path to a low carbon economy. In order to illustrate what we have in mind, in conclusion, we identify and outline three key types of problem (vision-related needs) in the environmental leapfrogging process. The background is the existing expectation – in the context of UN Habitat – that by 2050 the earth's population will have increased by a further 3 billion and the necessary new infrastructure will have to be provi-



ded from scratch. All three cases concern housing infrastructure and their energy supply.

- (i) »Island systems« of local networks (in particular for electricity supply) at the smart grid level – for subsequent integration in the smart grid context.
- (ii) »Low carbon city« transformation (under mega-city conditions).
- (iii) »Low carbon city«, so to speak from the ground up (also under mega-city conditions) – for »new-comers« to the earth between 2010 and 2050.

Based on the historical responsibility of the industrialised countries for climate change they are duty bound to assist the emerging and developing countries in building new and sustainable infrastructures. Financial assistance is not everything, however. Development is always also a process of imitation. It is therefore also a form of assistance when the industrialised countries set an example with regard to what a sustainable economy looks like in terms of their own concept of the »society of tomorrow«.

Two Options for an Eco-friendly Approach

»Thinking from the Goal Backwards«

In developing approaches to climate and energy policy it is important to think »from the end backwards«. The target state to be achieved – a low carbon society by 2050 – must be regarded as an unalterable keystone. The EU has now begun to draw up the necessary »road maps«. In Germany, this approach is pretty much yet to be adopted.

The industrialised nations have a chance to demonstrate how the required change could be handled from a planning perspective, within the framework of restructuring their investments with the longest lifespans, namely infrastructure. This involves planning processes whose criteria are to be determined by the state, and so there would be no conflict with market liberal ideas. Examples include transport infrastructure (water, roads, railways, air), energy systems or urban development complete with supply infrastructure. These structures

represent the »critical« part of restructuring. With regard to sustainable products such as electric cars or energy-efficient household appliances, which have a much shorter lifespan, there is a lot more time in which to take the »right« decisions. Since infrastructure offers some sort of leeway with regard to the development of specific products, a policy steering sustainable products is implicit.

Based on an outline – developed on the basis of end-to-start planning – of a modern and sustainable industry with compatible infrastructure, development cooperation can help emerging and developing countries make progress towards a low carbon society within the framework of their own planning of pioneering infrastructure decision-making. This approach should be further developed so that it can stand as a trademark of German development policy.

Setting an Example with regard to Climate Policy Options

From developing countries' perspective, the costs of adapting to climate change and of mitigation frequently conflict with their priority aims of reducing poverty – in other words, economic growth – and development.

Industrialised countries such as Germany, however, could demonstrate that the transition to a low carbon society, at least from a mitigation policy standpoint, also harbours an opportunity for a »green growth«. However, it must be emphasised here that Germany as a state in the region of origin of fossil-based industrial society will carry out this transformation on the basis of both enlightened self-interest and its historical responsibility for climate change. The fact is that the regions of origin of the Industrial Revolution are – at least according to the first-in, first-out (FIFO) principle – now short on raw materials and if they try to continue on the course they set out on 200 years ago they run a high risk in terms of energy and security policy, not to mention potential adverse external economic developments.

In an economy based on the concept of sustainability, environmental and climate policy can no longer be treated as burdensome cost factors and brakes on growth. Instead, they must be regarded as »investments«, i.e. the expres-



sion of a forward-looking industrial policy, an innovative employment strategy and intelligent production location policy within the framework of international competition. The fact that the pressing air pollution and noise problems arising from the fossil approach will also be solved in this way is a cost-free side-effect which bears fruit in particular when transport policy becomes the focus of domestic climate policy.

Adaptation costs will be reduced significantly if the inevitable impacts of climate change are realistically taken into account in the design of infrastructure. This applies to Germany in particular where decision-makers seem particularly determined to ignore these insights as irrelevant to planning. Taking responsibility with regard to third parties (partner countries) and passing on a precise understanding of the consequences of climate change for the design of infrastructure could, especially for Germany, prove to be beneficial and cost-effective.

Industrialised countries such as Germany can also set an example by developing technologies and models. They may offer developing countries imitable options for sustainable and efficient developments in numerous sectors. Exemplary projects that could serve as models could take the form of the three types mentioned above: island systems, city transformation or city from the ground up. The proposal made here is, in the short term (by 2018), to realise at least one example of each of these three cases. Each project should be implemented in either Germany or with German participation or overall control – as a joint project of German R&D and development policy – and be financed jointly from the energy research resources of departments of the Federal Ministry of Education and Research, the Federal Ministry of Economics and Technology and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. This is in addition to the Federal Ministry for Economic Cooperation and Development, which would naturally play a system leadership role. In some project frameworks, embedding in an EU context suggests itself.

If Germany could also make up its mind to develop, using all its technical capabilities, an eco-friendly agricultural policy this would offer, as an additional benefit, manifold possibilities for cooperation and passing on know-how and so on.

At the same time, it must be kept in mind that models and approaches are already being developed in other regions and countries – such as China – which must be taken into account in the development of suggested solutions. Alliances with other countries and regions in the implementation of model projects would make it possible to take these developments on board.



The Clean Development Mechanism – No-Win instead of Win-Win for Developing Countries?

Nicole Piepenbrink

The clean development mechanism (CDM) was brought into being by the Kyoto Protocol. It is one of three market-based, so-called »flexible mechanisms« aimed at achieving the reduction targets laid down in the Protocol, the others being emissions trading and joint implementation (JI). The idea underlying these flexible mechanisms is as simple as it is compelling: since it is unimportant for the global climate where greenhouse gases are reduced, market economic instruments should make it possible to reduce greenhouse gas emissions worldwide wherever it is most economical.

In contrast to emissions trading, both JI and CDM are project-based mechanisms by means of which greenhouse gas emissions can be cut within the framework of individual projects. This can happen, for example, with the use of renewable energies instead of fossil energy resources. The basic principle of these projects is the reduction of emissions in relation to a defined benchmark (business-as-usual scenario) for which emissions certificates (certified emission reductions or CERs) will be issued in the corresponding amount. The greenhouse gas emissions cut in this way can be traded as CER and thus counted towards the national Kyoto reduction targets of the industrialised countries. While the JI mechanism refers only to countries subject to a reduction obligation within the framework of the Kyoto Protocol and – with a view to necessary modernisation processes – primarily supports projects in eastern Europe and the former Soviet Union, all projects in developing countries come under the CDM.

The CDM is distinct in this respect from the other two flexible mechanisms by its dual objective: the purpose of the CDM, according to the Kyoto Protocol, is first »to help [developing countries] to achieve sustainable development« and second, »to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments«.¹

Accordingly, the CDM is not only supposed to contribute to global climate protection, but also to promote sustainable development in the relevant project countries, with the two aims being on an equal footing. In the public debate, however, the CDM is mainly regarded as a climate protection instrument and in practice the goal of sustainable development is afforded much less attention than envisaged de facto in the text of the Kyoto Protocol. To date, beneficiaries of the CDM have been primarily the industrialised countries, which have been able to meet their Kyoto obligations cost-effectively via the CDM, while the developing countries' main aim of promoting sustainable development has tended to fall by the wayside.

In principle, CDM projects can be implemented in all developing countries. However, in actuality the pattern of distribution is very uneven. Of the about 3,500 registered projects thus far just under 82 per cent have been implemented in Asia. Latin America accounts for a smaller, but growing proportion (16 per cent), while the whole of Africa accounts for a meagre 2 per cent of all projects.² UNFCCC statistics show that China – with over 45 per cent – accounts for the largest proportion of projects, followed by India (20 per cent), Brazil (6 per cent) and Mexico (4 per cent). Accordingly, three-quarters of all CDM projects are implemented in only four emerging countries, while in developing countries only a few isolated CDM projects have been carried out.³

However, the CDM market is developing rapidly. After the registration of the first CDM project in 2004, in January 2010 the two-thousandth project was registered. Since then, the number has risen to around 3,500 projects (as of: October 2011).

1. Secretariat of the Framework Convention on Climate Change (1998): Kyoto Protocol to the United Nations Framework Convention on Climate Change, Article 12.

2. As of 7 October 2011: <http://cdm.unfccc.int/Statistics/Registration/RegisteredProjByRegionPieChart.html> (last accessed on 12.3.2012).

3. As of 7 October 2011: <http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html> (last accessed on 12.3.2012).



Environmental Integrity of the CDM

In practice, the CDM gives rise to a multitude of problems, with regard to both sustainable development and greenhouse gas reduction. According to the Kyoto Protocol, CDM projects should promote *real, measurable and long-term* emissions reductions, which are also »*additional* to any that would occur in the absence of the certified project activity«. Since the CDM carbon certificates generated in this way count towards the industrialised countries' reduction targets and accordingly make it possible for emissions to remain the same a positive effect arises for climate protection only if they are set against real and additional emissions cuts in the project countries.

Numerous studies have investigated the environmental integrity of CDM projects in terms of their »*additionality*«. The results are alarming from a climate protection perspective: on this basis, around 40 per cent of all projects are not classified as additional, but would have been implemented even without CDM assistance.⁴ Just under half of all greenhouse gases supposedly reduced by means of the CDM are thus not reduced globally. The Wuppertal Institute came to the conclusion in a 2009 study that none of the approaches applied in the project design documents (PDD) could be described as best practice with regard to additionality. On the contrary, in all PDD and the associated validation reports additionality is doubtful, at the very least.⁵

The problem of CDM's lack of additionality arises primarily because the emissions certificates are based on the assumption of a business-as-usual reference scenario. Hypothetical reductions are thus set against real emissions. Since the CDM would not be possible without a hypothetical reference scenario, however, imponderables with regard to the actual additionality of CDM projects cannot be ruled out a priori in future, either.

Furthermore, it may also happen that reference scenarios intrinsic to CDM give rise to counterproductive incentives, since a high reference scenario generates more emissions certificates. Ultimately, this may lead devel-

oping countries not to introduce possible climate protection measures within the framework of regulatory policy in order not to lower the reference scenario, to their financial detriment.

Counterproductive Incentives as a Result of CDM

An example of counterproductive incentives on the part of CDM can be found in the waste disposal sector. Project types that can be registered as CDM projects in this domain include incineration plants and landfill gas plants, but also recycling plants. The most eco-friendly alternative here is recycling, which reduces greenhouse gases at a rate 25 times higher than incineration plants. However, although up to 2009 20 incineration plants and 110 landfill gas plants were certified as CDM projects not a single recycling plant was registered. This shows that the CDM as a market-based instrument consistently follows the laws of the market and thus in the first instance promotes financially lucrative projects rather than projects most effective with regard to global climate protection.

CDM recognition of coal-fired power stations is also a critical issue in the public debate. Thus coal-fired power stations in emerging and developing countries can be registered as CDM projects if they meet certain efficiency requirements. The emissions certificates generated by new-built, and also more efficient coal-fired power stations – for example, in China or India – can thus, for example, be used by the operators of German coal-fired power stations in order to meet their own greenhouse gas reduction obligations. This gives rise to the fundamental question of whether the financial encouragement of building new coal-fired power stations in emerging and developing countries by means of CDM is really justifiable as a Kyoto climate protection mechanism.

The recognition of CDM projects for the reduction of so-called highly potent climate gases has provoked intense debate, in particular the industrial gas trifluoromethane (HFC-23). HFC-23 is produced in the production of the cooling agent HCFC-22, which in turn is not only a climate gas, but also an ozone gas. It thus comes under the Montreal Protocol on the protection of the ozone layer, which is why it cannot be produced in Germany, but it can be in emerging countries, such as India and

4. See, for example, Öko-Institut (2007): *Is the CDM Fulfilling Its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement*, Berlin.

5. Wuppertal Institute (2009): *Further Development of the Project-Based Mechanisms in a Post-2012 Regime*, Wuppertal.

China. HFC-23 is around 12,000 times as harmful to the environment as CO₂. A CDM HFC-23 project, by destroying a tonne of HFC-23, thus directly generates 12,000 emissions certificates. The destruction of a tonne of HFC-23 is not expensive: it can be done for as little as 17 cents. These enormously favourable costs pertaining to destruction and the 12,000 emissions certificates set against them mean that HFC-23 projects become lucrative very quickly: around half of all CDM certificates generated to date come from projects involving highly potent industrial gases. The consequences of this are manifold. Lucrative industrial gas projects thus inadvertently create an incentive to step up the production of the HCFC-22 cooling agent in order to generate more HFC-23 certificates. In this way, ultimately not only climate protection but also the Montreal Protocol is undermined. Furthermore, the large number of HFC-23 certificates on the market is set against a corresponding number of greenhouse gas emissions in industrialised countries that have not been reduced. To take one example, the energy group RWE obtains the CDM certificates it needs to meet its reduction obligations 100 per cent from HFC-23 projects.

Sustainable Development by Means of CDM?

The second objective of CDM – to support developing countries under way towards sustainable development – in practice has not achieved expectations. In comparison to the abovementioned points of criticism concerning CDM's lack of environmental integrity, however, the question of sustainability is addressed much less frequently in the public and political debates. Given the dual objectives of CDM, climate protection and sustainability are of equal importance as success criteria against which CDM must be measured.

To date, there has been no comprehensive analysis of existing CDM projects in respect of their effects on sustainable development. However, there are a number of studies that examine CDM project documents and their actual implementation in regional terms or in terms of project type. Overall, it turns out that around half of all project proposals do not mention sustainability in any way and thus do not envisage any effect on sustainable development by means of the project in question from the outset.

The definition of sustainability is a matter for the national authorities responsible for approving the CDM project domestically (Designated National Authority, DNA). Analysis of CDM projects shows that the sustainability criteria laid down by governments in project countries are often weak and imprecisely formulated. For example, the Indian DNA vaguely defines its sustainable development indicators as »social well being, economic well being, environmental well being and technological well being«. None of these parameters provides concrete – quantifiable, realisable and checkable – indicators. In the relevant project documentation this leads to weak and unmeasurable statements concerning what the CDM project is supposed to bring about in promoting sustainable development. In India's case, almost all project documents are hazily formulated and leave out components that have to be complied with under the four sustainability indicators laid down by the national licensing authority. Instead, they sometimes set their own indicators, which often do not correspond to those of the Indian government.⁶ As early as the project planning stage the effect is to dilute the assistance that the CDM projects are supposed to give to sustainable development.

Furthermore, no monitoring of sustainability parameters is prescribed, which is understandable, given the lack of indicators, but also a serious shortcoming. While the greenhouse gas emissions and reductions of CDM projects needless to say must be *real* and *measurable* in order to test project effectiveness and generate emissions certificates, for sustainable development, which has equal value as a goal, this is not the case. In addition, sustainable development efforts do not generate a monetary value, in contrast to greenhouse gas reductions, and this may be why such efforts are often half-hearted. While what is problematic with regard to CDM's environmental integrity is counterproductive incentives, with regard to sustainable development the main problem seems to be the basic lack of incentives.

Negative Effects of CDM

Currently, however, a lack of momentum with regard to sustainability is not the most urgent problem facing CDM projects, but rather the negative effects on peo-

6. Laya Resource Center (2009): *Money for Nothing – A People's Perspective*, Rajahmundry, India.



ple and the environment that sometimes accompany it. There is a host of well documented cases in which CDM projects jeopardised the basis of the local population's livelihood and/or violated their human rights.⁷

Mainly as a result of environmental destruction in the course of the project people have lost their land, (ground) water resources have been polluted, fields have been rendered barren and the general life and health conditions have been impaired.

Large water power projects are accompanied particularly frequently by the expulsion or resettlement of whole communities, and people are often inadequately compensated or not at all. But there are a number of other types of CDM projects – for example, steel production plants or reforestation projects – that involve either dispossessing the local population of their land or buying it from them at low prices. In other cases, families give up their land on the promise of a permanent job in a company, but this is seldom honoured. CDM projects involving biomass-based energy generation – in particular in poor rural areas in which the population is dependent on biomass as animal fodder – often compete with traditional biomass usage.

Many of the problems mentioned arise as a result of – or are exacerbated by – the often inadequate provision of information to and inclusion of the local population. Although consultation with stakeholders is laid down as binding in the CDM process cycle it is often not taken

seriously enough by project developers and certifiers (Designated Operational Entities, DOE). As a rule, although stakeholder meetings are held, in many cases only representatives of the local elites are present. In other instances, consultations are not held in the local language, which means that a large part of the local population is excluded from the process. Not infrequently the population knows nothing about the local company's CDM project and thus also has no idea about what options are open to it as regards complaining to the national licensing authorities. As a consequence, communities are not aware of possible entitlements to compensation, should the company fail to meet its obligations under the PDD. Furthermore, the prevalence of ignorance on the part of local populations shows that the DOEs frequently do not make contact with local groups in order to verify the details given in the project documentation presented to them.

CDM: Abolition or Reform?

Ultimately, it must be recognised that there are considerable implementation deficits with regard to both climate protection and sustainability, the CDM's dual objectives. Is the CDM, then, a lose-lose option rather than the win-win solution originally aimed at?

Various non-government organisations answer this question with a »yes« and advocate general abolition of the CDM. Other critics, by contrast, demand reform of the CDM in order to prevent its manifest negative

Kohinoor Steel »Waste Heat Recovery Project« in Jharkland, Indien

The Kohinoor Steel »Waste Heat Recovery Project« concerns a factory producing steel wool in India. In order to save CO₂ the CDM project envisages converting the heat produced by the production process into energy and using it directly. The product documentation mentions especially the significant job creation and improvement of air quality as contributions to sustainable development.

To date, the project has had grave consequences for the local population. First, Kohinoor Steel bought land from the local population for the project at a very low price, while only a few villagers got jobs as part-time workers in the steel factory. Second, steel production is accompanied by massive dust emissions which cover the whole community with a layer of dust several centimetres thick. This leads to considerable harvest losses: for example, the rice crop has been reduced by half, fruit trees bear less fruit and various traditional wild growing plants are slowly disappearing. The community's well water is also heavily polluted. The locals told Indian NGO Laya that since the Kohinoor Steel project got under way they can no longer make a living and the first migration into the cities and surrounding communities has begun. Kohinoor Steel is certainly aware of these effects: Laya was forced to halt its survey when it was forcibly expelled from the community by the police.⁸

7. See, among others, www.cdm-watch.org.

8. See Laya Resource Center (2009): *Money for Nothing – A People's Perspective*, Rajahmundry, India.



consequences. Realistically, there is currently no prospect of abolishing the CDM. With the general decision arrived during the UN Climate Conference in Durban 2011 in favour of a second commitment period of the Kyoto Protocol, the legal basis for the CDM mechanism continues to exist beyond 2012. Even before that, with the future of the Kyoto Protocol still being unclear, there had already been a commitment to using CDM emissions certificates even after 2012 for EU emissions trading. In any case, for many of those involved in climate issues, the formula »avoid – reduce – compensate« applies. Demand for compensation options for greenhouse gas emissions that are unavoidable or can be reduced only to a limited extent is growing among both institutions and private persons, whether it be compensation for air flights or CO₂-neutral events.

There are numerous ways in which the CDM can be reformed. For instance, harsh and constant criticisms of HFC-23 projects led to a first success when this type of project was excluded from EU emissions trading in May 2011. CDM reforestation projects, too, have been banished from EU emissions trading for quite a while because of their adverse effects. There is an enormous need to catch up, however, when it comes to other CDM projects with counterproductive incentives, such as waste incineration or coal-powered energy. As by far the biggest player on the global CDM market the EU has a particular responsibility here to improve the environmental integrity of CDM projects.

With regard to the promotion of sustainable development by means of CDM projects, improved standards, indicators and a functioning and binding monitoring system are indispensable. This can be based on the *Gold Standard*, a quality standard for CO₂ compensation projects. The *Gold Standard* audits projects in terms of a sustainability matrix (economic, environmental and social) with regard to their effects on people and the environment. In addition, there are *safeguards* based on the Millennium Development Goals (MDG), against which project consequences are compared. Project validators are also obliged to draw up an ex post monitoring plan with measurable criteria to review projects after they have been running for a reasonable time to see whether they have achieved their aims.

One promising approach to improving local populations' opportunities to exert influence emerged fleetingly at the UN climate negotiations in Copenhagen in 2009. It

was agreed to work out an objections procedure concerning the decisions of CDM executive boards that would apply to all directly affected stakeholders: this would have put all affected communities in a position to contest such decisions. However, the proposal has now been diluted so much that such an objections procedure would apply only to project applicants whose projects were rejected by the CDM board anyway.

A multitude of diverse options are therefore available for improving the CDM, of which those presented here are only a small selection. However, it is also evident that possible approaches to CDM reform are likely to be ignored, postponed or diluted. As things stand, the CDM will be around for quite some time. Effective reforms are therefore the only way of ensuring that climate protection and sustainable development are not undermined by the CDM but promoted.

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New Market-based Mechanisms for Enhancing Climate Mitigation in Developing Countries

Killian Wentrup

Context of the Discussion on New Market-based Mechanisms

The Clean Development Mechanism (CDM) is by far the most successful of the three flexibility mechanisms created under the Kyoto Protocol.¹ »Success« in this sense is defined in terms of the level of activity that has resulted from it, in terms of both the raising of finance for investment in mitigation actions and the level of emissions reductions. The CDM facilitated over 26 billion US dollars' worth of investment in carbon mitigation projects in 2004–10 (World Bank Group 2011). By March 2012, around 3,880 projects had been registered and over 880 million Certified Emissions Reductions (CERs) had been issued (UNFCCC 2012). In recent years, the level of activity has decreased significantly from its 2008 peak, mainly due to uncertainty about the post-2012 climate policy framework, in other words, the lack of political commitment to binding mitigation targets and hence uncertain demand. The outcomes of the most recent UN climate change conference in Durban in late 2011 were both positive and negative in this respect. On the positive side, a second Kyoto Commitment period will go ahead – albeit without Canada, Japan and Russia – with commitments to be decided at the end of 2012 in Qatar. On the negative side, there was no improvement in terms of the ambition of the parties' 2020 emissions reduction pledges and many decisions on matters of substance were deferred.

In Durban, the Ad hoc Working Group on Long-term Cooperative Action (AWG-LCA) reached an in-principle agreement on the establishment of a new market-based mechanism, with details to be fleshed out over the course of 2012 and an intention to reach agreement on them at the end of the year (UNFCCC 2011b). Discussions on the introduction of such »new« market-based mechanisms have been under way as part of the United Nations Framework Convention on Climate Change

(UNFCCC) negotiations since the thirteenth Conference of the Parties (COP) in Bali, Indonesia, 2007. The discussions are motivated by several factors, but the main arguments are that the CDM is not suited to the scale of the global climate change mitigation challenge and that the new mechanisms present an opportunity for overcoming the CDM's shortcomings while significantly increasing the scale of carbon financing for mitigation in developing countries.

Science tells us that developed countries as a group need to reduce their emissions significantly by 2020 – up to 40 per cent below 1990 levels – and to still lower levels by 2050 (up to 95 per cent) (IPCC 2007). The major emerging countries – China in particular – will also need to reduce emissions below their projected baseline level within the next few decades. While the CDM has attracted significant amounts of investment in countries such as China, the resulting credits (CERs) can be used by developed countries to offset their domestic emissions. Thus, the CDM helps to reduce the costs of meeting a given target in industrialised countries but it does not reduce emissions beyond what has already been agreed upon globally. Further developing market-based mechanisms in a way that encourages greater mitigation efforts from all major emitters – developed and developing alike – is therefore seen as an important component of a post-2012 climate regime.

Despite its relative success, concerns have been raised about the CDM by a wide range of stakeholders with different interests. Project developers have long complained about the slow pace of project approvals, while others argue that certain project types would have happened anyway and that project emission reductions are not »additional« compared to the level of emissions without the CDM project, and point to the lack of broader geographic participation, the low investment in projects that support sustainable development and the lack of technology transfer. Discussions on new market-based mechanisms are often motivated by the potential for addressing these concerns. In particular, there is interest in the po-

1. Besides the CDM the mechanisms also include International Emissions Trading (IET) and Joint Implementation (JI).



tential for accessing emissions reductions in sectors and countries that have not yet been tapped by the CDM. The vast majority of CDM investment has been in China, India, Brazil, Mexico, Malaysia and a handful of other countries. Similarly, a small group of project types will account for the majority of credits issued up to 2012. The dominant project types include the destruction of industrial gases such as N_2O (around 27 per cent of credits), renewable energy projects such as wind and hydro (35 per cent of credits), methane reduction projects (around 20 per cent) and supply-side energy efficiency (10 per cent) (UNEP/ Risoe 2011). The CDM remains comparatively undeveloped in sectors such as transport, agriculture and demand-side energy efficiency (around 2 per cent of projected CERs by 2012 when combined), but these could offer more direct sustainable development benefits for local people.

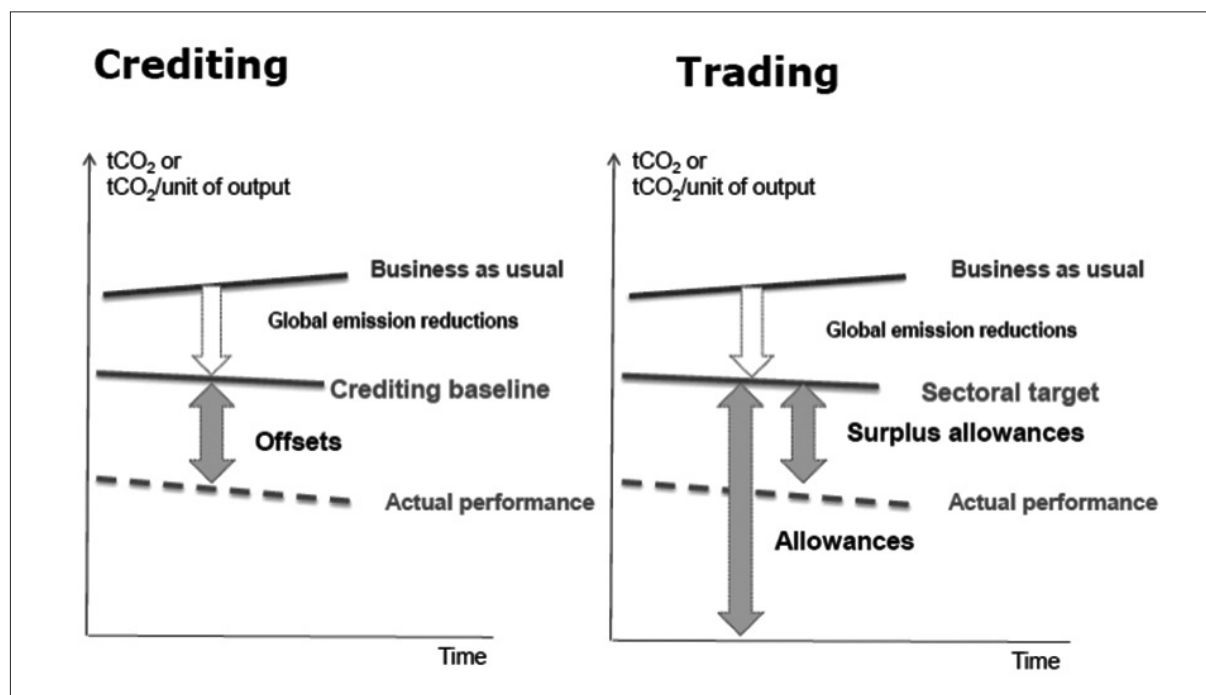
The major source of demand for CERs has been the European Union's Emissions Trading System (EU ETS). As a way of promoting greater diversification and encouraging the emerging economies to gradually accept mitigation targets, the EU is restricting the importation of CERs in the third phase of the EU ETS from 2013–2020.

The EU will limit the use of CERs from newly registered CDM projects to projects located in Least Developed Countries (LDCs) from the end of 2012. The EU ETS legislative framework does, however, allow for the use of credits generated through new mechanisms established on the basis of bilateral agreements with the EU (see Article 11.a (5) of the EU ETS Directive (2009/29/EC)). This provision could thus provide the basis for establishing new mechanisms in countries that are willing to enter into such agreements with the EU.

Defining the New Mechanisms Now Under Discussion

The EU has been the main proponent of two broadly defined mechanisms: (i) *crediting* of emissions reductions for over-achieving against an emissions baseline, and (ii) *trading* of emissions allowances, up to a target level. In both cases, the baseline or target would be determined for a whole industrial sector or a broad »segment of the economy« (Hungary and the European Commission on behalf of the EU and its Member States, February 2011). For this reason, the proposed mechanisms have in the

Figure 1: Sectoral crediting and trading of emissions reductions



Source: Aasrud (2010).

past often been referred to as »sectoral«. The key point of difference between these new mechanisms and the CDM from a global emissions reduction perspective is that part of the emissions reductions achieved would remain un-credited and this component of the mitigation action would thus represent net global emissions reductions. This concept is often referred to as the developing countries' »own contributions« and it is worth noting that the AWG-LCA decision on new market mechanisms refers to the use of markets achieving »a net decrease and/or avoidance of greenhouse gas emissions« (UNFCCC 2011b, paragraph 79).

The concepts of crediting and trading are illustrated in Figure 1.

It is important to note that both these mechanisms would be entered into voluntarily by the implementing developing country. It would also be entirely up to the national government to decide on how to encourage emissions reductions within the sector. The government could, for example, offer to pass on the credits that are generated to the individual facility owners, or it could offer other incentives such as tax breaks or subsidies. A variety of measures may be employed in some cases and may involve a blend of different sources of carbon finance: public and private, market-based and not market-based.

There are therefore very close linkages between the discussions on these »sectoral mechanisms« and those about Nationally Appropriate Mitigation Actions (NAMAs). NAMAs could involve measures undertaken unilaterally, often referred to as »unilateral NAMAs«, as well as measures supported through carbon financing (»supported NAMAs«). The sources of carbon finance could potentially include direct finance and the carbon markets; in the case of the latter, this is often referred to as »credited NAMAs«, although NAMA crediting remains a contentious issue and there is still no official UNFCCC language on this concept.

Conceptually, however, there are a number of similarities between the idea of NAMA crediting and the sectoral crediting model. Both envisage credit generation for emissions reductions linked to large-scale policy or sector-wide programme implementation. Both would require high quality emissions data for the setting of appropriate emissions baselines and more stringent monitoring, reporting and verification (MRV) rules than are likely for unilateral actions. Both would tend to be

most appropriate for financing abatement opportunities further up the cost curve, via the sale of the credits generated (Butzengeiger et al. 2010). From this perspective, the implementation of sectoral crediting could simply be considered a NAMA in its own right. However, since the concept of a NAMA is very broad and flexible, carbon market finance for mitigation activities within a sector is likely to be complementary to domestic actions (funding, regulations, programmes) and, potentially, other forms of international support (loans, grants or capacity building). Thus it may be more useful to think broadly of a sectoral mechanism as one possible means of financing a NAMA that could contain several of these elements, with the credited emissions reductions only being possible for going beyond the implementing country's own contributions.

Positions of the Major Parties on New Mechanisms

One of the challenges at Durban was that parties were reluctant to establish a new market-based mechanism in the absence of the relevant details. Following COP-16 in Cancún, the parties were invited to make submissions on establishing a new market-based mechanism or mechanisms to inform the deliberations at Durban. With the in-principle agreement on the establishment of a new market-based mechanism in place, there will now be a further round of submissions, with parties invited to again present their views on the use of market mechanisms, hopefully going into more detail (submissions close on 5 March 2012). The following is a brief overview of parties' positions based primarily on the previous round of submissions, received in early 2011.

The EU sees the new mechanisms as an interim step towards a global emissions trading system based on the cap-and-trade model. The EU's February 2011 submission received support from Norway, Switzerland and a number of other countries looking to join the EU² (Hungary and the European Commission on behalf of the EU and Its Member States, 2011). Many other industrialised countries broadly support stepping up the use of market mechanisms but diverge on the establishment of a specific mechanism or mechanisms.³ Australia and New

2. Albania, Bosnia and Herzegovina, Croatia, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia.

3. Australia, Japan, New Zealand, Norway and Russia made submissions in 2011; Canada and the United States did not.

Zealand have both been fairly supportive of the EU position, while Japan, for example, has been highly critical of the cumbersome CDM approvals process and intends to pursue a bilateral offset programme of its own design, outside the UNFCCC framework.

As far as the developing countries are concerned, there is unity at a high level – the G77 maintains that ambitious Annex I mitigation targets are a precondition for discussing new market mechanisms – but various interests are at stake at a more detailed level.

The Non-Annex 1 parties that have shown interest in establishing new market-based mechanisms include South Korea, Mexico, Turkey and a number of Latin American middle-income countries, such as Colombia, Chile and Peru. Some of these countries, notably South Korea (an early proponent of NAMA-crediting) and Mexico, have also been exploring the use of market-based policy instruments at the domestic level. The distinction is important, however, because if a country is considering the introduction of market-based climate measures this does not mean that it will necessarily link these measures to the international climate policy framework and the new mechanisms being discussed as part of the UNFCCC negotiations. China is an example of this.

Of the BASIC (Brazil, China, India, South Africa) countries, only China made a submission in February 2011, mainly opposing the introduction of new mechanisms. At a domestic policy level, however, China plans to develop pilot emissions trading systems for a number of provinces under its current Five Year Plan. Similarly, India is currently implementing an energy efficiency-based tradable certificate scheme in the industrial sector, but with no official plans to link this to the international climate framework. There is interest in the NAMA concept in South Africa because of the country's high untapped renewable energy potential. Brazil has also been exploring the role of carbon credits in its domestic policy mix (Trennephol 2010).

The interests of other developing countries vary considerably. Strong opposition to the use of markets for addressing climate change has come from Bolivia and Venezuela in particular. Led by Papua New Guinea, the Alliance of Small Island States (AOSIS) has become fairly supportive of broadening participation in mechanisms (with the caveat that this should help to increase the

ambition of mitigation targets). Many of the least developed countries are primarily focused on increasing access to the CDM and direct finance.

As a framework for the implementation of climate measures, the broad, flexible concept of NAMAs has generally been more widely supported by developing countries. Considerable work has also been undertaken in defining possible NAMAs in certain countries. For example, Germany's Environment Ministry has supported the development of a NAMA for the Mexican residential building sector with technical advice from Perspectives Climate Change GmbH.

The fact that a number of developing countries are investigating the potential for market-based approaches under the sectoral or NAMA models reflects recognition that capacity building in the form of financial and technical support is required. In June 2011, the first round of funding under the World Bank's Partnership for Market Readiness (PMR) was announced, with grants going to Chile, China, Colombia, Costa Rica, Indonesia, Mexico, Thailand and Turkey. Additional countries have now come on board, including Brazil, India, Jordan, Morocco, South Africa, Ukraine and Vietnam. Another example of such capacity building support is provided by the Mitigation Action Implementation Network (MAIN), partly funded by the German government's International Climate Initiative.

Challenges to Realising the Potential of New Market Mechanisms

Although agreement was reached at Durban on defining a new market-based mechanism under a successor treaty to the Kyoto Protocol, the design of this mechanism remains wide open. Until the design is known it is hard to say whether the perceived shortcomings of the CDM can be addressed by the establishment of a new market-based mechanism. In any case, there are significant challenges to be overcome.

Will the developing countries which have found it difficult to attract investment under the CDM be more successful under the proposed new mechanisms? Will the untapped emissions reduction potential in certain sectors be unlocked? On the one hand, the sector-based models and NAMA framework are intended to cover whole sectors or sub-sectors at once and should be

more suited to supporting the implementation of policy measures than the CDM. On the other hand, there is no apparent demand for credits from such mechanisms at present, so it is hard to see where the investment will come from. In addition, the new mechanisms would require more robust institutions and much greater technical capacity for the implementation of MRV systems, setting of targets, design of economic incentives and so on. For example, the data requirements that would need to be met by governments wanting to implement sector-based mechanisms could be considerable. Case studies have highlighted data quality shortcomings even in some of the more advanced emerging countries, such as China, Brazil and Mexico (see, for example, Helme et al. 2010: Centre for Clean Air Partnership Global Sectoral Study, Final Report). The CDM, by contrast, imposes few requirements on host country governments: most of the administrative burden and associated costs remain with the project developer and a single project.

As regards attracting investment, the new market-based mechanisms are unlikely in themselves to address the underlying reasons for the uneven geographical distribution of CDM projects or the dominance of key sectors. While the CDM has been very effective in stimulating private sector involvement, it remains to be seen how this would happen under the new mechanism (this issue is discussed further below). However, whether it is government to government or a combination of public and private investors, parties looking to finance mitigation activities will logically continue to focus on locations with the greatest mitigation potential and the lowest investment risks. Governments which have successfully attracted CDM investment tend to provide a stable, low risk regulatory environment; have already invested in climate policy institutions; and could be expected to be more prepared to take advantage of the opportunities offered by the new mechanisms. For these reasons, LDCs are generally seen as unlikely candidates for implementing the new mechanisms being discussed. Rather, the logic is that the CDM would remain in place for LDCs and be improved to better meet their needs.⁴ Special mention should also be made of Reducing Emissions from Deforestation and Degradation (REDD) and the broader concept of »REDD+«. Developing countries with an emissions profile dominated by the forestry and land use sectors stand to benefit

more from the successful implementation of a REDD+ mechanism than from the new mechanisms discussed in this paper, which are generally understood to be more suited to the industrial sectors and the built environment.

Another common criticism of the CDM has been that the technology transfer experience has been weak. However, it is far from clear how the new mechanisms would overcome the current barriers to technology transfer. Guaranteeing scaled-up technology transfer may be difficult as long as the relevant technologies remain in the hands of private enterprises. The Japanese bilateral offset scheme mentioned earlier suggests that Japanese investment would be tied to use of Japanese technologies in areas such as nuclear power, carbon capture and storage and energy efficiency. It is not yet clear on what terms such technologies would be made available or whether this would meet developing countries' needs.

The process for reaching agreement on key parameters required for the implementation of sector-based mechanisms is still unclear. For example, a key feature of the EU's proposal is the level of ambition to be achieved by the implementing country before crediting can take place: the domestic contribution to global mitigation. Much of the discussion to date has focused on the concept of a »no lose« target; that is, the developing country government faces no penalty for not meeting the target but can create credits if it overachieves. Nevertheless, the level of the target is still likely to be contentious. The more ambitious the emissions target, the greater the share of emissions reductions that need to be achieved domestically before credits can be generated. This has implications for the ability of the implementing country to recover costs and for the environmental integrity of credits generated.

Another contentious issue is the MRV requirements to be placed on developing country governments in order to be eligible to participate in the new carbon market mechanisms. Generally speaking, developing countries prefer a voluntary, domestic MRV approach, while developed countries insist on MRV by international experts if support is to be provided. »Support« in this sense could include both direct finance provided under the »supported NAMA« framework, carbon finance provided through the purchase of credits or allowances, technology transfer and/or capacity building. At Cancún, the parties agreed on a process of so-called »International

4. For example, by allowing the factoring-in of suppressed demand in the calculation of emissions baselines the CDM can be used to unlock development benefits in poorer countries.

Consultation and Analysis» (ICA) of biennial update reports. The AWG-LCA Decision at Durban further developed the details of ICA, including on the reporting of mitigation actions and information on international market mechanisms (UNFCCC 2011b). In practice, the level of stringency of MRV rules relating to market-based mechanisms, such as sectoral crediting or NAMA crediting, is likely to be comparable to the CDM. The key difference is that the requirements would be imposed on implementing governments rather than project developers, as is the case under the CDM.

Dealing with the Overlap between the CDM and the New Mechanisms

Safeguarding environmental integrity is a key consideration of many parties involved in the discussions on new market mechanisms, including the EU. Concerns about double counting of emissions reductions will arise in any country which has registered CDM projects or a pipeline of CDM projects being developed in the sector to be covered by the new mechanism. To avoid the risk of double-counting, decisions will need to be made about how long to allow existing (registered) CDM projects in the relevant sector to continue to earn CERs, when to stop new CDM projects from being registered under the CDM⁵ and how to account for CERs that are issued for project-based activities once the sector-based mechanism is implemented (Schneider and Cames 2009).

Different priorities suggest different solutions. From the CDM project proponent's point of view, a project registered under the CDM should be eligible for credits for the full length of that project's crediting period. Indeed, many project proponents have opted for a twice renewable crediting period of seven years (up to a maximum of 21 years in total) rather than a single period of ten years. From a government perspective, however, the need for policy flexibility could be seen as the priority. The different arguments need to be weighed up: on the one hand, the environment would benefit if a rapid transition also increases global mitigation action; on the other hand, terminating the issuance of credits for registered CDM projects runs the risk of significantly undermining confidence in the carbon market mechanisms more generally.

5. The issue of dealing with pipeline projects may become a moot point post-2012 unless there is a clear signal for new investment in CDM projects. Currently, the outlook is constrained by the EU ETS restrictions.

Defining the Role of the Private Sector

It is generally understood that credits issued under the new mechanisms would be delivered first to the national government responsible for the implementation of the mechanism, unlike the CDM, which issues CERs directly to project participants. The new mechanisms could thus logically be expected to be attractive to developing country governments looking to raise finance to support national policy priorities.

Nevertheless, the ability to attract private sector investment and engage private firms will continue to be a critical success factor if global climate mitigation objectives are to be achieved. Achieving the pledged 100 billion USD in carbon finance by 2020 will certainly require contributions from both the public and private sectors and a role for markets, including the carbon markets (UN 2010). This is not to say that a debate on the appropriate split between different sources of finance is not valid, but simply that the private sector's perspective also needs to be considered if it is to play a significant role in the new climate framework.

From the private sector's point of view, the existing market framework represented by the CDM is now well understood, while the new mechanisms are not yet well defined. Despite its somewhat bureaucratic project cycle, the CDM gives private investors confidence that if the project satisfies all of the requirements and the project-inherent risks can be managed then CERs will be issued directly by a credible international institution. After many years of experience with the CDM investors are now familiar with the various risks involved. In the case of concepts such as sectoral crediting or NAMA crediting, however, the role of the private sector and the risks involved are not yet clear. In some cases a partnership approach is likely, whereby private firms and governments jointly cooperate in a sector to implement mitigation actions and then share in the carbon units that are generated as a result. In other cases, governments may simply regulate and force firms to comply.

One specific risk related to sectoral crediting is that individual installation owners will face the so-called »free rider« problem. If the implementing government simply promises to pass through any credits generated by sectoral mitigation action, then individual firms face a weakened price signal (Baron et al. 2009). This problem

arises if credits can be issued only when the sector beats the target overall, but overachievement of the target requires several firms to undertake individual mitigation action. While some firms might reduce their emissions they would not be entitled to credits if enough of the other firms failed to do so. Thus, a rational firm will factor-in the risk that the other firms will not act and this will weaken the incentive for all firms to act.

Governments have a number of options for dealing with this issue, and the best approach will depend on the national context. For example, in a monopolistic industrial structure the free rider problem would not be an issue from the perspective of the monopoly firm, but may be a huge risk for new entrants. To encourage new entrants to undertake emissions reduction activities, the government may have to offer incentives or guarantees of a reward for investment. One option could be for the government to commit to make good on any credits by purchasing these on the international carbon market. In this case, it is the government that would bear the risk of underperformance. Alternatively, the government could implement a domestic policy measure to help ensure that the sectoral target is achieved. For example, in the electricity sector, it might implement a feed-in tariff designed to support investment in renewable energy capacity up to a pre-defined megawatt (MW) capacity target, with any further investment being rewarded through the receipt of credits (Bloomberg New Energy Finance 2010). The sectoral »no-lose« target would be linked to the MW capacity target and credits would be issued for exceeding it. Whatever the approach taken, risks and costs will need to be shared between the different parties involved.

The Future of the CDM

Cancún and Durban both demonstrated that there is broad interest among parties in ensuring the continuation of the CDM market and institutions post-2012. Of course, political well-wishing and legal clarifications are not enough to ensure that the CDM will continue: there must also be demand for CERs. One recent positive development in this respect is the passage of the Australian Government's Clean Energy Future package of legislation in November 2011, which will see the implementation of an emissions trading system known as the Carbon Pricing Mechanism (CPM). The scheme, which com-

mences in July 2012 with a three-year fixed-price period, will allow the use of international units, including CERs, from 2015 onwards.

On the supply side, a wide range of reform measures are being implemented to spur the improvement of the CDM, a process that has been under way since its inception. In 2011, the CDM Executive Board (EB) enabled greater use of standardised baselines and further streamlined the regulatory framework for Programmatic CDM. These two developments are particularly relevant to the current discussion about »new mechanisms« because they have the potential to scale-up the CDM while improving its environmental integrity and opening up the market to less developed countries. These developments are discussed briefly below.

Standardised baselines can help speed up project registration by avoiding the need for each CDM project to calculate an emissions baseline from scratch. This will also support the CDM in LDCs where data gathering for baseline determination can be challenging. Importantly, the use of such baselines can ensure that fewer credits are issued than actual emissions reductions achieved if they are set in a conservative manner: in effect, discounting of crediting. The CDM EB adopted a procedure for the submission and consideration of standardised baselines at its 63rd meeting in September 2011 (UNFCCC 2011a).

Programmatic CDM includes an unlimited number of CDM component project activities (CPAs) under a single registered Programme of Activities (PoA). The concept was introduced in 2005 to open up carbon finance opportunities to countries and sectors that were not benefiting from the traditional single-project CDM model. While initial progress was slow, the market has recently seen a surge of activity. There were 17 registered PoAs at the time of writing and over two hundred in the pipeline (UNEP/Risoe 2012). A number of PoAs now involve multiple countries and are able to use multiple methodologies. PoAs have the potential to enhance the involvement of LDCs because they are suited to sectors involving multiple small and micro-scale emissions reduction activities, such as household energy efficiency improvements involving Compact Fluorescent Lighting and efficient cooking stoves, as well as programmes of small-scale renewable energy technologies, such as biogas digesters.



Thus far, the PoA statistics suggest that the geographic spread is more even than under the traditional CDM model, as illustrated by Figure 2. The figure suggests that for African countries in particular, the PoA model is providing greater access to carbon finance than the traditional CDM.

Continued improvement of the regulatory framework is needed to realise the full potential of PoAs. The CDM EB has adopted a range of reforms intended to simplify the procedures for small-scale and micro-scale activities, but further reforms are required.

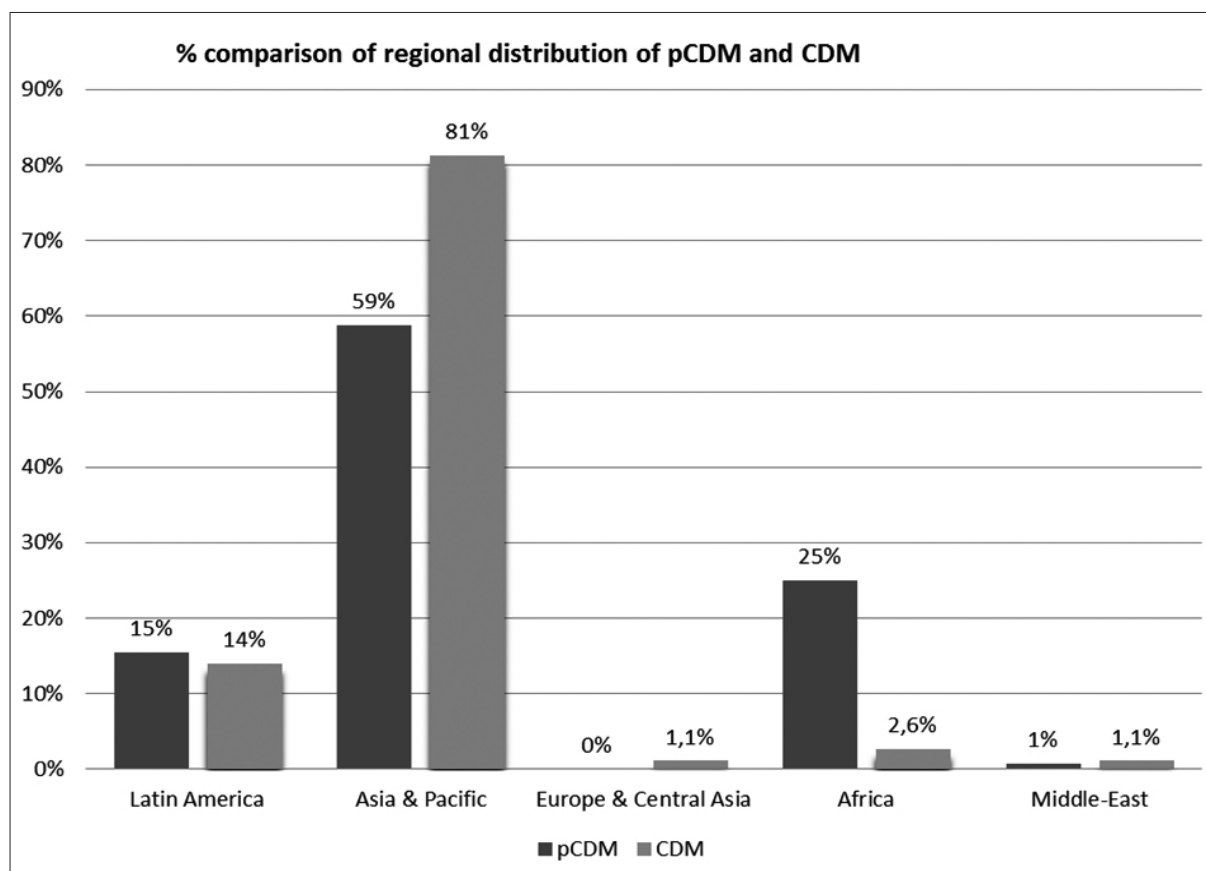
The Link between CDM and New Mechanisms

On a positive note, the Cancún and Durban outcomes can be seen as having kept multilateralism alive, preventing a total fragmentation of the international

climate framework – at least for now – and moving forward in small steps towards the elaboration of a new market-based mechanism. It remains to be seen whether parties can agree on the details of such a mechanism. In any case, considerable work and time will be required to develop the still fairly abstruse concepts into a fully operational market framework and then implement it.

The good news is that the work to make sectoral crediting or NAMA crediting operational does not need to wait for an all-encompassing global climate deal. So-called »bottom up« bilateral or regional arrangements for linking carbon markets could also offer a platform for the early demonstration of the new market-based approaches and feed the experiences gained into the multilateral process. Importantly, the work can start with the existing building blocks of the CDM and in particular PoAs and standardised baselines. By applying

Figure 2: Geographic distribution of Programmatic CDM compared to traditional CDM



Source: UNEP/Risoe centre analysis of the PoA market (available at www.cdmpipeline.org) (accessed 4 March 2012).



conservative standardised baselines at the sectoral level and further streamlining the procedures for PoAs, the carbon markets could be scaled up in a way that ensures net global emissions reductions are achieved. The more advanced emerging countries would logically be expected to accept more conservative benchmarks than less developed countries. To help overcome the existing barriers to carbon finance in the latter, there is a major role for the public sector in the provision of services that the market will not provide: seed funding for national or sectoral PoA development, financing of »public good« information – gathering of data, for example – that is typically needed for the implementation of sector-based programmes, as well as the more traditional forms of finance, such as concessional loans and grants for capital investment (Schmidt-Traub 2011).

The Need for Piloting Sectoral Approaches for Crediting

Discussions in the UN climate negotiations on new market mechanisms have been under way for several years. The proponents are seeking to improve on the CDM and increase both the efficiency of meeting industrialised-country targets and the scale of carbon finance available to a wider range of developing countries. Unfortunately, progress on these proposals has been slow and it is not clear when the detailed design of any specific new mechanism could be agreed on politically, the rules made fully functional or a specific mechanism actually implemented in a developing country. It is also not clear whether the new mechanisms being proposed will necessarily help to overcome the shortcomings of the CDM. The concepts of sectoral crediting and NAMA crediting could be combined with the existing CDM reforms aimed at increasing the role of standardised baselines and streamlining of Programmatic CDM. When combined, these building blocks have the potential to help achieve several of the policy objectives behind the proposed new market mechanisms. Given that there is no precedent for crediting emissions reductions at the sectoral level, a pilot scheme for sectoral crediting and/or NAMA crediting seems advisable as a next step. It could provide the necessary practical experience needed to agree on the more detailed rules and procedures for such mechanisms compared to what is currently available at the UNFCCC level.

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Global Emissions Trading – Market-based Instruments for a Development-oriented Climate Policy?

Severin Fischer

The role of emissions markets in combating climate change is one of the most controversial issues of international climate policy. The attempt to rein in what some have called the »greatest market failure« in human history (Stern 2006) – climate change – by applying market-based instruments encountered (and to some extent is still encountering) fundamental criticisms, not only among non-government organisations critical of globalisation, but also in parts of academia. The basic tenor of these criticisms is that reducing the environment to an economic good, which is what emissions trading is all about, prioritises economic growth, competition and efficiency over the requirements of sustainability and sufficiency in problem-solving (cf. Brunnengräber 2009: 197). The German public also regarded the notion of a trade in emissions certificates, especially in the initial phase of climate policy, with scepticism, as, for example, the choice of the term »air pollution right« as one of the »non-words« (or absurd terms) of 2004 illustrates.¹ This critical perception has been reinforced over the past few years by the limited success of various cap-and-trade schemes. For example, the Kyoto Protocol, with its flexible instruments,² has not been able to exercise the hoped-for guidance and the steering effect of the European flagship project, the Emission Trading Scheme (ETS), has so far fallen short of what was expected. It is therefore not surprising that it is increasingly being disputed whether emissions trading has a central role to play in climate policy and its supporters are more and more being forced to hide behind other terminology in order to prevent their schemes from being tainted by verbal proximity to this allegedly failed approach.³ There is therefore considerable evidence that emissions trading has already passed its peak as a global project.

1. For criticisms of market-based instruments in environmental policy, see Böcher/Töller (2007): 307.

2. For a critical evaluation of the »Clean Development Mechanism« and »Joint Implementation« instruments, the Kyoto Protocol's other two flexible instruments besides emissions trading, see Nicole Piepenbrink in this volume.

3. In this connection one might mention the »budget approach« of the German government's Advisory Council on Global (WBGU).

Against this background, it seems all the more urgent to examine the role of emissions trading in international politics critically and to draw lessons from experiences so far. In this chapter, we consider possible reform plans and shifts of emphasis, especially with regard to the development-policy components and possible added value of emissions trading for the interfaces of international climate and development policy.

Emissions Trading in International Climate Policy

Emissions trading belongs in the category of market-based instruments in environmental policy and thus differs from the government regulation of environmentally harmful activities or government financial support for politically desirable activities. The idea arose among US economists in the 1960s of fixing an emissions ceiling and distributing pollution rights, thereby achieving efficient and economical allocation of national reduction obligations. It was first applied to the problem of »acid rain« as a result of high sulphur dioxide emissions in the United States and registered some early success. Derived from that, the idea of trading emissions rights with greenhouse gases was introduced into international climate policy at the instigation of the United States. The adoption of the Kyoto Protocol in 1997 meant that for the first time binding emissions ceilings were laid down for the industrialised countries and states undergoing transformation (the states of the former Eastern Bloc). The participants in the first commitment period of the Protocol, now known as Annex I states, agreed on a reduction of their greenhouse gas emissions by an average of 5.2 per cent between 2008 and 2012 in comparison to the reference year 1990, shared out individually and legally binding. In order to increase the probability that these targets would be met, and to organise them as efficiently as possible in economic terms, three »flexible mechanisms« were developed: the Clean Development Mechanism (CDM), Joint Implementation (JI) and emissions trading – with emissions trading receiving most attention.



The introduction of emissions trading between states within the framework of the Kyoto Protocol permanently established this instrument in climate policy. It enables Annex I states within the commitment period 2008–2012 to achieve their emissions reductions not only by means of measures taken on their sovereign territory, but also to compensate for shortfalls in their own emissions reductions by acquiring emissions certificates (Assigned Amount Units, AAUs) from other Annex I states – provided that the supplier has exceeded his own obligations. Emissions trading thus theoretically guarantees the fulfilment of climate protection targets agreed on in advance by all Annex I states.

The Kyoto Protocol and its associated emissions trading are subject to a range of criticisms. They particularly concern its lack of impact on steering climate policy. Three main reasons are given for this.

- (i) Climate protection targets have fallen far short of what is needed of the climate regime, as formulated by science in recent years. A reduction of greenhouse gases in the industrialised countries of 5.2 per cent in comparison to the basis year of 1990 appears too low as things stand today to achieve the target corridor of 25–40 per cent, which the Intergovernmental Panel on Climate Change (IPCC) proposed for 2020. To put this into perspective, however, it must be noted that the agreed targets were considered a breakthrough in climate policy at the time.
- (ii) The problem of »hot air« remains unresolved. This refers to the many billions of unused emissions certificates still up for sale in particular in the post-communist states of eastern and central Europe.⁴ As a result of their transformation in the early 1990s these countries were forced to drastically cut their industrial production, thus enabling them to reduce their greenhouse gas emissions significantly. However, the emissions reduction targets within the framework of the Kyoto Protocol barely reflect this development. On the contrary, they mean that the affected states were overallocated AAUs, which are now freely available on the market and thus could undermine climate policy goals.

- (iii) The inadequate number of participants in the first commitment period represents a point of criticism that fundamentally calls into question the concept underlying the Kyoto Protocol and thus only partially concerns emissions trading. Although the Annex I states were still responsible for around 60 per cent of global emissions in 1997, by 2009 this proportion had fallen below 45 per cent. Due to the refusal of the United States to ratify the Protocol the regime's influence was limited to less than 25 per cent of global emissions, which thereby also largely denied it any effect on climate policy steering.⁵

Regional Emissions Markets in Practice

Since the signing of the Kyoto Protocol in some respects very different emissions trading systems have been developed in many regions and countries throughout the world. The best known example is the EU's Emissions Trading System (ETS), which in 2013 will enter its third multiannual trading period. The EU ETS forms the largest and most extensive emissions market in the world: over 11,000 installations and around 45 per cent of greenhouse gas emissions in the EU are included in this system. To date, other greenhouse gases besides carbon dioxide, such as methane and nitrous oxide, not to mention a number of sectors, such as transport, agriculture and buildings, have not been attached to the system. With the decision on the revised emissions trading directive of 2009 the EU ETS will reduce emissions in Europe by 21 per cent by 2020 compared to the reference year of 2005. Beyond the borders of the 27 EU member states, Norway, Iceland and Liechtenstein also participate in the EU ETS.

Besides the EU ETS, emissions markets have been developed primarily in the United States, although either participation tends to be voluntary or markets are established only at the state level. The »Regional Greenhouse Gas Initiative« (RGGI) is the largest market and covers the electricity sector in 10 US states. New Zealand has also developed an extensive emissions trading system which, among other things, covers agriculture and land use changes. The development of binding market-based climate protection instruments is also under debate in Japan. Australia has just recently agreed on the establishment of an emissions trading scheme.

4. For Russia alone, the estimated number of unused AAU certificates is around 25 billion. Cf. Opitz (2011).

5. Author's calculations based on US Energy Information Administration (EIA) data: <http://www.eia.gov> (last accessed on 12.3.2012).

International emissions trading within the framework of the Kyoto Protocol differs in a number of key features from the regional initiatives in Europe, the United States and New Zealand. Market participants in the EU ETS are in the first instance industrial companies and electricity generators, while international certificate trading with AAUs takes place between the governments of the participating countries. The basic idea of an economically efficient allocation of avoidance obligations thus is markedly more fruitful within the framework of regional initiatives than in the context of the Kyoto Protocol, since they cover a larger number of different actors. Regional emissions markets also take a fundamentally different approach: the aim is the long-term integration of the different initiatives and thus the development of global enterprise-based emissions trading via a bottom-up approach. The Kyoto Protocol, by contrast, was developed on the basis of a top-down model of comprehensive global emissions trading. The two concepts are not directly in competition with one another, but could definitely be linked up, even though at higher cost (Flachsland et al. 2009). While global emissions trading between countries forms the framework the industrialised countries can transfer their obligations to their emitters at the enterprise level via their own emissions trading system.

Although carbon markets worldwide have been in the ascent for a number of years and their turnover is growing, the climate summit in Copenhagen and the US decision neither to adopt any international binding climate protection targets nor to develop their own federal emissions trading system can be regarded as a temporary watershed with respect to what until that point had been an unrestricted advance (Financial Times 2011). Furthermore, although the desire to develop market mechanisms was still emphasised in the »Copenhagen Accord« of 2009, since then there has been little progress in extending emissions markets. However, the decision taken in Durban for a second commitment period of the Kyoto Protocol secures an international legal basis for the continuation of emissions trading beyond 2012.

The Development-policy Significance of Emissions Trading Systems

The significance of emissions trading systems is largely uncontroversial in technical climate policy debates. Rapid reduction of global emissions over the coming years

is scarcely conceivable without the establishment of effective instruments in conjunction with a ceiling on global emissions. Details concerning regulations and governance issues may still be the object of controversy but there is broad consensus that climate change cannot be contained without global coverage and a shift of emissions rights among states and emitters.

From the development policy standpoint, market mechanisms frequently bear the stigma of the economisation of the common environment and the omission of important aspects of sustainable development. However, global emissions trading also offers a range of opportunities for development policy. One example is the provision of financial resources for coping with the consequences of climate change as well as for investment in clean and efficient technologies. On top of that, the establishment of global emissions trading would make it easier than hitherto to introduce considerations of justice into climate policy.

Climate Financing

The need for financial resources for adaptation to the impact of climate change and for the restructuring of economic systems in developing and emerging countries is difficult to quantify. One possible guideline is the undertaking by the industrialised countries within the framework of the »Copenhagen Accord« in which the prospect was raised of an amount in excess of 100 billion US dollars per year in aid from 2020. The first analyses of the provision of resources for so-called Fast-Start Financing for 2010–2012 already make it clear that the transfer of public funds of this magnitude represents a complex undertaking and in particular under pressure from a global recession it is scarcely feasible politically.⁶ Private sources therefore take on a key role in climate financing. A legal framework is needed for this, however, which can direct investments into the relevant channels. Emissions trading systems perform this function and contribute greatly to the guidance of private investments. They could thus enable a North-South transfer of capital.

This can, in turn, be put to use for climate financing in two ways. First, the proceeds from the auction of certificates on the basis of the polluter-pays principle can

6. Compare the contributions on German/European or international financing by Frank Schwabe and Michael Meyer, as well as Hans-Jochen Luhmann, Wolfgang Sterk and Florian Mersmann in this volume.

be used to combat the attendant damage. This would correspond to a continuation of the idea of the internalisation of external costs which underlies the emissions trading system. Earmarking the proceeds of such trading for climate financing would also seem required in order to legitimise emissions markets. This opportunity was missed in the design of the EU ETS for 2013–2020 (cf. Fischer 2009). Second, linking emissions trading systems with sectoral agreements or other instruments in developing countries could direct investment flows towards the transformation of economies locally. Further development of the CDM provides an opportunity to do this but it is dependent on a functioning global emissions market or several regional markets. The provision of sufficient private resources for climate financing appears extremely unlikely unless emissions trading systems are established first.

Climate Justice

The significance of considerations of justice with regard to climate change impact and climate policy design has increased markedly in recent years. In particular from a development policy standpoint the industrialised countries' historical responsibility for climate change has been noted, together with the greater vulnerability of developing countries in the face of natural catastrophes and environmental change. In the context of debates on climate justice the demand for per capita allocation of emissions rights, among other things, has repeatedly been made (Winkler 2010: 98). If emissions rights of around 2 tonnes per inhabitant were allocated globally, US Americans would, on average, have to reduce their per capita CO₂ emissions by around 20 tonnes, while Ethiopians would have more than 1 tonne of CO₂ »unconsumed«, which in turn could be sold on a global emissions market. Further developments of this globally egalitarian approach are increasingly finding resonance in academic debate. Part and parcel of this are considerations integrating the historical responsibility for climate change or taking into account development interests in the construction of new instruments. All projects of this kind have one thing in common: they depend on the application of emissions rights trading systems. Furthermore, the management of allocation in emissions trading systems offers an opportunity to weight considerations of justice in the design of the market in such a way that this is permanently anchored in international climate policy.

The Future of Global Emissions Trading

Emissions trading is the most important instrument of climate policy and has established itself as the pre-eminent approach to the global management of climate change. The adoption of the Kyoto Protocol and the development of a series of regional initiatives have contributed greatly to the economisation of climate policy and the creation of carbon markets. The tonne of CO₂ has in the meantime asserted itself as a commodity or as a unit of measurement and is also being used at the level of voluntary initiatives, for example, in compensation for aviation emissions (see Strippel/Lövbrand 2010). Despite the abovementioned scepticism of many actors the concept of trading in emissions rights and certificates in various forms has proved itself in this respect.

The history of the development of emissions trading, however, is not unblemished. The limited effectiveness of the Kyoto Protocol, shortcomings with regard to the environmental integrity of the European emissions trading system and the barely discernible progress in the development of an international climate regime have awakened doubts about the future significance of a global emissions trading system. While the decision in favour of a second commitment period of the Kyoto Protocol has secured an international legal basis for emissions trading systems, it became clear during the conference in Durban that the Kyoto Protocol is not a viable model when it comes to an effective international climate regime. The future of international emissions markets will therefore strongly depend not least on the outcomes of the Ad Hoc Working Group on the Durban Platform for Enhanced Action.

It will be of decisive significance for the future of global emissions trading that not only its potential with regard to efficiency and effectiveness in coping with climate policy challenges is exploited, but also that its contribution to the integration of development policy aspects in climate policy is emphasised. These things are manifest in particular in the areas of climate financing and the integration of considerations of global justice in climate policy. The international climate regime and world environmental policy can be successful long-term only if they are able to address a multitude of challenges that are alien to particular policy areas and to realise them within the framework of the instruments at their disposal.



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It's Up to the Politicians – Key Strategies for Combating Climate Change

Regine Günther

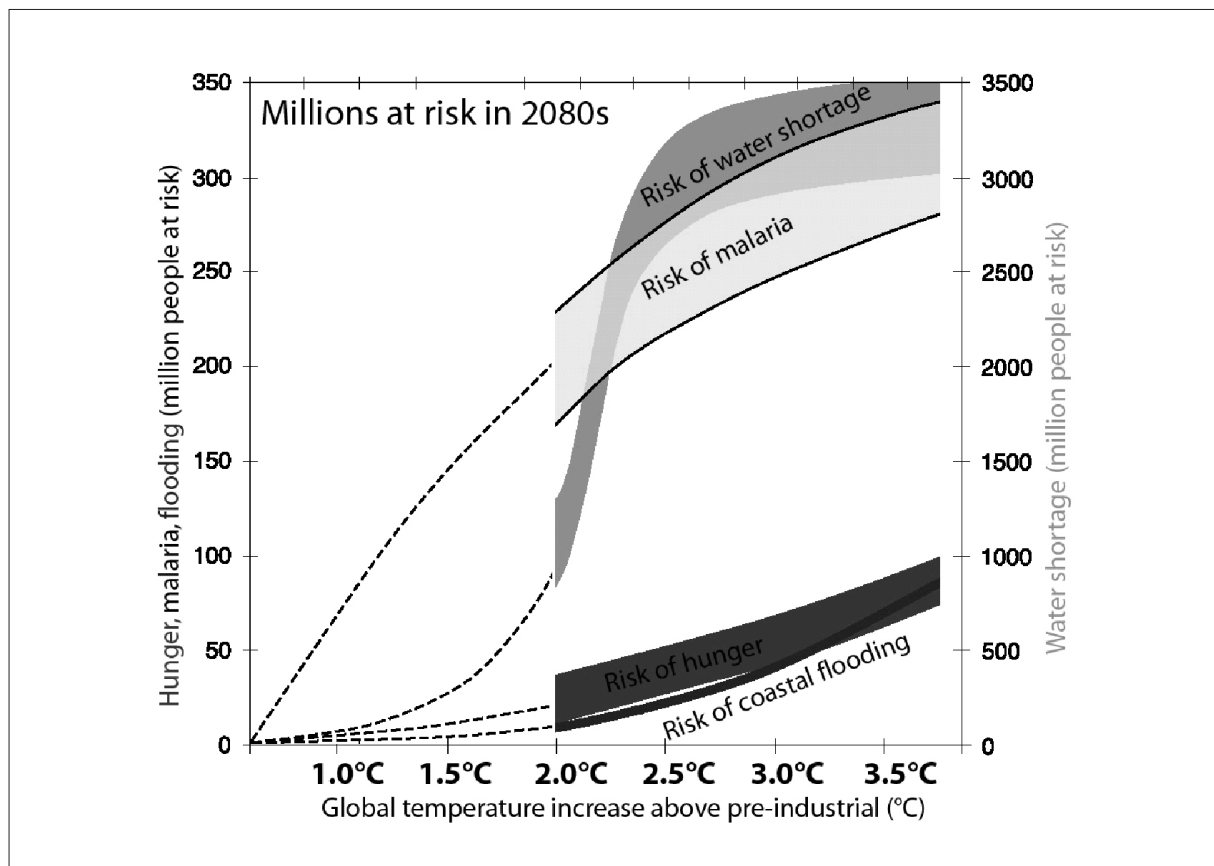
The Task

Protecting the world climate and limiting the impact of global climate change are among the central challenges of our generation. Effective policy strategies and instruments to combat climate change, however, cannot be discussed, developed and implemented without taking account of the level of ambition and the timeframe of the necessary changes. An outline of the necessary changes and the corresponding timeframe is therefore the indispensable starting point for any kind of detailed discussion of climate policy strategies.

For good reasons, the international community has agreed on the target of limiting the rise in global mean temperature in comparison to the preindustrial level to a value (significantly) below 2 °C.

The special challenge posed by this »2 °C strategy« derives primarily from the enormous time pressure to make the necessary changes. If this target is to be reached, the current rise in greenhouse gas emissions must be halted by 2015/2020, followed by a massive reduction in global emissions. Should this fail, the 2 °C threshold will in all likelihood be breached.

Figure 1: Development risk due to climate change



Source: Parry et al. (2001): »Millions at risk«. Glob. Env. Change.



But even if the climate protection target is achieved, the changes in the climate that can already be observed must by no means be neglected. Even with an increase in the global mean temperature of less than 2°C the regional consequences will be grave: many hundreds of millions of people will be threatened by water shortages; droughts, cyclones and floods will increase; diseases will spread; and food supply bottlenecks will be exacerbated.

The growing and ever more alarming evidence from climate research no longer permits any other conclusion: immediate and widespread action is indispensable, the emission of greenhouse gases must be rapidly and radically reduced and carbon integration must be ensured. The spotlight is on two major fields of action in particular:

1. The rapid restructuring of economic and energy systems on an extremely low-emission basis (*low carbon economy* or LCE) which must be characterised by both high energy and resource efficiency and energy supply mainly from CO₂-free and low risk energy sources.
2. Deforestation – especially in Brazil, Indonesia and the Congo Basin – must be halted as soon as possible in order to ensure carbon integration (carbon sinks) and protect the enormous potential of these ecosystems' biological diversity against irreversible destruction.

If global warming is to be curbed adequately greenhouse gas emissions will have to be reduced globally by up to 80 per cent by mid-century. The industrialised countries, indeed, will have to reduce their emissions by 95 per cent, due to their special role as principal generators of the greenhouse gases that have reached the atmosphere so far and still substantial emitters of radiative forcing gases. However, this will occur only if the industrialised countries switch their energy and transport systems to renewable energy sources on a large scale, industry operates virtually CO₂-free and significant emissions reductions are achieved even in sectors such as waste and agriculture. At the same time, safeguarding and expanding the sink function of forests and ecosystems require significant action even in the industrialised countries.

Achieving these targets has technological, economic and political dimensions and requires decisive progress in a range of time horizons:

1. The technological options are either available or (comparatively) foreseeable in the short, medium and long terms.
2. Many of these options are available economically in the short and medium terms. Some options require the stepping up of innovation efforts in order to achieve the requisite cost reduction in the next decade or so.
3. Besides technological developments and cost reductions the systemic integration of low-emission supply- and energy-efficient consumption options is a key area for targeted innovation efforts.
4. A political framework and policy measures play a central role – in particular across the whole spectrum of innovation efforts. In addition, in many places the implementation of basically cost-effective options requires that obstacles be overcome and thus political intervention.

Figure 2 shows, first, the global timepath of greenhouse gas emissions if no measures are taken to reduce them («business as usual») and second, the options for reducing them in individual sectors to avert dangerous climate change (climate target). In order to realise these solutions it must be clarified what instruments and in which regions these options can be developed and what financial flows have to be redirected. Both the action that needs to be taken at national level, along with its linkages, and the global perspective must be taken into consideration.

Global Perspective

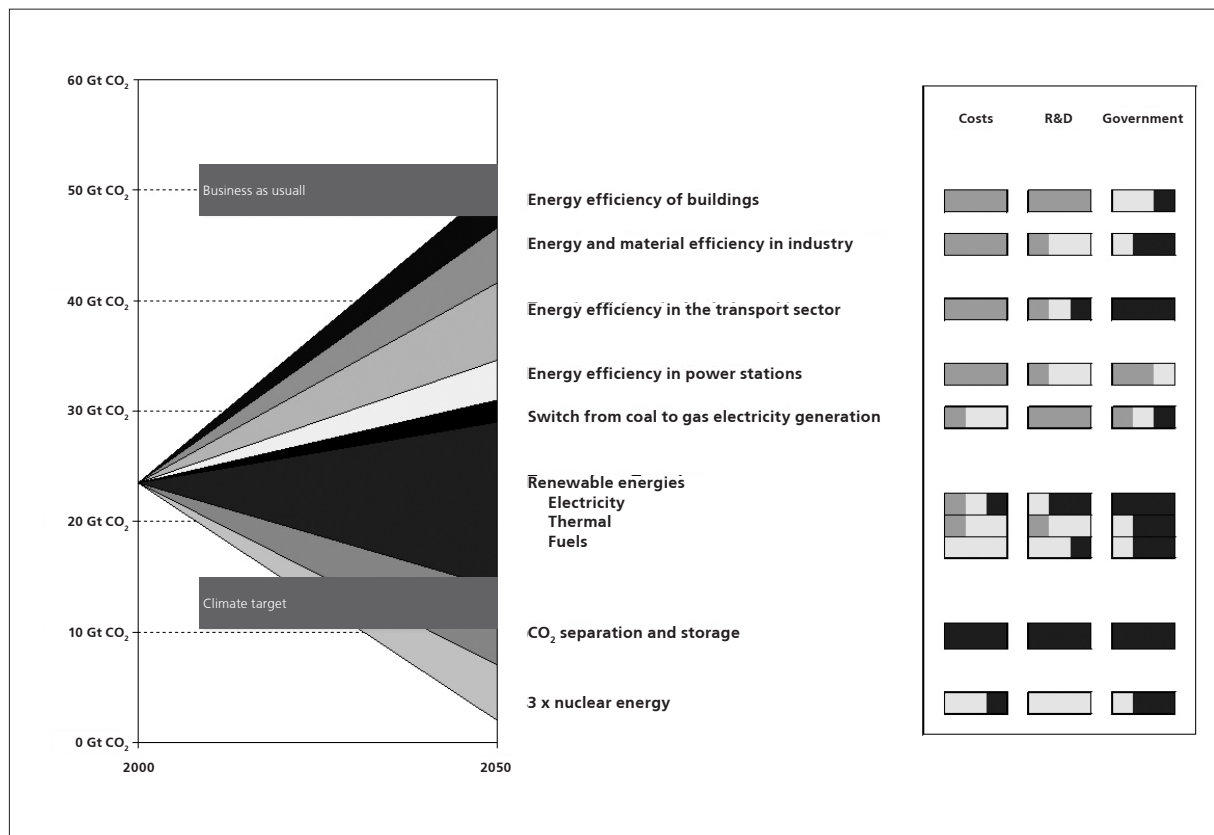
In geographical terms, the so-called G13 states are the focus of attention, since they are still responsible for just under 70 per cent of global CO₂ emissions. Consequently, these states play a key role in combating climate change. It is up to them to draw up a regionally adapted roadmap for instruments, technologies and financial flows to bring to market the requisite technologies in important sectors.

Global Carbon Market with Binding Emissions Reduction Obligations

The most complex challenge of the near future with regard to establishing effective climate protection instru-



Figure 2: Timepath of greenhouse gas emissions worldwide with options for their reduction, 2000–2050



ments is reaching agreement on a global climate protection treaty. In such a global context only the application of market-based instruments is possible. Joint regulatory approaches could not be implemented internationally; in particular, generally speaking, its design could not take sufficient account of differences between countries. Provided that it addresses all important challenges, this agreement is of paramount importance for five reasons:

1. Laying down ambitious ceilings for greenhouse gas emissions would create a legally robust framework for global carbon markets. This would safeguard climate effectiveness (averting dangerous climate change).
2. Only an international treaty could guarantee concerted action.
3. The North and the South would reach agreement on their roles and contributions to the climate protection process.

4. Support would be ensured by the countries of the North for the countries and regions hardest hit by climate change.

5. All important economic sectors would be included.

Furthermore, models must be found that would enable rapidly growing emerging countries to make a necessary and adequate contribution to climate protection, without putting them on the same level as the main historical emitters. It is already clear that involving these only via the market-organised and project-based clean development mechanism (CDM) will in future not suffice to generate the requisite emissions reductions. The reasons for this are as follows:

1. The quantity of emissions involved in CDM is too low.
2. The »offset mechanism« which only allows compensating for the emissions of the industrialised countries in other countries does not lead to reductions in developing countries.



3. To date, the project structure has been concentrated in too few countries.
4. Hitherto, mainly F-gas¹ projects have been realised and no projects for reducing CO₂ directed towards a low carbon economy.
5. At least 20 per cent of the projects do not meet the criteria of additionality, as a result of which emissions in the industrialised countries have risen by that value.

Worldwide, around 15 per cent of harmful greenhouse gases come from deforestation. Conservation of this carbon sink is an important factor in efforts to remain below the »2°C limit« – however, there are still no adequate (economic) instruments for forest conservation or reforestation. In evaluating and structuring such instruments it must be strictly ensured that the massive deforestation must be halted without slowing down the urgently necessary energy transition.

Expansion and Linking of Carbon Markets

With its European Emissions Trading System the European Union in 2005 introduced one of the main market-based climate protection instruments for energy-intensive industry and energy providers. The introduction of this system put a price on CO₂. It ensures the politically scheduled reduction of harmful gases at the end of a fixed period and brings CO₂ into corporate decision-making. In the pilot phase it turned out that emissions trading can achieve the desired results only if the right political framework is provided. This includes ambitious emissions reduction targets, robust monitoring, strict verification, sanctions and efficient and ambitious allocation rules the net effect of which is reasonable transaction and administration costs. In the absence of this, acceptance of this instrument will be eroded.

Following the EU's example, other states are beginning to introduce – or are at least thinking about it – emissions trading systems for those of their industries that particularly harm the environment. This includes China, South Korea, Japan, Australia and Switzerland. A num-

ber of US states are also taking this path within the framework of the so-called Regional Greenhouse Gas Initiative (RGGI).

The market-based emissions trading system represents a good basis for a so-called bottom-up approach. Various countries are introducing systems with a similar structure which can be connected without a problem. Thus, an element complementary to the international agreement could be established in the medium term.

Limits of Carbon Markets

Emissions trading is a targeted climate protection instrument, but it cannot bring about the requisite changes on its own. Other instruments must therefore be lined up alongside it in order to:

1. establish new technologies in future markets (support instruments or compensatory feed-in tariffs);
2. ensure technology transfers from industrialised countries to emerging and developing countries;
3. achieve reductions in other sectors of the economy.

In particular the advocates of emissions trading strongly favour extending it to all sectors. However, it must be noted that an emissions trading system that is beneficial and well targeted for major emitters can prove to be less suitable in other sectors. Inclusion of the transport sector in the emissions trading system is often called for.

A system that sets out from the end user is ruled out in this sector because of the enormous transaction costs. Furthermore, an upstream approach cannot be considered either because of the sector's low price elasticity.² The so-called cap-and-trade system can work only

1. F-gases = fluorinated greenhouses gases

2. The price rise on premium grade petrol (gasoline) from 1,018euros in 2000 to 1,366euros in 2006 corresponds to a pricing-in of CO₂ costs in the amount of 150€/t CO₂. Despite this rate of increase there was no change in emissions. Adopting a midstream approach would appear to be most reasonable, in accordance with which car manufacturers would have to obtain certificates. Even a simple model calculation illustrates the limits of its effectiveness. For example, a CO₂ reduction of 100g/km on a mileage of 200,000km over a vehicle's lifetime would achieve a CO₂ reduction of 20tonnes. Certificates priced at 20€/t CO₂ would represent a charge over the vehicle's lifetime of 400euros. This order of magnitude is too low to bring about a substantial change in this sector. Ambitious efficiency standards must therefore be set for the transport sector from the outset.



if it leads to CO₂ emissions reductions of an order of magnitude that halts the current trend and falls below historical emissions values. Furthermore, significant short-, medium- and long-term incentives and price signals must be set for investments in low carbon fuels and energy efficient measures. Whether an emissions trading system makes sense must be measured against these criteria.

Plea for a Sensible Instrument Mix

In order to achieve the requisite emissions reductions rapidly a carefully targeted instrument mix must be found for each sector consisting of regulations, market-based instruments and consumer awareness programmes. This must by all means be compulsory rather than voluntary.

The magnitude and requisite timeframe of the emissions reductions that need to be made, as well as of the necessary structural changes in economic and energy systems – especially those of the industrialised and emerging countries – require long-term strategies and systematically developed packages of policy instruments.

Possible strategies - with »strategy« defined here as the policy instrument chosen or preferred independent of particular situations or particular developmental stages – comprise the following main elements:

- The maximum energy and resource efficiency must be achieved in all sectors.

- Specific emissions-free energy sources must be identified for each sector (renewable energies in electricity generation, electricity in passenger transport, bio-fuels in air transport and so on).
- Changes in areas with particularly long-lasting capital stocks – buildings, power stations, infrastructure and so on – must be begun especially early and, if need be, complemented by other measures.
- Innovations must be initiated and brought to fruition within a definite timeframe.

It makes sense for both the consistent working out and embedding of these strategies and the configuration and safeguarding of policy processes to lay down clear short-, medium- and long-term targets for key areas of activity. In this connection, the set of targets adopted by the German government in 2010/2011 represents an interesting approach.

An effective and robust mix of concrete policy instruments, eschewing arbitrary or unrealistic theories, would have to address the following aspects:

- Many emissions reduction options are economical over the short and medium terms and can be taken advantage of easily and relatively simply by means of appropriate pricing instruments, from emissions trading to eco-taxes. The significant pricing of emissions and energy thus forms a necessary basis for any climate policy intended to reach the 2 °C target.

Table 1: System of objectives of the Federal Government

	Greenhouse gas emissions	Renewable energies		Reduction in energy needs			
		Gross final energy	Electricity generation	Primary energy	Building thermal energy	Final energy transport	Electricity consumption
2020	–40 %	18 %	35 %	–20 %	–20 %	–10 %	–10 %
2030	–55 %	30 %	50 %				
2040	–70 %	45 %	65 %				
2050	–80 to –95 %	60 %	80 %	–50 %	–80 %	–40 %	–25 %
Basis	1990			2008	2008	2005	2008



- Practical experience shows that tapping into a whole series of emissions reduction possibilities may even have economic benefits, especially with regard to energy economies. However, the necessary measures are not being implemented. Many structural obstacles – market power, information asymmetries, the user/investor dilemma and so on – mean that these emissions reduction options are not being developed or not sufficiently. Targeted additional instruments must therefore be developed and implemented for the relevant sectors (standards and support programmes for low-energy buildings, plants and equipment and so on).
- In particular for sectors with very long replacement and modernisation cycles there is a need to take climate protection measures when the relevant modernisation and replacement window opens, even if the eco-friendly replacement options have not, at that time – also taking into account the abovementioned greenhouse gas emissions and/or energy – reached a competitive cost level. Here additional specific instruments are absolutely essential, in particular if the early market introduction, on the one hand, must take advantage of a window of opportunity in modernisation and replacement cycles and, on the other hand, additional cost reductions can be achieved in this way with the relevant technologies and systems (as is the case, for example, with regard to renewable energies).
- A number of important climate protection options are strongly bound to infrastructure: some of the regions where electricity from wind energy is concentrated are far from consumption centres; decentralised generation of solar electricity has significant requirements with regard to distribution networks; and the tapping of renewable energy sources in Scandinavia or North Africa is possible only with the creation of considerable transmission capacities. In an energy supply system dominated by renewable energies, therefore, increased storage would be indispensable.
- On the one hand, the expansion and development of infrastructure must sometimes involve considerable forward-planning while, on the other hand, infrastructure development in particular is often strictly regulated and requires massive efforts to secure the requisite acceptance. If thus certain climate protection options are closely connected to the development of the relevant infrastructure the creation of technology-

specific instruments and at least a partial renunciation of technology-neutral management approaches is inevitable.

Figure 3 presents an overview of the various dimensions of a systematically developed and ambitious policy mix.

Limiting Climate Change

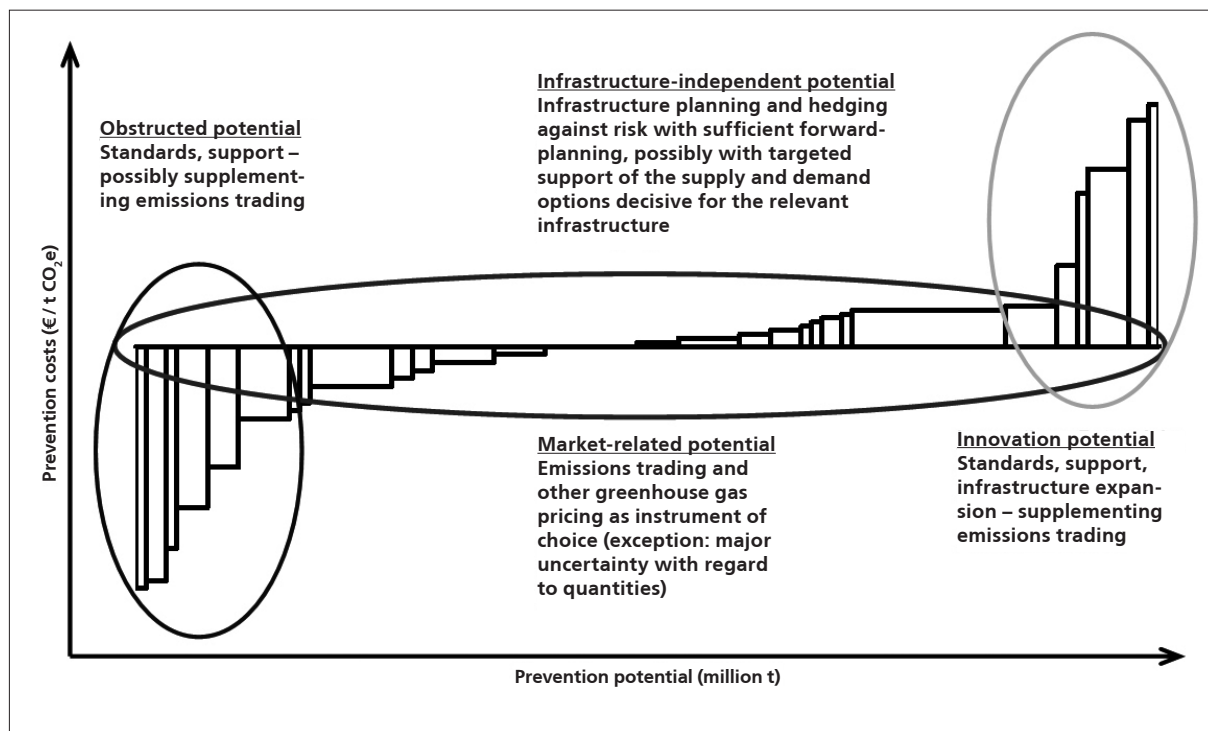
Even a rapid dissemination of important climate protection technologies in the industrialised countries cannot avert dangerous climate change if the systematic introduction of these technologies is not expedited in the rapidly growing emerging countries at the same time. The existing platforms and models of technological cooperation between the industrialised and emerging countries are far from adequate for the purpose of market penetration. Here, the international community is only on the brink of major upheavals with regard to their cooperation.

In particular with regard to expanding renewable energies and energy efficiency there is enormous potential for the benefit of both climate protection and energy security. Targeted action is possible, however, only if, as a first step, each country undertakes an analysis of the available potential, taking into consideration the relevant costs. On this basis, instruments, measures and technology roadmaps for realising the potential must then be developed. On top of that, the obstacles to introduction and widespread use of eco-friendly technologies in this context must be analysed and overcome. This includes addressing property rights in order to improve cooperation between the industrialised countries and the emerging and developing countries.

In order to avert dangerous climate change a bundle of measures are needed across policy levels: international, European and national. Technologies must be developed further, rapidly brought to market and disseminated. This is far from being a sure thing. Instead, this development must be promoted by means of clear incentive systems and policy instruments. The pricing of CO₂ in this connection is a necessary, but not sufficient instrument. Much is possible on the technical side: the major question for the future, however, is whether the need to act and the understanding of the disastrous consequences of not acting can generate sufficient political will to mobilise the key political decision-makers.



Figure 3: Schematic classification of potential groups for emission prevention and setting priorities with regard to the instruments involved



Source: Öko-Institut (2010).



Technology Transfer – Political Controversies, Successes and Implementation Difficulties

Christiane Gerstetter

The call for intensified technology transfer made by developing countries in international climate negotiations must be taken seriously. These countries, which are not mainly responsible – either historically or currently – for greenhouse gas emissions, regard technology transfer as an opportunity to obtain support from the developed countries for climate protection and adaptation, as well as for achieving sustainable development targets. Technology transfer includes, first, the transfer of technological »hardware« to other countries, but equally important is, second, the transfer of the knowledge that goes with it. Technology transfer and capacity building, therefore, go hand in hand. Private actors are regularly involved in technology transfers, especially enterprises investing in developing countries. States also have an important role, however: they establish a suitable political framework or make money available, for example, for public research. Besides the actual transfer, cooperation between developing countries and developed countries in the development of the necessary technologies and the further dissemination of existing technologies are important.

There is a broad range of climate-relevant technologies: from solar cookers which can be used in rural areas far away from electricity networks, through photovoltaic systems, to early warning systems for natural catastrophes. However, technologies for climate protection can be identified more easily than technologies used for the purpose of adapting to climate change, as adaptation frequently requires only the intensification or extension of measures already being taken for development or environmental policy reasons, such as improving irrigation systems or the building of dikes. Climate-relevant technologies are being manufactured not only in developed countries, but also increasingly in emerging countries.¹ However, technology transfer to date has been taking place mainly between industrialised and developing

countries² – moreover, technology transfer between North and South is most important also from a political standpoint.

Technology transfer, among other things, raises hopes that developing countries will at least to some extent leapfrog the stage of CO₂-intensive industrialisation and be able to bring off the expansion of, for example, energy networks in an eco-friendly fashion from the outset. However, technology transfer leads to sustainable development that is sustainable also in the social sense only if such technologies are applied in developing countries in such a way that poorer population segments also benefit from them. This doesn't always mean using the latest technologies, but sometimes rather making innovative use of existing technologies.³

UNFCCC and Technology Transfer

It is recognised in the international climate regime that the developed countries have a duty to transfer technology to developing countries. Articles 4.3 and 4.5 of the UN Framework Convention on Climate Change (UNFCCC) oblige the developed countries to transfer technologies for climate protection purposes, to grant access to these technologies or to provide financial resources for transfer, respectively. Article 4.7 of the UNFCCC even states that developing countries have to meet their commitments under the UNFCCC only to the extent that the developed countries meet their technology transfer commitments. Article 10c of the Kyoto Protocol obliges all contracting parties to develop and transfer eco-friendly technologies.

The norms mentioned here are relatively vague and contain no specific duties, but negotiations on concrete implementation mechanisms for technology transfer were part of international climate negotiations from the outset. At the

1. For example, a 2010 study found, based on data on global patents, that 15 per cent of all new technologies for reducing greenhouse gas emissions come from China and Korea: cf. Dechezlepretre et al. (2010).

2. Dechezlepretre et al. (2010) conclude that technology transfer takes place between industrialised and developing countries in nearly 75 per cent of all cases.

3. For examples from the water sector, see UNCTAD (2011).

Seventh Conference of the Parties (COP 7) in 2001 an »Expert Group on Technology Transfer« (EGTT) was created which produced studies and made recommendations. Besides that, parties to the UNFCCC agreed on various measures, such as technology needs assessments, the creation of appropriate political, economic and legal conditions for technology transfer and to provide information on available technologies and capacity building. The UNFCCC Secretariat subsequently made available a database of technologies, projects, financing sources and organisations working on technology transfer within the framework of the »Technology Clearing House – TT:CLEAR«.⁴ Further decisions have been taken at UNFCCC-COPs, for example, on the development of technology transfer indicators.

At the COP in Cancún in 2010, finally, the so-called Cancún Technology Mechanism was created, which is supposed to support technology development and transfer. The mechanism consists of two components, a Technology Executive Committee and a Climate Technology Centre and Network. The Technology Executive Committee has largely advisory functions and replaces the EGTT. The 20 members of the Committee are experts – a slight majority of them from developing countries – appointed by the COP, which was also the practice with regard to the EGTT. The Climate Technology Centre and Network has the mandate to pursue the formation of technology transfer networks. However, the treaty parties have still not reached agreement on key issues concerning the mechanism, such as its financing and relations between the Executive Committee and the Climate Technology Centre. Nevertheless, the mechanism has institutionally reinforced the technology issue. It remains to be seen, however, how effective the mechanism will be in practice.

Technology Transfer – Obstacles and Enabling Factors

There is wide agreement that climate-related technology transfer must be stepped up. This is not only a legitimate demand on the part of developing countries, whose implementation is likely to facilitate future international agreements on climate change. Intensified technology transfer is also extremely important in light of the expected extent and speed of climate change. The factors that hinder or enable technology transfer vary by country and sector.

One decisive factor is the ability of the developing countries to make good use of the technology in question. An important element here is the existing technical knowledge in a given sector in a particular country.⁵ Another important factor in technology transfer is trade regulations. According to World Bank estimates, the removal of tariffs on certain CO₂-reducing technologies in developing countries with comparatively high greenhouse gas emissions would lead to an increase in trade in these technologies of around 7 per cent.⁶ Another important factor in technology transfer is the amount of resources available for research and the dissemination of technologies. From a development point of view technological research for the benefit of poorer population segments plays an important role. Equally, existing technologies must be put to use in poorer countries. Since private actors tend to invest in the development of products for which there are larger markets and customers able to pay for them, and technology transfer via market mechanisms takes place rather in emerging than in less developed countries, public investment is needed in poorer countries in particular. Environmental regulation in the form of strict environmental standards can also promote technology transfer since enterprises must adapt to these standards and require the relevant technologies for this purpose.⁷

On the other hand, intellectual property rights – especially patents – are a controversial issue with regard to technology transfer. Company representatives and representatives of developed countries continue to emphasise that the protection of such rights is a key condition of technology transfer. Thus, according to their view, the enforcement and – where it has not yet taken place – the establishment of such rights is needed in developing countries. The latter, however, frequently put forward the view that intellectual property rights rather hinder technology transfer because they make it difficult to emulate technologies in developing countries or make technologies more expensive by imposing a license fee.

Existing empirical studies on the influence of patents on the transfer of eco-friendly technologies to developing countries do not present a uniform picture. In many sec-

4. See: <http://unfccc.int/ttclear/jsp/Technology.jsp> (last accessed on 12.3.2012).

5. Dechezlepretre et al. (2010), p. 20.

6. World Bank (2008), p. 53. Dechezlepretre et al. (2010), p. 20 also conclude that trade barriers represent an important obstacle to technology transfer.

7. See Andersen et al. (2007), p. 12; Maskus/Okediji (2010), p. 9.

tors, patents are largely concentrated in the hands of a few large companies. This includes, for example, so-called »clean coal« technologies. In wind energy, too, the companies with the most patents are the market leaders, but this is not the case in the photovoltaic sector.⁸ The wider the range of available technologies for achieving a certain aim and the greater the number of providers, the less likely it is that patents will exert a negative influence on mitigation and adaptation in developing countries.⁹ Furthermore, there are major differences between emerging countries, where companies from developed countries regularly apply for patents, and less developed countries, where this is not the case.¹⁰

At the political level, no agreement has yet been reached on the role of intellectual property rights in the transfer of climate-relevant technologies. Developing countries were not able to get a clause on intellectual property rights inserted in the decision on the Cancún Technology Mechanism because of the opposition from, among others, the United States. How such rights are dealt with in the future is a normative-political issue, due to the inconsistent picture of their effects which has been described above. Given the unequal contributions of industrialised and of developing countries to climate change and their similarly unequal adaptation capabilities it seems appropriate to design the international legal framework in such a way that developing countries are given sufficient flexibility as regards the design of their national regulations on intellectual property rights.

Technology Transfer – International Mechanisms and Instruments

The points mentioned above show clearly how much technology transfer is influenced by broader political, social and economic conditions in developing and developed countries. Add to this the fact that these conditions differ considerably in individual countries and sectors and one can see why it is difficult to develop appropriate instruments and to establish an adequate policy framework for promoting technology transfer. Recently, however, some efforts have been made in this area.

This includes international funds for financing technology transfer. One prominent example is the Clean Technology Fund (CTF).¹¹ The CTF funds the dissemination and transfer of technologies for reducing greenhouse gas emissions. It was set up in 2008 and is administered by the World Bank. At present,¹² the fund has available around 4.4 billion US dollars. From these resources projects are supported within the framework of larger investment programmes in pilot countries, none of which are Least Developed Countries (LDCs).¹³

Projects approved so far include, for example, the promotion of energy-efficient household appliances in Mexico, the improvement of local public transport in Colombian cities and investments in renewable energies in South Africa. A committee – where donors and recipient countries are represented on a parity basis – decides where the money is disbursed. The activities of the CTF are not uncontroversial. Before it was established, developing countries criticised the fact that the CTF would not be subordinate to the Conference of the Parties to the UNFCCC, in which they form a majority. It has also been criticised that civil society had virtually no influence on the formulation of the financial criteria.¹⁴ Furthermore, the CTF funds are disbursed partly as loans on extremely favourable terms, which means that ultimately the relevant projects are financed by the developing countries themselves. The idea that the developed countries make available additional funds for climate protection and adaptation would be better realised by allocations in the form of non-repayable disbursements.

Other funds to promote technology transfer include the Special Climate Change Fund run by the Global Environment Facility (GEF) and the GEF's Climate Change Focal Area.

Although technology transfer is not the primary aim of the Clean Development Mechanism (CDM), it has proved to be a relatively effective mechanism for this aim. Under the CDM, climate protection projects are carried out in the developing countries which generally involve investors from developed countries. A study analysing several

8. See Lee/Illiev/Preston (2009), p. ix.

9. See Abdel Latif (2009), slide 7.

10. See Maskus/Odeiji (2010), p. 7.

11. See: <http://www.climateinvestmentfunds.org/cif/node/2> (last accessed on 12.3.2012).

12. As of March 2011.

13. A list of these countries can be found at: <http://www.climateinvestmentfunds.org/cif/Country%20Investment%20Plans> (last accessed on 12.3.2012)

14. Ballesteros et al. (2010), p. 28.

hundreds of CDM projects came to the conclusion that in almost half the projects examined technology transfer had happened. Other studies came up with roughly comparable percentages.¹⁵ The probability of technology transfer rose when developing-country affiliates of the relevant industrialised-country company were involved.¹⁶ Given its grave development and environmental weaknesses, this does not necessarily imply that the CDM should continue in its current form.¹⁷ However, the CDM does make clear how important incentives for eco-friendly investments by developed countries in developing countries for technology transfer are.

Another, much discussed approach to facilitating technology transfer is the reduction of tariffs and other trade barriers on »green« technologies and services. Negotiations about this are ongoing within the framework of the World Trade Organisation (WTO). However, a corresponding agreement has yet to be reached. The main difficulty dogging the negotiations is the precise definition of »green technology« since most technologies can be used for a range of purposes. Furthermore, developing countries remain sceptical of a thoroughgoing liberalisation of trade in »green« technologies since such technologies are largely manufactured in the developed countries. Thus, in the first instance it is companies from the global North that will benefit economically from tariff reductions, while the developing countries may well lose customs revenues.

Summary

There is no silver bullet for improving technology transfer. Regardless of what mechanism is used, technology transfer will continue to play an important role in climate policy and international climate negotiations. However, technology transfer must not serve as compensation or a pretext for neglecting more far-reaching steps to reduce emissions in the developed countries. Technology transfer is only one component – although certainly important – of climate protection and adaptation. However, a socially and environmentally more sustainable global economy can be built only if many other components are in place.

15. See, for example, De Coninck/Haake/van der Linden (2007); Seres/Haites (2008).

16. Dechezleprêtre/Glachant/Ménière (2007).

17. For a critical evaluation of the CDM see also the contribution by Nicole Piepenbrink in this volume.

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REDDplus – Forest Conservation as an Opportunity for Development and Reducing Poverty

Kristin Gerber

Introduction

The current level of development of industrialised societies has been achieved to a considerable extent by deforestation and overexploitation of natural resources. Reducing deforestation in the global context can thus be brought about only by a major transformation of our current wealth-creation model: instead of deforestation and ruthless exploitation, long-term forest conservation and sustainable use of natural resources must be promoted. Whether and to what extent REDDplus contributes, alongside CO₂ reduction, to realising environmental-policy goals, such as reducing poverty, is determined in particular by the implementation of REDDplus activities at the national level – although a number of important measures can be taken for that purpose in terms of the Framework Convention on Climate Change. If REDDplus is deployed wisely it can also contribute to development-policy goals, for example, by promoting sustainable use of natural resources and setting up necessary institutions and structures. However, REDDplus cannot substitute for tried and tested programmes for fostering development and reducing poverty, which remain extremely important.

The Global Importance of Forests

The Forest Is an Important Basis of Life

People have depended on forests for their survival since time immemorial. Forests are both habitats and sources of food, they provide firewood and medicines and represent an economic foundation for hundreds of millions of people. Worldwide, around 1.6 billion people live directly or indirectly from forests which, as linked, self-organising and delicate ecological systems, are indispensable for the functioning of societies, locally, nationally and internationally. Forests are important for various hydroclimatic processes, such as buffering temperature extremes or controlling evaporation processes. They also contribute to soil protection, (drinking) water quality and

protection against natural hazards (avalanches, landslides, floods). Furthermore, forest ecosystems form the largest terrestrial carbon reservoirs and sinks and are thus an important climate regulator in combating global climate change. Large quantities of carbon dioxide are stored in its biomass which is released again when forests are destroyed. In addition, forest ecosystems harbour the largest proportion of the earth's biodiversity.

Approximately one-third of the earth's surface is covered with forest. Over half of this comprises subtropical or tropical forests, located in the global South. Many tropical forest countries are among the poorest in the world and also those hardest hit by climate change. Tropical forests or their fringes are inhabited primarily by indigenous population groups and small farmers: their cultural and economic existence is intrinsically interwoven with the use of forests. Forest products today provide between 50 and 90 per cent of the income of poor population groups.

Forest Conservation for Climate Security

By deforestation we mean the destruction and conversion of forests to other forms of land use. Degradation – in other words, damage to forest areas – designates the gradual deterioration of the state of the forests, which both considerably reduces the functionality of the ecosystem – and thus also its ability to withstand climate change – and threatens biodiversity.

According to the UN's Food and Agriculture Organisation (FAO), every year around 13 million hectares of forest are lost worldwide, which is the equivalent of a forest area the size of England. In tropical forest areas in particular deforestation is proceeding very rapidly. The emissions from deforestation and damages to forest areas constitute from 17 to 20 per cent of the accumulation of greenhouse gases in the atmosphere. Thus activities in the area of land use change and forestry are more ecologically harmful than the entire transport sector. This unsustainable overexploitation of natural resources is being driven

primarily by the expansion of agriculture (for example palm oil production in Indonesia, soya production and the associated road-building and livestock farming in Brazil), and the growing need for wood and cellulose resulting from the consumption patterns of the industrialised countries and, increasingly, the developing and emerging countries. But the infrastructural development of forest areas itself is also increasingly leading to forest depletion.

If global warming is to be kept below the generally agreed critical limit of 2°C, global binding regulation to protect the forests is indispensable for climate protection and conserving biodiversity.

REDDplus – Incentive for Sustainable Forest Use and Forest Conservation

It was agreed at the climate summit in Bali in 2007 that an incentive mechanism would be established for the purpose of sustainable forestry and forest conservation to enable developing countries to contribute tangibly to climate protection. Under REDDplus – Reducing Emissions from Deforestation and Degradation – emissions from deforestation and degradation, as well as aspects of forest conservation, sustainable forest management and enhancement of forest carbon stocks as a climate protection instrument are included within the framework of the UNFCCC. REDDplus is intended to provide an economic incentive for tropical forest countries to take policy measures and develop strategies to help to reduce emissions due to deforestation and forest degradation. The idea behind this approach is based on the ecosystem service of forests to absorb carbon dioxide. In order to provide an incentive for sustainable forest use and forest conservation, stored or unreleased carbon is to be given an economic value. At present, negotiations are ongoing within the framework of international climate protection efforts concerning the conditions under which developing countries can receive financial and technical support for REDDplus and how this approach can be integrated in countries' overarching development strategies.

Status of REDDplus Negotiations

At the climate summit in Cancún (Mexico) in December 2010 a first package of measures on rainforest conservation was agreed, setting out REDDplus's international

targets, as well as incentives and obligations for both developing and industrialised countries. However, the agreement is imprecise on essential details: How is funding to be ensured over the long term? How are the necessary protection measures for biodiversity and human rights to be implemented while ensuring transparency? How are reference emissions levels to be set (in other words, the emissions level with reference to which countries should reduce CO₂)? How should the monitoring, reporting and verification systems be designed? How should the drivers of deforestation be addressed? These questions were due to be discussed and negotiated at the climate summit in Durban (South Africa) in December 2011. Expectations were only partly met, however.

After long and tough negotiations on the long-term financing of REDDplus the decision was in the end left open and postponed to the next climate summit, at the end of 2012. The text of the decision manages to link conditionalities of financial support to REDDplus projects: according to paragraph 64¹ the protection measures agreed in Cancún on safeguarding environmental integrity and protecting human rights must be demonstrably complied with and it must be possible to comprehensively measure and report activities and results if countries wish to participate in the incentive mechanism. However, the task of analysing the various funding sources established in Cancún was further postponed. In the text of the decision (paragraph 65) the various financing options for REDDplus are listed (public, private, bilateral, multilateral and alternative sources), but without making recommendations on which financing possibilities are compatible with forest and climate protection targets. The negotiations on mandatory reporting on protection measures (safeguards) for biodiversity and human rights led to no further agreements,² contrary to expectations. Safeguards are binding regulations that are supposed to ensure that the environment and biodiversity are protected and human rights observed. The Durban text offers no more support in this connection: the decision does not create a binding international framework within which safeguards with regard to REDDplus activities are to be monitored and reported on, but rather leaves it up to individual countries to decide how protection measures are to be implemented. Furthermore, countries are

1. See: http://unfccc.int/meetings/durban_nov_2011/session/6451/php/view/documents.php (last accessed on 12.3.2012).

2. See: http://unfccc.int/methods_and_science/lulucf/items/4123.php (last accessed on 12.3.2012).

only required to prepare a summary of the information they have gathered instead of having to report formally and on a standardised basis to the Framework Convention on Climate Change. Furthermore, it is a pity that countries have so far not been able to agree on further success criteria for REDDplus activities, apart from the annual reduction of CO₂.

Although climate negotiations have not led to concrete agreement on the design and funding of REDDplus, around 100 (pilot) projects are already under way worldwide. Germany, too, is supporting around 40 REDDplus-relevant projects in developing countries in order to gather experience in this domain and to build up or strengthen the necessary capacities and infrastructure in the relevant countries. For the years 2010 to 2012 the German government has promised at least 350 million euros to promote REDDplus within the framework of the UNFCCC negotiations. Besides numerous bilateral funding agreements a large proportion of REDDplus money flows through various unilateral and multilateral funds and initiatives, such as the Amazon Fund, the Forest Investment Program and the World Bank's Forest Carbon Partnership Facility, as well as the Congo Basin Forest Fund and the UN REDD Programme. The largest recipient countries of international REDDplus support include Brazil, Indonesia and the Democratic Republic of Congo.

Forest Climate Protection for Development and Reducing Poverty

Forests, their functions and products are indispensable for our socio-economic systems. Unless we protect the forests and reduce emissions from activities involving the non-sustainable use and conversion of forests there will be a dangerous rise in temperature and thus effective climate change mitigation will no longer be possible. REDDplus therefore has a decisive role in preventing dangerous climate change, which would have grave consequences for the development of – especially – poorer countries. Furthermore, REDDplus can also make a major contribution to protecting biodiversity and the maintenance – and perhaps even the improvement – of forest ecosystem services.

The maintenance of these forest ecosystem services – from global hydroclimatic processes to local erosion protection – is of tremendous significance. However, they

represent part of the ecological foundation upon which all our socio-economic systems are built. This means that REDDplus contributes to the preservation of future development opportunities.

The tried-and-tested programmes of development aid and poverty reduction remain extremely important: the REDDplus mechanism is in no way intended to replace them. However, in some areas – such as rural development – REDDplus certainly has the potential to have an effect on reducing poverty.

Political agreements on REDDplus must therefore be holistic and integrated. That means that they must take all relevant systems into account and develop and implement joint problem-solving solutions with the relevant actors, including political decision-makers at various levels, the private sector and civil society (especially communities and indigenous population groups that depend on forests). Organised in this way, REDDplus has the potential to make a considerable contribution to protecting the climate, forest ecosystems and their biodiversity, as well as social living and economic environments. REDDplus will not be able to resolve all the problems or structural and social difficulties that lead to deforestation. As noted in the Introduction, today's state of development of industrialised societies has been achieved to a considerable extent by deforestation and overexploitation of natural resources. Reducing deforestation in the global context can thus be brought about only by a major transformation of our current wealth-creation model: instead of deforestation and ruthless exploitation, long-term forest conservation and sustainable use of natural resources must be promoted. In particular, it is the consumption patterns of global middle and upper classes that for decades have driven deforestation and increasing destruction of intact forest ecosystems in developing countries. Whereas incentive-based approaches in tropical forest countries can build up and strengthen national structures and policy measures for the protection and sustainable use of forests, additional international policy measures are needed – for example, reduction of ecologically harmful agricultural subsidies, consumer awareness, halting sales of non-sustainably produced wood and agricultural products, import bans on illegally logged and traded timber – in order to address the causes of deforestation (demand for certain products) at the global level.



Challenges from a Development-policy Perspective

Given the close interlocking of forest ecosystem services and forest products with the social and economic systems of tropical forest countries attention must be paid to development-policy feedback effects and risks when implementing REDDplus measures. There are a number of challenges facing the implementation of development-oriented REDDplus projects.

First, adequate and extensive participation of all relevant actors must be ensured in the development and implementation of REDDplus.

The population – paying particular attention to indigenous and forest-dependent groups – must be given the opportunity to participate in decision-making. This requires that they are fully and adequately informed from the beginning of the planning stage and are given sufficient time to reach an understanding of and examine the mechanism in all its complexity. This demand is in line with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which contains the right to self-determination and thus to free, prior and informed consent.

A development-promoting REDDplus mechanism should also guarantee that the revenues and benefits arising from REDDplus projects are fairly and appropriately distributed (benefit sharing).

The construction of a fair distribution system in REDD countries represents a major challenge.

The cornering by narrow elites of profits from REDDplus and the valorisation of forest ecosystem services and the fostering of corruption must be avoided.

In the assessment of national opportunity costs negative effects must be avoided for the particularly poor and forest-dependent population in REDD countries. In order to make forest conservation and sustainable management more economically attractive to the countries concerned than destructive forms of land use – such as exploration for raw materials or the cultivation of enormous palm oil plantations – the forgone opportunity costs should at least be compensated by the REDDplus mechanism. The incentive system must not overlook the financial and technical support of small farmers, the lo-

cal population and indigenous people: precisely those whose lives are directly affected by land use reforms due to REDDplus must be provided with alternative forms of income and utilisation. Otherwise, the compensation would favour activities with a high level of forgone economic value and crowd poor population groups out of the REDDplus system.

Furthermore, negative effects on food and commodity prices due to the extensive application of REDDplus must be avoided and the local population's food security must not be jeopardised. Depending on the land use strategies of the relevant country REDDplus could come into competition for areas of land used for food cultivation or stockbreeding and crowd out these forms of land use despite the fact that the need for food security would remain unchanged or even increase. Such competition for land could lead to national and international price increases for agricultural products as supply fell while demand increased. This would particularly affect poorer segments of the population who, as small farmers, would be able to cultivate their agricultural products only with difficulty and be hit by rising food prices as consumers. REDDplus strategies – such as promoting forest conservation as against agricultural use – should therefore be integrated in national land use plans or planned on that basis.

Furthermore, in working out and implementing REDDplus strategies the land and utilisation rights of the local population should be fully taken into account and guaranteed. If forest conservation and the sustainable use of forests by REDDplus systems becomes more economically attractive than other forms of land use this must not lead to forest-dependent population groups being driven from their land or losing their right to use forest areas. Since many people depend on the forest such expulsions could lead to conflicts and further impoverishment. Effective forest conservation approaches must not regard those who live in forest areas as a threat to the forest or as a disruptive factor for REDDplus activities. Rather such approaches can be successful over the long term only if they are participatory and involve local communities. Accordingly, REDDplus implementation strategies should in particular protect the needs and rights – for example, to food and shelter – of marginalised and especially vulnerable groups and together with them develop, if need be, alternative use and income opportunities. To this end,

existing and historical rights, as well as current or past conflicts should be taken into consideration in national REDDplus strategies. It is also important to prevent third-parties from acquiring forest areas illegally on the basis of land and utilisation rights that in many tropical forest countries are unclarified in order thereby to benefit from the economic advantages of the REDDplus system. Illegal land acquisition (»land grabbing«) must therefore be addressed by means of policy measures and managed within the framework of REDDplus monitoring and reporting activities.

Good governance and combating corruption in the REDDplus countries are also important in effective project implementation. Over the medium to long term, capacities and institutions should be built up in these countries to ensure permanent forest conservation and sustainable use. National revolving financing mechanisms could, for example, help countries to fund forest conservation or REDDplus measures over the long term without being dependent on international aid.

The REDDplus architecture must ensure transparency in order to be able to keep track of cash flows and their employment, but also revenues and benefits arising from REDDplus measures, thereby reducing the risks of corruption and the misdirection of funds locally.

REDDplus policy measures and activities should include the development dimension and tap potential for fighting poverty, both direct and indirect. Forest-dependent population groups should thus represent an important target group in the policy strategies and forest and climate protection concepts. Furthermore, a country's REDDplus policy approaches should be agreed on an interministerial basis and exhibit a high level of coherence with regard to other policy measures, for example, in agriculture, infrastructure policy or the national climate protection and adaptation strategy.

An important challenge which should be emphasised here once again is the much discussed option of financing REDDplus measures via the obligatory carbon market. This would involve trading CO₂ reductions measurable by REDDplus in the form of reduction certificates which then could be bought by emitters and used to meet their emissions reduction obligations. Thus the inclusion of REDDplus in the carbon market would enable industrial sectors, instead of actually exerting themselves

to avoid greenhouse gases, to drape their unchanged ecologically harmful activities with a »green« veil. In this way, however, global emissions would not be reduced and industrial sectors would have no need to reorganise their production and services as rapidly as possible in a low carbon direction. This would completely devalue the polluter-pays principle and make a mockery of a global climate protection agreement. However, the protection of biodiversity and the promotion of rural development would also at best be pleasant side-effects under such a funding mechanism since the market follows the logic of the most economically efficient option, not the highest quality or most effective one.

Opportunities for Development and Poverty Reduction

REDDplus has the potential to realise opportunities for development and poverty reduction. The acceptance by all actors – especially the particularly vulnerable countries – of a voluntary forest climate protection mechanism can be heightened by emphasising the development policy perspective and the political will to make binding contributions to climate protection can be increased. If REDDplus is internationally binding for developing countries the long-term environmental and climate risks can be reduced, such as the shifting of deforestation activities to other regions or countries (leakage), a change of policy back to intensive use of forest ecosystems (permanence) or the embedding of REDDplus in inconsistent national policy programmes.

There are three higher-level areas in which the connection between REDDplus and development/combating poverty can be illustrated, and in which its potential is to be maximised:

1. *Fairness and acceptance of responsibility* play an important role in improving the situation of particularly vulnerable population groups. This includes the right to fair sharing of the benefits arising from REDDplus. This reinforces people's acceptance of responsibility for forest protection. The question of fairness also encompasses the industrialised countries' acceptance of responsibility for historical greenhouse gases and the associated global climate change processes, as well as overexploitation of natural resources and the constantly rising need for agricultural products.

2. *Revenues and growth* resulting from REDDplus in the developing countries are linked to both financial and non-financial benefits. Financial benefits from REDDplus can result, for example, from direct payments for ecosystem services or for safeguarding jobs. Non-monetary benefits arise from improved infrastructure or environmental protection benefits due to forest protection or sustainable cultivation methods.
3. *Active participation* of the population – especially local communities and particularly vulnerable population groups – is essential for long-term success and to increase people's willingness and sense of responsibility for meeting targets in communities and relevant population groups. Options for realising these opportunities for rural development include approaches such as community-managed forestry (CMP) or payment for ecosystem services which are intended to safeguard the participation, acceptance of responsibility and fair distribution of benefits from REDDplus measures for local population groups.

Basically, REDDplus offers the possibility of breaking through the barriers between industrialised and developing countries as regards development cooperation, which is often still based on the traditional donor-recipient mentality. REDDplus is voluntary and represents something offered to developing countries that they can take up or not. Based on an economic development approach an incentive is provided to protect the rainforests which makes it very much in countries' interest to participate in REDDplus.

Summary and Recommendations

The design and potential effects of REDDplus are still difficult to discern because this climate protection instrument, together with its internationally established guidelines and funding mechanism, are still the object of climate protection negotiations. However, it is becoming clearer that the negotiations on REDDplus will find it difficult to withstand the strong pressure of international expectations. It is abundantly clear that the developing countries wish to preserve their own sovereignty and do not want to be subject to far-reaching international regulations. This also means, however, that it is becoming difficult at the international level to plot the likely effects of REDDplus with regard to climate protection, protection of biodiversity and sustainable development. It should be

decided internationally whether REDDplus, in accordance with the no-harm principle, should merely not impair the situation of particularly vulnerable population groups or whether the forest climate protection mechanism should make an active contribution to sustainable development and combating poverty. To the extent that the UNFCCC does not lay down a legally binding framework for either of these options REDDplus measures in developing countries could also lead to negative effects on the local population, as well as the deterioration of the situation of particularly vulnerable groups (for example, food security, access to resources and land, free codetermination). Even if some important groundwork was done at the level of the Framework Convention on Climate Change it will be primarily the implementation of REDDplus at national level that will determine its benefits for cooperation and poverty reduction. The development perspective at local and national level must be closely integrated in the REDDplus plans: in the development of the reference level, the evaluation of benefits, the ways in which REDDplus money is distributed, the clarification of traditional land and utilisation rights and national land use planning. If national REDDplus strategies and structures are not interlinked with national development plans for a sustainable future for tropical forest countries REDDplus will not fulfil its potential and deforestation and degradation cannot be halted over the long term.

For all its potential, REDDplus thus remains only part of the policy measures needed across all sectors and at all levels to address the causes of deforestation.

However, it must be stressed that REDDplus represents the first international approach to protecting forests through the valorisation of ecosystem services, thus for the first time offering an economic incentive to developing countries to engage in activities and take policy measures to protect their natural assets. CO₂ reduction, however, must not be the sole focus of support, but must be supplemented by many other forest ecosystem services, such as jobs, habitat, erosion protection, water storage and so on. These so-called »services« were examined and quantified in, for example, the study »The Economics of Ecosystems and Biodiversity«. Systems that reward the protection of environmental benefits are already being tested successfully throughout the world. The climate negotiations should take account of these experiences in agreements on REDDplus and the design of an international REDDplus financing mechanism.



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What Is Climate Justice?

From Principle to Political Practice

Thomas Hirsch

Introduction

Although definite progress was made in the negotiations at the seventeenth World Climate Conference in Durban, South Africa, the breakthrough needed to prevent global temperature from rising above 2°C and avert dangerous climate change was not made. Thus, undoubtedly the most noteworthy success was the agreement reached at the end as a result of the combined pressure of a majority of EU member states and the most vulnerable developing countries to negotiate a climate agreement by 2015 that would include internationally binding obligations for all states from 2020 at the latest. Among its major weaknesses, however, was the fact that virtually no country showed itself particularly keen on doing more to mitigate climate change before that.

In this context, the question of what contribution to reducing greenhouse gas emissions and climate financing can equitably be expected from each individual country is more important than ever. It is therefore not surprising that the issue of »climate justice« – raised emphatically by, among others, India – played a major role during COP 17 and in the assessment of its achievements. Furthermore, we can expect that in coming years the issue will gain increasing significance and make the transition from principle to political practice and ultimately become a measurable standard.

The Kyoto Protocol's simple division of the world into emitting countries with an obligation to take action (so-called »Annex 1 countries«) and affected countries that have entitlements but few obligations (»non-Annex 1 countries«) is to be rendered obsolete by the new agreement. All countries must act. However, the fact that no reference is made to the Rio principle of »common but differentiated responsibility« in the Durban closing document¹ has already given rise to heated debate. Will this principle cease to apply in future? Will common responsi-

bility be emphasized while differentiated responsibility is played down or even eliminated from the new treaty altogether? In Durban it became clear that the question of fair distribution must be raised anew, addressed in a very differentiated way and, in the end, answered clearly. Justice will have to be realised in climate policy. Thus a concern that was long ignored by the industrialised countries and has, at the latest since Bali (2007), been raised decisively by the developing and emerging countries and sometimes also exploited, has since Durban matured into a topic of negotiation which in the long term no one can evade. The various parties remain poles apart, even irreconcilable. Nevertheless, a solution must be found by 2015. This makes it even more important to examine the issue more closely and to conduct a nuanced debate.

Defining »Climate Justice«

»Climate justice« means acknowledging that each person on earth enjoys equal rights of use of the atmosphere, regardless of national affiliation, age, gender, race or religion. In keeping with this, the overall burden imposed on the atmosphere by greenhouse gases must be limited so that mean global warming remains below 2°C, but if at all possible does not exceed 1.5°C. »Climate justice« also involves common responsibility for avoiding damage due to anthropogenic global warming as far as possible, but to the extent that it does occur, providing appropriate compensation. The principle of »common but differentiated responsibility« applies with regard to mitigation of climate change, adaptation and compensation, with the differentiation being based on responsibility for causing the problems in the first place as well as current coping capacity.

Climate Justice as a Matter of Burden Sharing

In light of this definition it is clear that »climate justice« is not static. The German government, for example, is committed to the goal of a fair share of use of the

1. See http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_durbanplatform.pdf (last accessed on 30.1.2012).



atmosphere for all set at 1–2 tonnes of emissions per year by 2050. In other words, it is committed to bringing into line the extremely unequal national distribution of per capita emissions which currently range from below 1 tonne (for example, the majority of African states) to more than 20 tonnes (including the United States and many of the oil exporting Arab states). From this it follows that different countries bear different levels of responsibility, depending on whether they still have any upward leeway with regard to emissions or in one way or another need to reduce emissions.

The WBGU's so-called »budget approach«² proposes that by 2050 the remaining global emissions budget should be determined on the basis of equal per capita emissions rights and thus in accordance with the total population of each country (demographic reference year 2010), broken down into compulsory and objectively verifiable national emissions budgets. In principle, therefore, this is a logical derivation from the principle of equal per capita rights, which is also recognised by the German government. However, the German government has rejected this as not politically feasible. This rejection is also undoubtedly due to the fact that implementation of the budget approach would entail that the developed countries in particular would have to reduce their emissions much more rapidly and more intensively than currently planned. Assuming a continuance of annual emissions on the level of 2008, Germany's carbon budget would already be exhausted if 1990 was taken as reference year for the remaining budget. Taking 2010 as the reference year, by contrast, the business-as-usual-scenario could be stretched to 2020. In the cases of China, Brazil or Burkina Faso, however, the difference based on reference years 1990 and 2010 is – in absolute or relative terms – only a few years: China 26/24 years, Brazil 55/46 years and Burkina Faso 2810/2892 years.³

A sometimes intense debate has broken out concerning the reference year for determining just burden- or effort-sharing as regards the future distribution of emissions rights. Many countries – despite its relatively low practical relevance, as demonstrated by WBGU – consider it

a fundamental question of justice. Generally speaking, many states are calling for 1990 to be taken as reference year, on the grounds that the problem of global warming – caused by excessively high anthropogenic greenhouse gas emissions – has been known since 1990 at the latest.

The states of the ALBA group, as well as a number of African states go much, much further with regard to determining a »just« reference year, however, demanding that it be set at the very outset of industrialisation, taken as 1750.⁴ They base this on the clear-cut increase in anthropogenic emissions in the nineteenth century as a consequence of the industrial use of fossil energy sources. On this interpretation, the carbon budgets of the developed countries ran out long ago and thus they are in carbon or ecological debt to the developing countries. The ALBA group thus demands financial compensation for this in the amount of several hundred billion US dollars.⁵ This demand, too, is derived from the principle of climate justice.

What all these approaches have in common is their exclusive appeal to the dimension of burden or effort sharing in the definition of »common but differentiated responsibility«, in other words, to the matter of who will bear what burden in respect of the necessary emissions reductions and adaptation.

As a result of this controversy concerning the just distribution of the burden a face-off has emerged in the political process between the old industrialised countries and the developing countries.

Climate Justice as a Matter of Risk Sharing

Limiting climate justice to a matter of burden sharing and deriving a set of political demands on that basis is rather one-dimensional. Christoph Bals (*Germanwatch*), by contrast, rightly argues against it and calls for the inclusion of another dimension, risk sharing.

This demand is based on the realisation that individual countries – and population groups in these countries – have different degrees of vulnerability as regards the ne-

2. See WBGU (2009): *Solving the Climate Dilemma: The Budget Approach*, Special Report; available at: http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/sondergutachten/sn2009/wbgu_sn2009_en.pdf (last accessed on 12.3.2012).

3. See Brot für die Welt (ed.) (2010): *Cashing-up for a New Global Climate Treaty*, Aktuell 07, p. 2, available at: http://www.brot-fuer-die-welt.de/downloads/fachinformationen/facts07_englisch.pdf (last accessed on 12.3.2012).

4. See Bolivia's UNFCCC Submission, pp. 18ff., available at: <http://unfccc.int/resource/docs/2010/awglca10/eng/misc02.pdf> (last accessed on 12.3.2012).

5. Ibid., pp. 23f.

gative impact of climate change. Very different risk profiles ensue from specific combinations of geographical risk exposure to climate-related extreme events (sudden onset change), such as droughts, floods or tropical cyclones; less evident, but long-term no less risky, creeping changes (slow onset change), such as salinisation, rising sea levels or agroclimatic changes; and the specific resilience of individuals, population groups and countries. The World Risk Report 2011 – prepared by the Institute for Environment and Human Security of the UN University on behalf of Brot für die Welt, Medico International, Misereor, Terres des Hommes and Welthungerhilfe – shows countries' different levels of vulnerability in the form of an index. In the »most vulnerable« group (with an index of over 70 per cent) there are 13 countries: Afghanistan, Haiti and 11 African countries, all belonging to the group of least developed countries (LDC). Below this group there are another 25 African, eight Asian and two Oceanic countries – with indices between 60 and 70 per cent – at very high risk. None of these is a developed country and only one – India – is an emerging country.

Two things are decisive for countries at risk in terms of climate policy. First, financial and technological support to help them cope with unavoidable climate change: preventive catastrophe and risk management, adaptation to the long-term consequences for agriculture, water supply infrastructure and so on, as well as compensation for unavoidable losses, such as in the case of climate-related migration. Second, rapid action on the part of all emitters to reach the peak year for emissions as soon as possible and thus to avoid exacerbating risks. In other words, it is less important for this group how the remaining carbon budget is distributed between the major emitters, developed and emerging countries alike. For them what needs to be negotiated is not burden or effort sharing, but rather the fastest possible emissions reduction and financial support to limit their own risk or to bring about fair international risk sharing.

In the actual political process the line of conflicts of interest with regard to risk sharing tends to lie between the major emitters – developed and emerging countries – and the most vulnerable countries (Sub-Saharan Africa, the AOSIS states, (sub)tropical mountainous countries and poor countries with low lying coasts). Accordingly, viewed from this perspective, there is a different understanding of what can be considered just with regard to climate matters.

Climate Justice as a Matter of Opportunity Sharing

Besides its many risks, however, the climate crisis also harbours opportunities. As with all changes, there will be winners and losers. This applies not only to states, but also to social groups, branches of industry and companies within states. Accordingly, the winners and losers of modernisation processes will answer differently the question of what kind of climate policy is just. For this reason, Christoph Bals proposes opportunity sharing as a third dimension of climate justice.

Because the challenge consists in carrying out the global transformation from the era of resource-consuming and carbon-intensive growth to an era of resource-efficient and low carbon economies, economies which are already energy- and resource-efficient have a head-start. This means that they are more likely to agree to ambitious conditions than less carbon efficient states that fear a loss of competitiveness. Although it is difficult to draw comparisons on the basis of carbon intensity per unit of GDP it is nevertheless clear that there are considerable differences and clear tendencies here: global mean carbon intensity stands at 0.47 t/1000 US dollar GDP. Among the developed and emerging countries Brazil (0.21), the EU15 (0.28) and Germany (0.32) are very efficient; in the mid-range lie Vietnam (0.45), India (0.47), the United States (0.47) and Indonesia (0.49); and comparatively inefficient countries include the (coal) states Australia (0.58), South Africa (0.83) and China (0.95). Most LDCs are below 0.15.⁶

From this perspective, climate justice would demand the establishment of incentives to take advantage of opportunities. Without promoting agents of change the requisite willingness to innovate and invest cannot be mobilised for the purpose of decarbonisation. Needless to say, thought must also be given to how actors that are willing to innovate, but constrained by a lack of resources can be supported by means of technology, knowledge and financial transfers. Here, North-South partnerships suggest themselves.

In the actual political process the line of conflicts of interest with regard to opportunity sharing tends to be

6. See Brot für die Welt (ed.) (2010): *Dekarbonisierung und Grenzen des Wachstums*, Analyse 19, p. 12.



drawn between efficient decarbonisation winners that are able and/or willing to innovate and potential losers. The boundaries are very fluid, however, and probably not so much between states as within them. Only countries whose prosperity depends decisively on fossil energy exploration and which do little to diversify are likely to be among the losers, which means that – unless they change their development model – they will probably be among the main obstructionists in international climate policy.

Provisional Conclusion

Climate justice has many dimensions and some subtlety is needed in its examination and analysis, as well as to make it politically tractable. Only a multidimensional approach can bring this off, whereas one-sided reductions could lead to simplifications and in political practice frequently to forms of interest-driven manipulation. In particular, reducing things to a matter of burden or effort sharing with regard to mitigation will not be adequate to the complexity of the problem – and certainly not to the interests of particularly vulnerable countries. However, this one-sided view is widespread – it is even adopted uncritically by many civil society actors. In extreme instances, this can legitimise inaction on the part of states and groups of states on the grounds of a step-by-step approach that may be justified on the basis of an ethics of conviction but no longer on the basis of an ethics of responsibility: in other words, »until those whose responsibility is greater than ours do not take action we won't do anything either«. The victims of such a strategy – for which justification is readily available on the basis of the principle of climate justice and which could lead to the total breakdown of negotiations – would be the very population groups and countries most in need of protection. The main beneficiaries, by contrast, would be those least interested in a global transformation and an ambitious and fair agreement, binding under international law, namely a small group of oil-exporting countries.

Conversely, a differentiated approach to and application of »climate justice« harbours an opportunity to pursue an ambitious and credible climate policy with partner countries. Thus, different groups of countries could identify among themselves, via a common understanding of climate justice, overlapping interests sufficient to enable them to develop progressive policies together.

Natural partners in such alliances would be (i) countries that are willing in principle to take on a fair proportion of burden-sharing, both financially and in terms of emissions reductions; (ii) countries at high risk calling for rapid progress in negotiations linked to an early peak year; and (iii) countries and actors that are innovative and opportunity-oriented in the areas of renewable energies, energy efficiency and environmental and adaptation technologies.

The new alliance formed in Durban between EU states and states particularly hard hit by climate change indicates that such a coalition has the potential to take on a pioneering role in international climate policy, spanning different political blocs, as well as to break the deadlock, initiate change and implement a climate policy that can be considered fair in all three dimensions. It is worth pursuing climate diplomacy in the spirit of such an alliance: at government level, among parliamentary politicians and in international civil society.



How much Is 100 Billion US Dollars?

Climate Finance between Adequacy and Creative Accounting

Wolfgang Sterk, Hans-Jochen Luhmann and Florian Mersmann

Introduction

Climate finance is one of the core issues in the negotiations on a future climate regime. Developing countries have called for the transfer of financial resources from industrialised countries to enable them to engage in mitigation and adaptation actions since the outset of the international climate negotiations at the beginning of the 1990s. The rationale is twofold. First, about three-quarters of the anthropogenic greenhouse gases (GHGs) that have accumulated in the atmosphere since the start of industrialisation were emitted by the industrialised countries. Hence, the industrialised countries are mainly responsible for creating the climate problem. Second, the industrialised countries have a much greater economic capacity for taking action than developing countries, most of which are still struggling to combat endemic poverty, not least due to the legacy of colonial exploitation.

Article 3 of the United Nations Framework Convention on Climate Change (UNFCCC) therefore commits industrialised countries to take the lead in combating climate change. As part of this leadership role, Article 4 of the UNFCCC and Article 11 of the Kyoto Protocol both mandate the Parties listed in Annex II of the Convention¹ to provide »new and additional« financial resources to developing countries to support capacity-building, development and transfer of technologies, mitigation of greenhouse gas (GHG) emissions, adaptation to the impacts of climate change, economic diversification and so on in developing countries (Articles 4.3, 4.4, 4.5 and 11 of the UNFCCC, Article 11 of the Kyoto Protocol).

Despite these commitments, the actual amount of resources provided by industrialised countries so far has been relatively small. The 2010 World Development Report puts the climate finance currently provided by industrialised countries at around 10 billion US dollars annually (World Bank 2010).

However, the environment for the negotiations has changed significantly in recent years. Annual – not cumulative – emissions of developing countries have now surpassed those of industrialised countries and are rising steadily. Strong mitigating actions on the part of developing countries are therefore indispensable to prevent dangerous climate change, which puts developing countries in a significantly stronger negotiating position than before. As a consequence, the Bali Action Plan adopted at the 2007 UN climate conference in Bali contains the provision of financial resources as one of the key building blocks of the future climate regime, and clearly conditions mitigation actions by developing countries on adequate financial support from industrialised countries.

While there are various negotiation items related to climate finance, they ultimately all relate to two main topics: mobilisation of the needed amount of financial resources and the institutional structure of funding.

As for the mobilisation of resources, at the UN climate conference in Copenhagen the industrialised countries pledged up to 30 billion US dollars for fast-start finance over the period 2010–2012 and a long-term commitment to »mobilise« 100 billion US dollars per year by 2020 »from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources« (UNFCCC 2010). Although not stated explicitly in the text, one may assume that there is an implicit understanding that funding after 2020 will also be at least 100 billion US dollars per year. There was also a general agreement in Copenhagen to establish a new fund. However, developing countries fear that financing will come from existing sources – for example, by relabeling official development assistance (ODA) – instead of being »new and additional«.

To promote the finance discussion, UN Secretary-General Ban Ki-moon in February 2010 established a High-level Advisory Group on Climate Change Financing (AGF). The AGF was chaired by Prime Minister Meles Zenawi of Ethiopia and Prime Minister Jens Stoltenberg of Norway and composed of eminent experts such as

1. These are essentially the member states of the Organisation for Economic Cooperation and Development (OECD) as of 1992, the most wealthy among the industrialised countries.



George Soros and Lord Nicholas Stern. The task of the AGF was to evaluate options with regard to how to mobilise the 100 billion US dollars pledged in the Copenhagen Accord. The AGF published its report in November 2010 (United Nations 2010). The report concludes that mobilising 100 billion US dollars is »challenging but feasible«. It emphasises innovative public sources that could yield a double dividend in terms of mobilising funds and incentivising emission reductions, such as carbon taxes and auctioning of emission allowances from emission trading systems.

However, while the AGF report provides an important point of orientation, key questions are still unresolved. One question is whether the 100 billion US dollars are to be taken as gross or as net flows. The pledges from Copenhagen and the following UN climate conference in Cancún are not clear on this point and the AGF report notes that its members were divided on whether gross or net flows should be counted. This issue is relevant, for example, when financing is provided in the form of loans. Should the full volume of the loan be calculated towards the 100 billion US dollars or only the extent to which the terms of the loan are more favourable than commercial loans, the so-called »grant equivalent«?

In addition, the 100 billion dollars are supposed to come from public and private sources, which raises the question of how private finance should be counted. The AGF report notes that here again its members were divided. Yet another question is whether financial flows from emissions trading – such as the Kyoto Protocol's Clean Development Mechanism (CDM) – may be counted towards the 100 billion target. The purpose of the CDM is to help industrialised countries meet their Kyoto targets by allowing them to substitute emission reductions on their own territory by emission reductions in developing countries. That is, emission reductions through the CDM are counted towards industrialised countries' emission targets, not towards the emission reduction pledges of developing countries. Some AGF members therefore held that flows through mechanisms such as the CDM should not be counted. Others were of the opinion that they should be counted as they are policy-driven transfers.

The relevance of these ambiguities is highlighted when one looks at the fast-start finance provided so far by industrialised countries. Most have uploaded data on the website www.faststartfinance.org. Many countries indi-

cate that their funding is supposed to leverage additional private financing but do not count this leveraged finance against their pledges. By contrast, Japan counts the full volume of leveraged private finance against its pledge. Japan also counts the full volume of the loans it provides, while for most countries it is not clear whether the provided funding is in the form of grants or loans. Most countries also do not clarify their baseline for determining whether the provided finance is »new and additional«. Observers assume that most of the fast-start finance is actually relabelled ODA. Developing countries have therefore been highly critical of the fast-start finance provided so far. For example, Indian environment minister Ramesh stated during the Cancún conference that, »The fast-start finance is neither fast, nor has it started, nor is it finance« (The Economic Times 2010). Ramesh and others also reiterated developing countries' position that a satisfactory agreement on climate finance is a precondition for coming to an overall climate agreement.

Agreeing on accounting rules is therefore critical for the success of the UN climate negotiations. This study aims to contribute to this discussion. It first analyses the financing sources identified by the AGF with regard to whether they involve gross or net flows. In addition, the financing pledges from Copenhagen and Cancún are compared to financing requirements. The study synthesises available assessments of the additional financing needs of developing countries that result from shifting from the current high-emission to a low-emission development pathway. These financing requirements also need to be differentiated according to gross and net flows.

Finally, the sources assessed by the AGF differ regarding the political level – national or international – at which decisions are taken and funds flow into budgets. The study will therefore differentiate the sources analysed by the AGF according to the level of decision-making and analyse the impacts of this differentiation.

Differentiation of Finance Sources According to Gross and Net Flows

Overview of Sources Assessed by the AGF

The AGF distinguishes the following four categories of sources: public sources, development bank instruments, carbon market finance and private capital.

Public sources are revenues raised by or from governments and may be used for grants or loans. The AGF estimated all public sources on a net basis and excluded any incidence with regard to developing countries, for example incidence from charges on international aviation and shipping. That is, the estimates include only net transfers to developing countries. The AGF analysed the following sources from which public revenues could be raised:

- Revenues from international auctioning of emission allowances, such as assigned amount units (AAUs) under the Kyoto Protocol. So far, AAUs have been allocated to countries for free, based on their Kyoto targets. In future, part of the allowances might be retained internationally and auctioned.
- Revenues from emission allowances in domestic emission trading schemes (ETS), such as the EU ETS. From 2013, most of the allowances in the EU ETS will be auctioned. Other countries, such as Australia or Japan, may also establish ETS in the coming years.
- Revenues from levies on offsets. Such a levy already exists in the CDM: 2 per cent of the Certified Emission Reductions (CERs) generated by projects are retained and monetised to finance the Kyoto Protocol's Adaptation Fund. This levy on the issuance of CERs could be increased and/or expanded to other mechanisms.
- Revenues from taxes on international aviation and shipping. These could be a levy on fuels or on tickets, or emissions trading could be introduced in these sectors.
- Revenues from wires charges, that is, charges on electricity produced, either per kWh or based on CO₂ emissions per kWh produced.
- Revenues from eliminating fossil fuel subsidies.
- Revenues from royalties or licences on fossil fuel extraction.
- Revenues from a carbon tax levied on emissions from industrialised countries.
- Revenues from financial transaction taxes.
- Direct budget contributions: these are contributions from a country's general revenue through the

ordinary budget process. The AGF calculated the potential revenue from this source on the basis of the demand from the G77 and China that industrialised countries should dedicate 0.5–1 per cent of their GDP to international climate finance. However, the AGF considers that, due to political constraints within industrialised countries, this source will probably account for only a subordinate share of the overall funding.

Development bank instruments were estimated on both a gross and a net basis. Net flows were determined based on the accepted methodology of the OECD Development Assistance Committee to define the grant equivalent of flows. Development bank instruments are:

- resources development banks can raise based on the assets they already have on their balance sheets. This source was not further analysed by the AGF; and
- resources development banks can raise based on additional funding made available to them.
- Another source may be contributions to a fund based on the commitment of existing or new special drawing rights. However, this source was not further analysed by the AGF as the group was sceptical about the political feasibility of this option.

It is worth pointing out that this »source« operates at another level than the other sources. The increased resources for development banks would have to come from one of the public sources. Hence, development banks are a channel rather than a source of finance.

Carbon market finance involves the transfer of resources related to the purchase of offsets by industrialised countries, such as CERs from the CDM. The AGF estimated carbon market flows on a gross basis. In addition, the AGF made a tentative estimate of the net share of such flows based on methodologies proposed by some members. The AGF defined the net share as the inframarginal rent of flows, in other words the difference between the average cost of a mitigation action compared with the market price of emission credits. However, while this concept is easy to define, it is not trivial to estimate the magnitude of inframarginal rents and establish who captures them.

Private capital refers to international private finance that flows as a result of interventions by industrialised countries such as risk mitigation or revenue-enhancing instruments or capacity building. Private flows were estimated on a gross basis. Here, too, the AGF made a tentative estimate of net flows based on methodologies proposed by some members. This estimate is based on the fact that private investors often accept a lower return if they benefit from public finance instruments that reduce investment risks. However, here again it is far from trivial to quantify the achieved reduction in returns and the value that accrues to developing countries.

Potential Revenues from Individual Sources on a Gross and Net Basis

Most of the sources are directly or indirectly related to the carbon market. The AGF used three price scenarios as basis for its estimates of the revenue potential:

- (i) a low-carbon price scenario at USD 10–15/t CO₂-eq;
- (ii) a medium-carbon price scenario at USD 20–25/t CO₂-eq; and
- (iii) a high-carbon price scenario at USD 50/t CO₂-eq.

The low and medium price scenarios reflect prices that can be expected from implementation of the emission reduction pledges made under the Copenhagen Accord and the Cancún Agreements. The high scenario reflects prices that could be expected in 2020 if the pledges were strengthened to be consistent with the 2 °C target.

In addition to assumptions on the carbon price, assumptions have to be made on what share of total revenue could be made available for international climate finance. If revenues are collected by national rather than international institutions – for example, auctioning of allowances in a national ETS – one may assume that finance ministers and parliaments will want to retain the major share of the revenue for their national budgets.

Tables 1 and 2 summarise the AGF estimates for each source of finance, as well as some of the key assumptions. As noted above, the AGF estimated all public sources on a net basis, while the other sources were estimated on both a gross and a net basis.

In summary, the AGF concluded that mobilising 100 billion US dollars is »challenging but feasible«. However, most of the assumptions made by the AGF are fairly conservative. First, the AGF focuses its analysis on the medium-price scenario; the high-price scenario is indicated only »for illustrative purposes«. However, as the AGF itself notes, only the high-price scenario is consistent with the 2 °C target.

Second, the shares of total revenue allocated to climate finance are mostly fairly low. For example, the AGF assumes that only 25–50 per cent of revenues from international shipping and aviation could be allocated for international climate finance. As such a scheme would have to be administered internationally, it is not obvious why less than 100 per cent of the revenues from a climate policy instrument would be allocated to climate finance.

The AGF cautions against adding up the revenue potential from different sources as they were estimated using different methodologies and are levied from different bases. For example, a carbon tax would probably not be implemented within the scope of an ETS.

However, one may well add up the various public sources that are directly related to the carbon market, as these are each related to a different base. Table 3 recalculates the AGF assessment based on the following assumptions:

- emission reduction pledges will be strengthened to be in line with the 2 °C target so that carbon prices will reach USD 50/t CO₂-eq. in 2020;
- 6 per cent of auction revenues, the median of the range of 2–10 per cent assessed by the AGF, will be made available for international climate finance;
- revenues from international sources such as international aviation and shipping will be allocated fully to international climate finance.

What emerges is that international aviation and shipping alone could already provide half of the pledged sum of 100 billion. To provide the other half, about 7 per cent of auction revenues would need to be dedicated to international climate finance. It bears noting that these sources are all estimated on a net basis. That is, given the



Table 1: AGF Calculation of Public Sources

Public sources	Net (billion US dollars)		
	Low CO ₂ price	Medium CO ₂ price	High CO ₂ price
Auctioning of allowances (2–10 % of estimated auction revenues dedicated to international climate finance)	2–8	8–38	14–70
Levies on offsets (levy of 2–10 % on offset transactions)	0–1	1–5	3–15
International maritime transport (no net incidence on developing countries, 25–50 % dedicated to international climate finance)	2–6	4–9	8–19
International aviation (no net incidence on developing countries, 25–50 % dedicated to international climate finance)	1–2	2–3	3–6
Carbon tax (international tax, 100 % for international climate finance)	10		
Wires charge (100 % for international climate finance)	5		
Removal of fossil fuel subsidies (100 % for international climate finance)	3–8		
Redirection of fossil fuel royalties (100 % for international climate finance)	10		
Financial transaction taxes (no net incidence on developing countries, 25–50 % dedicated to international climate finance)	2–27		
Direct budget contributions (proposal by G77 to dedicate 0.5–1 % of Annex I GDP)	200–400		

necessary political will, providing 100 billion US dollars of net resource flows to developing countries in 2020 appears to be eminently viable.

It also bears mentioning that, according to the AGF, total auction revenues in 2020 related to domestic emissions of industrialised countries could amount to 700 billion US dollars. This is based on the assumption that all emissions in industrialised countries would be covered by emissions trading systems and that all allowances would be auctioned. This assumption is probably not entirely realistic, but it nevertheless illustrates the potential of this funding source alone.

Financing Needs in Developing Countries

Definition of Financing Needs

International climate finance needs to be underpinned by an understanding of the financing requirements of developing countries in order to be able to assess whether international climate finance is commensurate to needs. In estimating finance needs it is necessary to be very clear what one is talking about. In particular, the

question of gross and net flows is often confused in discussions. Representatives of industrialised countries frequently point to the finding of the UNFCCC's report on investment and financial flows according to which 86 per cent of all global investments and financial flows come from private sources (UNFCCC 2007). On this basis, industrialised countries argue that most of the financing needs can be met from private sources.

However, there are various layers of financing needs which should not be confused with each other (Melle et al. 2011):

- Total investment refers to the totality of initial funding needed to invest in an asset, for example a power plant. Globally, even under »business as usual«, hundreds of billions of dollars will need to be invested annually in energy infrastructure, for example to satisfy the rising energy demand in developing countries and replace outdated plants in industrialised countries. In their World Energy Outlook 2010, the Organisation for Economic Cooperation and Development (OECD) and the International Energy Agency (IEA) project that, even without increased mitigation actions, cumulative energy-related investment of 33 trillion US dollars will be needed over the period 2010–2035 (OECD/IEA 2010).



Table 2: AGF Calculation of Non-Public Sources

Other sources	Gross (billion US dollars)			Net (billion US dollars)
	Low CO ₂ price	Medium CO ₂ price	High CO ₂ price	
Development bank instruments	Leverage factor 3–4			Leverage factor 1.1 (= grant equivalent)
Carbon market offsets	8–12	38–50	150	8–14 at medium CO ₂ price
Private capital (leverage factor 2–4 on public flows and offsets)	n. a.	200	n. a.	20–24

- By contrast, incremental investment is the difference between the initial investment needed for a low-carbon asset and the initial investment needed for a conventional one: for example, the incremental investment needed for building renewable energy installations instead of an equivalent coal power plant. Incremental investments are hence only a fraction of total investments.
- A further layer is the incremental cost. The initial investment needed for renewable energy installations is usually higher than for conventional energy installations but operating costs are usually lower, as most renewable energy installations incur no fuel costs. Similarly, the initial investment for energy efficient assets is usually higher than the investment needed for less efficient ones, but the higher efficiency leads to lower operating costs. Incremental costs of an asset are hence calculated as the net present value of all related cash flows over its lifetime (including investments, operating costs/gains and sometimes also capital costs). Incremental costs are usually lower than incremental investments in low-carbon assets due to lower operating costs. For many mitigation actions incremental costs are even negative as lifetime savings are higher than the incremental investment, especially in the case of efficiency improvements.

Discussions of international climate finance are clearly predicated on incremental investment and incremental cost, not total investment. Naturally, it is typically not governments but private actors who finance investments for insulating houses or building wind parks. But it cannot be expected that private businesses will reduce their profit margin and

simply absorb the costs caused by choosing a less GHG-intensive investment. In addition, even where incremental costs are negative the higher initial capital expenditure required for many low-carbon technologies constitutes a formidable investment barrier, in particular in developing countries with limited access to capital. Experience from industrialised countries shows that, even where investments are in principle profitable, implementation is often difficult nevertheless. Industrialised countries dispose of gigatonnes of no-regret or even win-win potential that would generate a net economic benefit, and yet have so far not been very successful in actually achieving their pledged emission reductions. Typically, a whole range of formidable financial, institutional, technical, information and capacity barriers prevent implementation, such as limited awareness of options, split incentives (such as landlords unwilling to pay for efficiency measures that lower tenants' energy bills but without any benefit to themselves, while tenants are unwilling to invest in improvements that revert to the landlord on lease expiry), limited access to capital or small project sizes coupled with high transaction costs. Just as industrialised countries will have to significantly scale up policies and measures, including public financial support to market actors to tap their own emission reduction potential, developing countries will require significant capacity building and financial support for policies and measures to mobilise their potential.

Estimates of Financing Needs

In what follows we synthesise a number of studies on financing needs in developing countries published in recent years.



Table 3: Recalculation of Public Carbon Market Sources According to AGF

Public carbon market sources	Net (billion US dollars)
Auctioning of allowances (6 % of estimated auction revenues dedicated to international climate finance)	42
Levies on offsets (retained at current 2 % of offset issuances)	3
International maritime transport (no net incidence on developing countries, 100 % dedicated to international climate finance)	38
International aviation (no net incidence on developing countries, 100 % dedicated to international climate finance)	12
Total	95

As already noted, the World Energy Outlook 2010 projects that cumulative investments of 33 trillion US dollars will be needed globally over the period 2010–2035, even without increased mitigation actions. Of this, about 17 trillion US dollars are projected for Asia, the Middle East, Africa and Latin America. Shifting to a pathway that would allow stabilisation of GHG concentrations at 450ppm CO₂-eq., which gives roughly a 50:50 chance of meeting the 2°C target, would require an incremental investment of 13.5 trillion over the same time period globally (that is, total global investment would rise to 46.5 trillion US dollars). Approximately half of this incremental investment – about 8 trillion US dollars – would have to be made in developing countries.

Projected incremental investment in 2020 amounts to about 400 billion US dollars, with a share of around one-third in developing countries. However, the 450 ppm scenario's projection until 2020 is based on the Copenhagen pledges. These are too weak for achieving a cost-effective 450 ppm stabilisation pathway. A cost-effective 450 ppm pathway would involve higher investments up to 2020 and lower investments thereafter. The IEA estimates that the difference between its Copenhagen-based scenario and a cost-effective 450 ppm scenario (as calculated in their pre-Copenhagen World Energy Outlook) amounts to cumulatively 1 trillion US dollars over the period 2010–2030. It should also be noted that these estimates concern only energy-related emissions: other emission sources such as waste, agriculture and deforestation are not included.

Based on an analysis by McKinsey, Project Catalyst (2010) estimates that total investments of about 290 billion US dollars per annum by 2020 will be needed for low carbon energy infrastructure in developing countries to move to a 450ppm pathway. Project Catalyst estimates the incremental costs of actions in developing countries at 60 billion US dollars per year in 2020.

The World Bank's 2010 World Development Report synthesises about a dozen studies, including additional data obtained from the respective authors. The World Bank puts incremental costs in developing countries at between 140 billion and 175 billion US dollars annually by 2030, with associated incremental investments of 265 to 565 billion a year. Figures for incremental investments by 2020 range between 63 billion and 300 billion US dollars a year, while no figures for incremental costs are given.

The 2010 World Development Report also synthesises figures for adaptation costs but the World Bank notes that these were mostly derived from rules of thumb and are dominated by the cost of climate-proofing future infrastructure. They do not take into account the diversity of the likely adaptation responses, such as changes in behaviour, innovation, operational practices or locations of economic activity. They also usually do not include non-market impacts, such as those on health systems and natural ecosystems. While some of these factors could reduce adaptation costs – for example, by reducing the need for costly infrastructure – others would increase them. With this caveat, the cited figures range between 5 billion and 105 billion US dollars of incremental investments annually in the period 2010–2015, or 15 billion and 100 billion US dollars annually by 2030 (World Bank 2010).

A similar criticism of the available studies on the costs of adaptation was made by Parry et al. (2009). They allege that the available studies do not include all relevant sectors; that some of the included sectors have been only partially covered; and that the additional costs of adaptation have sometimes been calculated simply as a »climate mark-up« of low levels of baseline investment. On the last point, they argue that underinvestment is precisely what is leading to adaptation deficits, and that this deficit will need to be compensated by full funding of development, without which the funding for adaptation will be insufficient.



While these estimates of adaptation and mitigation costs cover a broad range, one point emerges clearly: the total needed investments for adaptation and mitigation in 2020 are many multiples of 100 billion and the needed incremental investments are also likely to be several multiples of 100 billion. The median value of the estimates for incremental mitigation investments in 2020 is about 200 billion US dollars and the median of incremental adaptation investments is about 50 billion US dollars.

The only interpretation of the developed countries' commitment that is adequate to the problem at hand is therefore to see it as funding to cover incremental costs and leverage the needed additional investment of several hundred billion dollars per year. Thus, the 100 billion US dollars need to be counted on a net, not a gross basis.

Implications for Political Decision-Making Processes

The sources assessed by the AGF differ regarding the political level – national or international – at which decisions are taken and funds flow into budgets. In what follows we detail the respective national and/or international processes related to each funding source.

Auctioning of international emission allowances: The decision to auction international emission allowances, such as AAUs under the Kyoto Protocol, would be taken at the international level. The costs would have to be borne by the governments of industrialised countries and revenues would accrue to the entity that auctions the allowances, most likely an international fund.

Auctioning of national emission allowances: The decision to auction emission allowances in a national ETS is taken by the respective national government. The costs would be borne by the installation operators concerned and the revenues would accrue to the national government.

Levies on international offset mechanisms: These by definition are levied internationally. Under the CDM, 2 per cent of CERs are retained, that is, they are not issued to the project participants who finance the project. The CERs are monetised by the World Bank to finance the Kyoto Protocol's Adaptation Fund. However, the World

Bank only acts as trustee; funding decisions are made by the Adaptation Fund Board, which consists of 16 members elected by the Parties to the Kyoto Protocol.

Taxes on international aviation and shipping: These could be organised nationally or internationally. While the decision to tax would be taken internationally, the revenues could accrue either to an international institution or to the countries where fuels are sold, flights take off, tickets are sold and so on, depending on the design. The taxes would be paid by international aviation and shipping companies.

Wires charges: The decision to levy a charge on electricity production might be taken internationally but implementation would have to go through national governments. In theory, the revenue could accrue to international or national budgets, but in practice national governments would probably resist passing on the revenue they accrue.

Fossil fuel subsidies: These are provided nationally, so it would be up to national governments to eliminate them. These funds could then be directed to other purposes via normal budget procedures.

Royalties or licences on fossil fuel extraction: Revenues from royalties or licences on fossil fuel extraction accrue to national governments and are usually a part of general government revenue and hence part of the normal budget procedures.

Carbon tax: The decision to levy a uniform carbon tax would be taken internationally. Similar to the auctioning of international emission allowances, the costs would have to be borne by the governments of industrialised countries and revenues would probably accrue to an international entity.

Financial transaction taxes: The decision to levy taxes on financial transactions would be taken internationally and implementation would probably be entrusted to an international institution, such as the International Monetary Fund.

Direct budget contributions: These are defined as contributions from a country's general revenue through the ordinary budget process.

Development bank instruments: As already pointed out, development banks are not a source but rather a channel of finance. The decision-making process would



Table 4: Climate Finance Needs in Developing Countries

Study	Total investment	Incremental investment	Incremental cost
Mitigation			
World Energy Outlook 2010 (energy investment based on Copenhagen pledges)	Up to 400 billion in 2020	About 130 billion	n. a.
Project Catalyst 2010 (energy investment for cost-effective 450 ppm pathway)	n. a.	290 billion p. a. by 2020	60 billion
World Development Report 2010 (synthesis of various other studies)	n. a.	63–300 billion in 2020 265–565 billion in 2030	No figures for 2020 140–175 billion in 2030
Median	n. a.	200 billion in 2020	n. a.
Adaptation			
World Development Report 2010 (synthesis of various other studies)	n. a.	4–105 billion in 2010–2015 15–100 billion in 2030	n. a.
Median	n. a.	50 billion in 2020	n. a.

hence depend on which source the funding comes from. Increased funding could either be made available through the ordinary national budget process of donor governments, or some of the revenue accrued from one of the innovative public sources discussed by the AGF could be allocated to the multilateral development banks.

Carbon market finance: The transfer of resources related to the purchase of offsets is a market transaction. The costs are borne either by private companies or by governments that purchase offsets to comply with their Kyoto targets. In the latter case funding decisions are made through the normal national budget processes.

Private capital by definition comes from private sources so political decision-making processes are not affected.

These differences raise questions of political acceptability and practical viability. Revenue sources at national level are much more acceptable to governments than international sources because they can be better controlled by national administrations. Even within the EU, member states have so far rejected all suggestions to create new funding sources for the EU institutions that are independent of national processes.

On the other hand, revenues that accrue at national level are likely to be pocketed by finance ministers. Again the EU example is illustrative. In the current trading phase of the EU ETS, member states may auction up to 10 per cent of allowances and several member states, including Germany, are doing so. Thus, the EU is already implementing one of the funding sources discussed by the AGF. However, most of these revenues accrue to the general national budgets of member states and only a minor share is used for climate purposes. Starting in 2013, most of the allowances in the EU ETS will be auctioned. However, member states rejected all suggestions to earmark a share of these revenues for climate finance. Instead, the EU directive only includes a non-binding suggestion to use at least half of the revenues for climate-related purposes.

If revenues are collected internationally – for example, through international auctioning of allowances or the introduction of new mechanisms for international aviation and shipping – the climate regime could in principle be made self-financing. However, the difficulties encountered in introducing such mechanisms have in part been due precisely to the fact that these funding streams would not be under the control of national governments.

Conclusions

Clear accounting rules for international climate finance are crucial both for the sake of transparency and for generating political trust between countries, as well as for making sure that financial flows are actually adequate to the task of achieving sufficiently strong emission reductions and adaptation to the impacts of climate change. So far, financial resources provided by industrialised countries have been of a relatively limited volume and transparency has been lacking.

Industrialised countries have pledged to mobilise 100 billion US dollars by 2020. The AGF has assessed a variety of potential funding sources and concluded that achieving this goal is challenging but feasible. However, it is not clear whether the 100 billion pledge relates to gross or net flows. The Copenhagen Accord and the Cancún Agreements leave this question open, and the AGF was also not able to decide in favour of one or the other interpretation.

Looking at the AGF assessment it is noteworthy that the underlying assumptions are fairly conservative. The AGF focuses its analysis on a medium-range carbon price that is not in line with achieving the 2°C target and assumes that only relatively low shares of revenues from carbon markets could be dedicated to international climate finance. If one assumes – perhaps hopefully – that emission caps will at some point be brought in line with the 2°C target and that revenues from international sources, in particular carbon-related sources in international transport, will be fully dedicated to climate finance, mobilising 100 billion US dollars does in fact appear to be eminently viable. International aviation and shipping alone could provide as much as half of this amount and only a relatively minor share of 7 per cent of the revenues of auctioning allowances in industrialised countries would be needed for the other half. What is more, this would amount not to a gross but to a net transfer of 100 billion US dollars.

When looking at the climate-related financing needs of developing countries, counting only net transfers towards the 100 billion commitment does in fact appear to be the only interpretation adequate to the problem that must be solved. Studies by the OECD/IEA, the World Bank and others indicate that 100 billion is likely to be the order of magnitude of the incremental costs

alone, while related incremental investments are likely to amount to several hundred billion per year and related total investments are many multiples of 100 billion. Counting the full volume of loans and private investments towards the 100 billion commitment would therefore amount to substantially undersupplying actual financing needs.

Table 5: Finance Sources, Related Decision-Making Processes and Incidence

Source	Level of decision-making	Incidence
Public sources		
Auctioning of international allowances	International	National governments
Auctioning of national allowances	National	Companies covered by an ETS
Levies on offsets	International	Actors engaged in offset mechanisms
International maritime transport	International	Maritime transport companies
International aviation	International	Aviation companies
International carbon tax	International	National governments
Wires charge	International	National electricity producers
Removal of fossil fuel subsidies	National	National recipients of subsidies
Redirection of fossil fuel royalties	National	National producers of fossil fuels
Financial transaction taxes	International	International finance companies
Direct budget contributions	National	National governments
Other sources		
Development bank instruments	Donor governments	Donor governments
Carbon market offsets	Actors engaged in offset mechanisms	Actors engaged in offset mechanisms
Private capital	Private companies	Private companies



The sources assessed by the AGF differ regarding the political level – national or international – at which decisions are taken and funds flow into budgets. Governments clearly prefer sources which they can keep under their full control. However, in order to maximise the reliability of funding it would seem advisable to make the climate regime self-financing by collecting revenues internationally under the roof of the UNFCCC. The example of the EU ETS shows that if revenues are collected nationally, probably only a very minor share will be allocated to international climate finance.

Finally, one should also look beyond 2020. This analysis has strongly emphasised the substantial revenue potential of auctioning emission allowances. However, as caps are further tightened the amount of allowances that are available for auction will decrease. In the short and medium term this may be compensated by the corresponding increase of the carbon price but in the long term the revenue potential is likely to decline. However, adaptation needs and damages from climate change impacts will substantially increase over time. Attention should therefore also be paid to tapping new sources of finance that are not tied to the dwindling supply of emission allowances. Prime candidates appear to be financial instruments connected to financial markets such as financial transaction taxes and the use of special drawing rights. At the moment, the political resistance to introducing such instruments is substantial but over time the growing financing needs related to climate change and other global concerns may leave no other option.



Climate Financing – Putting Its Money Where Its Mouth Is

Frank Schwabe and Michael Meyer

Introduction

The consequences of climate change are already with us. The poorest countries have been hardest hit. Millions of people could lose their homelands or food sources as a result of rising sea levels or desertification. To prevent the global climate from coming completely off the rails the global temperature increase must be kept below 2°C. The challenges that this poses can be met only if consistent climate change mitigation and adaptation measures are implemented in combination worldwide. The negotiations on a globally effective and binding climate mitigation agreement, however, have been mired in crisis since the disappointing climate conference in Copenhagen. Nevertheless, technological support and financing of mitigation measures in the South, as well as support for poorer states with regard to adaptation measures have become a core project of the post-2012 negotiations. It has been possible to make progress on these issues, even though no breakthrough has yet been made to a new, internationally binding climate agreement. Thus, it was agreed in Cancún that a Green Climate Fund is to be set up to finance climate and rainforest protection and adaptation. One key innovation is that board membership will be on a parity basis, with equal numbers from developed and developing countries. Furthermore, a Transitional Committee was established to make recommendations to the Conference of the Parties (COP) in Durban in 2011 on operationalising the Green Climate Fund.

Agreement was reached in Durban on implementing the Green Climate Fund and a working programme on long-term financing for 2012. The decision includes, among other things, regulations on the transitional period, the mandate and establishment of the board and its relationship to the COP. Now the task is to get the Fund up and running as soon as possible. The first board meeting should take place by the end of April 2012 and a decision should be made on the location of the Green Climate Fund at the next COP in Qatar (2012). Among other countries, Germany has applied to host the Fund. Furthermore, in Durban German Minister of the Environment Röttgen

promised 40 million euros not directly for the Green Climate Fund but for initial activities in developing countries to prepare them for receiving payments from the Fund.

Short- versus Long-term Financing for Climate Change Mitigation: How Much Do We Really Need?

A distinction has to be drawn with regard to climate financing between short-term (fast start) and long-term financing. While short-term financing encompasses transfer payments for the years 2010–2012 – in other words, up to the expiry of the current Kyoto Protocol commitment period – long-term climate financing includes transfer payments for the period after 2020. What will happen in the transitional period from 2013 to 2020 remains unclear, as does the matter of where the long-term financing will come from after 2020. It is therefore an urgent challenge to agree on a realistic scenario for 2013–2020.

Calculations of the necessary long-term financing of climate change mitigation and adaptation in developing countries diverge considerably, although they are expected to be of the magnitude of at least 100 billion US dollars a year from 2020. The share of the European Union in long-term financing is likely to be around 30 billion dollars, around seven billion of which will come from Germany. From these resources, catastrophe and coastal protection, adaptation measures (for example, in agriculture), forest conservation and the promotion of renewable energies will be funded. To raise these vast sums, private investment will be needed alongside public resources. However, private money cannot substitute, but only complement public money.

In the COP 16 concluding document, the so-called Cancún Agreements, the promise made by the industrialised countries in Copenhagen at the end of 2009 was formalised and reaffirmed: namely, to mobilise new and additional private and public resources to support the developing and emerging countries in climate change

mitigation and adaptation, growing to 100 billion US dollars a year by 2020. Another outcome of the Copenhagen COP was the promise made by the industrialised countries and enshrined in the Copenhagen Accord to provide the poor countries with a total of 30 billion US dollars' worth of »new and additional« support (fast start finance) for emissions reduction and climate change adaptation between 2010 and 2012. German Chancellor Angela Merkel promised 1.26 billion euros as the German contribution (an average of 420 million euros a year), while the EU member states' share of the fast start finance is 7.2 billion US dollars. It has not yet been specified what individual countries will have to contribute to the 100 billion dollars of long-term financing from 2020.

Germany's Share – A Credible Contribution?

If the German and European position in the international climate negotiations is to be credible it is important that funding promises made to emerging and developing countries are kept. Fulfilling such promises goes a long way towards building trust between the negotiating partners. Therefore, if, as in Copenhagen, »new and additional« money is agreed, it really has to be »new and additional«. Reality, however, has been rather different to date. Although in Copenhagen the German Chancellor promised new and additional resources in the amount of 420 million euros a year for fast start finance in 2010–2012, in budgetary year 2010 only 35 million euros were new and additional for international climate change mitigation in the budgets of the Federal Ministry for Economic Cooperation and Development (BMZ) and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). For the remaining 350 million euros existing climate protection projects were simply relabelled. In the budgetary years 2011 and 2012 nothing was earmarked in the budget of the Ministry of the Environment for climate change mitigation measures in developing countries. According to Oxfam calculations, 88 per cent of total financial resources in 2010 was not new and additional, but came from old commitments or was already planned before Copenhagen. Thus, resources for forest conservation that had been promised in 2008 at the UN Species Protection Conference were calculated as part of the fast start commitments. This kind of action on the part of the German government could fatally undermine its credibility.

Besides the additionality of resources, transparency also leaves a lot to be desired. Germany is one of the biggest donors of international climate financing. The bulk of this comes from the budget of the Federal Ministry for Economic Cooperation and Development (BMZ). However, it is extremely difficult to get an overall view of the sources that comprise German climate financing. According to information from the German government, 1.24 billion euros are earmarked in the BMZ's budget for climate-related funds for budgetary year 2012. However, it is hard to tell what programmes and instruments these resources are being spent on. Open disclosure is called for. A good example of successful and transparent climate financing is the International Climate Initiative (IKI), which is financed with 120 million euros from the budget of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). In this instance the financial resources and the projects receiving support are presented on a dedicated homepage. But the rest of climate financing must be presented in a similar way.

Germany's climate financing for budgetary year 2012 comprises a number of different instruments. The bulk of climate financing takes place at bilateral level. Besides the 120 million euros for the IKI there is the Initiative for Climate and Environmental Protection (IKTU) funded from the BMZ budget and the German Climate and Technology Initiative (DKTI) funded from the resources of the Energy and Climate Fund. At the multinational level the German government supports a number of funds. They include the Global Environmental Facility (GEF) in the area of general climate measures, the Adaptation Fund under the Kyoto Protocol and the Least Developed Countries Fund in the area of adaptation to climate change and, in the area of avoiding emissions in the forest sector, the Forest Carbon Partnership Facility (FCPF). Coordinating these different instruments efficiently requires an inter-departmental strategy, which is still lacking.

The German debate on climate protection financing makes it clear how difficult it is, under the influence of diverging interests, to provide new and additional funds for climate change mitigation in developing countries within the framework of short-term financing, even in a rich country such as Germany. On top of this, the resources provided for short-term financing as »new and additional« represent only a small percentage of the sum Germany will need for international climate financing from 2020. This highlights the major challenge involved



in ensuring a much larger sum for long-term and sustainable climate financing. The risks are correspondingly great, therefore, that future governments will artificially extrapolate Germany's international commitments by accounting tricks or render some climate financing in a spending neutral manner, while, for example, earmarking much more of development aid than hitherto for climate protection and adaptation, without corresponding growth in the development policy budget. This would mean de facto that less funds would be available for other tasks, such as combating poverty or other health and human rights protection.

Boosting Germany's Contribution – Future Challenges and Next Steps

The next steps with regard to international climate financing are the establishment of a credible path to achieve the relevant objectives, clarification of the relationship between public and private resources and formulation of criteria of accountability and additionality. In addition, it must urgently be decided where the resources will come from to meet financing commitments.

In order to reinforce the credibility of Germany's position in the international climate negotiations the internationally agreed commitments on fast start financing in the amount of 420 million euros a year must be reflected in the federal budget. In the 2012 federal budget the German government must provide for 210 million euros in the environmental budget and the development budget, respectively, for climate change mitigation in developing countries. It is crucial in this connection that the financing of international climate protection be new and additional and not set off against traditional development financing. The German government must also ensure that short-term financing is set out transparently and made comparable by means of uniform criteria.

Short-term financing ends in 2012. For long-term financing the relevant year is 2020. It has not yet been decided how financing for the period 2013–2020 will look. The government must see to it that the developed countries present a credible plan concerning how they will increase their climate aid to the poor countries over the coming years. Such a plan ought to have been agreed at the UN climate conference in Durban, but sadly that did not happen. The Durban concluding document merely pro-

mises continuing support, remaining silent on a growth path for achieving the long-term financing target. In order to make progress as regards long-term financing a work programme for 2012 was agreed in Durban. Within the framework of the work programme, among other things, various financial sources will be analysed, but there is no explicit mention of a levy on marine and air traffic or an emissions trading system concerning these sources. Ideally, concrete solutions will be found within the framework of the workshop on which decisions could be taken at the next COP in Qatar 2012.

It is important for the discussion on long-term climate financing that the German government sets a good example and presents a growth scenario for financing for the years 2013–2020, as well as some sort of outline of a fair German contribution to the 100 billion US dollars posited for financing climate change mitigation in developing countries.

In order to ensure consistency with regard to climate financing, the Finance Standing Committee was established in Cancún. It is advisory in nature and reports directly to the COP. Its working procedures were clarified in Durban. Now the Committee is to elaborate a work programme, to be presented at the next COP.

A package of measures on long-term financing must be agreed that shows how the 100 billion dollars' worth of commitments is to be realised. To that end, individual developed countries have to demonstrate how they will come up with their contributions to the overall sum. To date, it has been concluded only that there is to be long-term climate financing but not how it is to be sourced. It has not yet been specified, either, in what proportion individual developed countries are to contribute to the international commitment. Both the Copenhagen Accord and the Cancún Agreements provide a role for innovative financing approaches alongside the provision of public funds via bi- or multilateral channels, as well as the mobilisation of private financing in meeting this target to the benefit of developing countries. The German government should, after examining various financing sources and instruments, present a proposal on how it will come up with its contribution to long-term financing.

New financing instruments are needed to ensure reliable provision of the promised climate money. The report by the High-Level Advisory Group on Climate Change



Financing set up by UN Secretary General Ban Ki-Moon already emphasises the need for new and innovative funding sources. Such sources could include, for example, a climate change mitigation levy on air tickets or kerosene, a crude oil levy for international shipping, proceeds from emissions trading or a financial markets transaction tax. The German government must do its best to ensure that international shipping and air traffic contribute to financing climate change mitigation and that an emissions trading or levy system for international shipping is introduced. Such a levy on the combustion of bunker fuels would, on the one hand, create an incentive to invest in more efficient ship engines and, on the other hand, constitute revenues for the Green Climate Fund.

Another new and innovative instrument would be a financial transactions tax in Europe, perhaps beginning in the Eurozone. This SPD demand has been blocked by the CDU/CSU and FDP government for years. Even today, parts of the coalition are opposed to making those who are to a considerable extent responsible for the current debt crisis play their part in dealing with it. The proceeds of a financial transactions tax should flow into the respective national budgets and thus provide new scope for international climate financing.

At the same time, it is clear that climate financing cannot be paid for out of public budgets alone. The German government must also see to it that incentives are reinforced for ecofriendly investment by the private sector in emerging and developing countries. For this purpose, existing programmes, such as *develoPPP.de*, the KfW's Initiative for Climate and Environmental Protection and the Global Climate Partnership Fund of the KfW and Deutsche Bank should be expanded.

The proceeds of EU emissions trading are also important for climate financing. From 2012, all proceeds from the auction of CO₂ certificates in Germany will flow into the special fund (»Sondervermögen«) the so called Energy and Climate Fund (EKF). Such an instrument could be invaluable in ensuring permanent and reliable promotion of the »energy shift« and climate change mitigation, since the proceeds from emissions trading are ring-fenced for climate protection. However, the EKF in its current form is overloaded with too many tasks. It must therefore be reviewed in order to develop measures that really make sense within the framework of the special

fund. Furthermore, the measures financed through the EKF are dependent on emissions trading revenues. This means that there is less money for climate-related tasks if the price of certificates falls. Other revenue sources could thus be assigned to the EKF – such as the air traffic levy – to give it a broader base. Certificate prices could be stabilised, for example, by raising the European climate target, with a 30 per cent emissions reduction by 2020. If the EKF is liquidated – as is now being debated – and incorporated in the federal budget, before winding up the fund a new clause should be inserted in the Greenhouse Gas Emissions Trading Act (TEHG) to the effect that all proceeds from emissions trading must be used for national and international climate change mitigation. In the absence of such a clause there would be no guarantee that the proceeds of emissions trading would be used for climate change mitigation at all, opening the door to claims of other departments.

Climate financing is a key element of the international climate negotiations since it represents a strong symbol of the developed countries' credibility. Trust between the negotiating partners – a basic condition of successful negotiations – can be ensured only if they meet their financial commitments. Furthermore, it must be made clear that adequate financing is a necessary, but not a sufficient condition for successful climate change mitigation and adaptation in the developing countries. In order to bring about the desired outcome it must be ensured that resources are also deployed efficiently and effectively. Germany can make a valuable contribution and even lead the way as regards climate justice in a globalised world by fully meeting its commitments and backing a binding plan concerning how the developed countries can increase their climate aid for the poor countries in the coming years.



Human Rights – Signposts in the Fight against Climate Change?

Theodor Rathgeber

Introduction

Everybody is talking about climate change and its consequences. But is the knowledge gained being converted into deeds? Doubts are warranted because more recent data on global warming predict rather an increase from 3°C to 4°C than something approaching the 2°C target. Furthermore, influential voices in important countries never tire of repeating their claim that anthropogenic global warming is dubious or irrelevant, although the facts speak for themselves: since the fourth Progress Report of the Intergovernmental Panel on Climate Change (IPCC) in 2007 and in the face of a raft of other reports on climate change and its consequences man-made global warming is difficult to deny.¹

What can be done, then, on top of what is being done already to convert our knowledge of the catastrophic consequences of an almost unabated climate change into decisive action?

One issue that confronts similar implementation problems has so far played only a marginal role in the debate: how climate change violates human rights. It's true that the UN Security Council identified climate change as a global threat to social peace in a presidential statement in July 2011. Worldwide, due to the effects of global warming – in the form of droughts, floods or earthquakes – people are losing their natural habitats. This endangers economic and social development in many countries and in many places people have had to flee from flooding.

Measured by human rights standards, climate change is already impairing and violating people's rights to health and life, food and water, housing and, in general, to an adequate standard of living (Article 11 of the International

Covenant on Economic, Social and Cultural Rights). Due to the unabated emission of greenhouse gases and the corresponding global warming, moreover, the cultures of local population groups and political civil rights and liberties, such as citizenship, are being jeopardised to a significant extent, for example, when island states in the Pacific literally »go under«.

The present chapter traces how the issue of climate change can be inserted in the UN human rights system and argues why such a link would be worthwhile. Hitherto, the climate and human rights regimes have not been interlinked and they have different institutional mechanisms for their implementation. To make it possible to gauge the advantages and disadvantages of such a move the text provides an overview of the normative and institutional development of the human rights and climate regimes. It also tries to answer the question of how a human rights-based approach to climate policy and a linking of the two regimes can be made to bear fruit. The final section presents recommendations directed towards various actors.

The Current Political Debate

Climate sceptics have seized upon inaccuracies in the Intergovernmental Panel on Climate Change's (IPCC) reports to dispute individual facts in an attempt to put an end to the debate on the future of the planet and, conveniently, absolve themselves of all responsibility. Without going into the details here, the following conclusion can be drawn from the discussions so far:² there is no evidence of intentional falsification for the purpose of deception and the flaws and open questions provide no grounds for doubting the central assertions of climate science. All reputed mainstream scientists working on the causes of global warming agree: the greenhouse

1. On climate change and its consequences see, among others, IPCC (2007a, 2007b, 2007c and 2008), Stern (2006), UNDP (2007), Diakonisches Werk der EKD [Social Service Agency of the Protestant Church in Germany] et al. (2008) and Welzer (2008), as well as the risk analyses undertaken by WHO (2009) and WHO/Health Care Without Harm (2009), Oxfam International (2009) and DARA (2010).

2. On the controversies, see http://de.wikipedia.org/wiki/Kontroverse_um_die_globale_Erwärmung or <http://www.klima-sucht-schutz.de/klimaschutz/klimawandel/climategate-und-fehler-des-ippc.html> and further sources given there.

gases produced by human activities are mainly responsible for climate change on a scale likely to threaten the bases of life.

In the wake of the reporting before and after Copenhagen the dimensions of the issue were brought home even more dramatically to the broad European and North American public and politics.³ The fact that hurricanes, floods and droughts are clearly increasing constantly and the basic conditions of human existence are undergoing far-reaching change is now common knowledge, at least in Europe. Nevertheless, there is still no adequate response to this global challenge – although there have been severe warnings of social unrest, massive refugee movements, violent conflicts or even wars over increasingly scarce resources, as well as of the unalterable reversal of vital ocean and atmospheric currents unless the 2°C target is met.⁴ However, this has not had a sustained effect on governments and the general public. People clearly believe that the consequences of climate change can be dealt with by traditional crisis management and an insurance solution to any damage that might arise.

How relevant is this to the issue of human rights? Causes, classification and responsibilities with regard to the threat posed to human life by climate change cannot easily be verified causally and conclusively so as to establish a breach of obligations under international law on the part of a nation-state.⁵ Nevertheless, figures are available that adequately prove the responsibility of some groups of countries: of the greenhouse gases emitted into the atmosphere between 1850 and 2000 Europe and the United States were responsible for more than 60 per cent, China for 7 per cent and India for 2 per cent. By contrast, the underdeveloped and least developed countries, which account for around 80 per cent of the world's population, contributed only 23 per cent.⁶ This is no doubt an ethical problem, but does it involve human rights? Hitherto, there has been no explicit human right to life-sustaining environmental and climatic conditions.

3. Cf. Bals and Neubauer (2009); VENRO (2009).

4. The *Global Humanitarian Forum* established by former UN Secretary General Kofi Annan estimated in a 2009 study that as a result of climate change 300,000 people are already dying each year in the poor regions of the world. Four billion people count as at particular risk and 500 million as at extreme risk. See *Global Humanitarian Forum* 2009. The 2003 heatwave in Europe cost around 35,000 lives; see the case study in IPCC (2007a); on predicted refugee movements, see IOM (2008).

5. See Albuquerque (2010).

6. Pew Center on Global Climate Change, cited in Caney (2009b).

Those who, given the magnitude and urgency of the challenge, wish to go further than moral accusations and devise a compelling line of argument usually resort to legal constructions. Threats to people's livelihoods, suffering and distress, protection of those affected, urgency and immediacy of the relevant tasks, justice, pertinent internationally recognised norms and interpretations, procedures and mechanisms of peaceful dispute settlement, relative liability and verifiable and responsible action in the international context – these key terms outline the complex task and, in substantive terms, infer human rights as eminently proper terrain for the right to a secure, peaceful and dignified existence.

In the context of climate change this means primarily the rights to health and life, food and water, housing and a healthy environment, as well as the preservation of specific cultural characteristics of local population groups. However, climate change impairs more than material subsistence. When island states – for example, in the Pacific Ocean – are threatened by rising sea levels the question arises of citizenship and the guarantee of political rights and liberties. Since 2008, in particular non-governmental organisations – in position and discussion papers – have brought the human rights-based approach into the debate on climate change and adaptation activities. As regards the right to food and water, this line of the debate has also begun to develop at the Food and Agriculture Organisation (FAO).⁷ There is also a critical debate on climate-neutral energy generation (dams, biofuels) which examines relevant projects with regard to their consequences for the human rights of local populations.

The UN Human Rights System and Climate Change

Institutional Integration

For a long time, climate change was barely on the agenda of the UN human rights system.⁸ One of the working groups on indigenous peoples established by the for-

7. See Diakonisches Werk der EKD et al. (2008); Germanwatch/Brot für die Welt (2008); FAO (2008 and 2009); VENRO (2009).

8. This encompasses the UN treaty bodies, the UN Human Rights Council and subsidiary bodies and the UN High Commissioner for Human Rights; in the climate change context this is to be supplemented by the UN High Commissioner for Refugees and the Geneva Convention on Refugees.

mer UN Human Rights Commission – the UN Working Group on Indigenous Populations – addressed man-made changes in the natural environment and their consequences for indigenous territories. In his annual reports, the UN Special Rapporteur on the rights of indigenous peoples has dealt explicitly with the consequences of climate change since 2005; the UN's Permanent Forum on Indigenous Issues did so at its annual meeting in 2008. A more substantial institutional dynamic set in within the framework of the UN human rights system from 2008, when the Maldives and other island states threatened by physical destruction due to their situation in the Pacific and the Caribbean submitted Resolution A/HRC/7/23 (Human Rights and Climate Change) to the Human Rights Council. This tasked the High Commissioner for Human Rights with carrying out a study on this issue.

The report, presented at the beginning of 2009, made reference to the Assessment Report of the Intergovernmental Panel on Climate Change. Based on the case studies presented in the latter, it cited imperilled human rights norms and population groups under particular threat: the right to health, a decent standard of living (housing, food security, access to clean drinking water), as well as specific group rights among indigenous peoples or national minorities. The report also described the consequences of climate change with regard to the expulsion or resettlement of people or even whole population groups and the ensuing conflicts and risks to national security. Another chapter dealt with states' national and international obligations in accordance with current human rights standards. The report linked the nation-state's responsibility for human rights and the de facto causing of human rights violations by third parties in the wake of global warming with the mandate on states to cooperate internationally (»extraterritorial state obligations«). Although Western industrialised countries recognise these obligations, they oppose their being made legally binding, preferring to act on a voluntary basis and within the framework of bilateral relations. Overall, although the report did not contain anything new, it did officially confirm that climate change has a negative effect on human rights.⁹

In March 2009, the UN Human Rights Council (by means of Resolution A/HRC/RES/10/4) tasked the relevant Special Rapporteurs in their thematic mandates

with investigating the consequences of climate change and including them in their reports.¹⁰ The same Resolution identified population groups that find themselves in a »vulnerable situation«. States were called on to engage in international cooperation to implement the UN International Framework Convention on Climate Change effectively and sustainably. At the same time, human rights experts and national representatives on the Council proposed the establishment of a special procedures mandate to address the consequences of climate change systematically.

The Social Forum, a subsidiary body of the Human Rights Council, summed up expectations concerning a human rights-oriented climate policy in the report on its meeting in October 2010, in view of the impending Conference of the Parties in Cancún. The report recommended, among other things, the establishment of a special procedures mandate on climate change and its consequences for human rights, reminded states of their responsibilities and called for meaningful participation in the negotiations on the part of particularly vulnerable population groups.¹¹

At the 18th Session of the UN Human Rights Council in September 2011 the governments of Bangladesh and the Philippines introduced a Resolution with a proposal to propel efforts towards a specific special procedures mandate with a seminar the following year. A number of countries – including Switzerland, the United Kingdom and the Maldives – on the other hand are trying to get a mandate on the environment off the ground in which the climate issue would be embedded. Many states directly affected by climate change fear, however, that this would dilute their concerns.

We can conclude from discussions in the Council that although existing mandate-holders take account of climate change and can work out relevant recommendations it is also evident that systematic analysis is lacking which – for example, with regard to the issue of climate-

9. OHCHR (2009).

10. UN Human Rights Council (2009). This includes especially the mandate on the right to adequate housing, food, safe drinking water and sanitation, as well as the mandate concerning extreme poverty, development, indigenous peoples, minorities and internally displaced persons. Special procedures mandate-holders referred to climate change as a new challenge in a declaration on International Human Rights Day, 10 December 2008 (UN Special Procedures 2008). The Special Rapporteur on the human right to safe drinking water and sanitation, Catarina de Albuquerque, prepared a position paper in 2010 (Albuquerque 2010).

11. See UN Social Forum (2011), especially Paragraph 60 a)–i).



induced refugees – is particularly pressing. Looking at the history of special procedures, we can say that a specific mandate would above all encourage the affected local population to turn to the mandate holder. Concrete instances in this documentation make it possible to gauge precisely the extent and the gravity of current or threatening human rights violations and to consider countermeasures.

Normative Integration

In parallel with the issue's institutional anchoring substantive guiding principles on human rights and climate change were developed within the framework of the UN treaty bodies that monitor the implementation of human rights conventions. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change referred to human rights violations with regard to the right to water, food and health.¹² The human rights conventions themselves do not refer specifically to the issue of climate change or to a specific right to a safe and healthy environment. However, the treaty bodies have repeatedly adapted the interpretation of the relevant norms to new problem-complexes. The basis for protection of the environment was established by the right to life: in other words, by means of Article 6 of the International Covenant on Civil and Political Rights (Civil Covenant) and also by Article 6 of the Convention on the Rights of the Child. The UN Committee on the Convention on the Rights of the Child established a healthy environment as an indispensable standard for early childhood to enable children to survive and develop.¹³

A central role is played by the International Covenant on Economic, Social and Cultural Rights (Social Covenant). It obliges the signatory states to take steps to shape living conditions in keeping with human dignity and protects such elementary aspects of life as food, health, education and work. In the context of climate change the right to an adequate standard of living in Article 11 takes on particular significance. Similarly, the treaty bodies on the Convention on the Rights of the Child (Article 24.2.c), the Women's Rights Convention (Article 14.2.h) and the Convention on the disabled (Article 28.2.a) posit access to safe drinking water as a necessary condition for an ade-

quate standard of living. The same applies to the right to adequate housing and the highest attainable standard of physical and mental health (Article 12 Social Covenant).

Many analyses deal with the right to adequate food (Article 11, Social Covenant). In accordance with General Comment (authoritative interpretation of an individual human right) No. 12 the signatory state is obliged to create ways and means whereby citizens can feed themselves from natural resources. At-risk population groups require particular protection. In a recent opinion on Australia's state party report the UN Committee expresses its concern that the government is doing too little by way of legislation to reduce the emission of greenhouse gases and to guarantee the Aborigines and Torres Strait-Islanders the right to food and water in accordance with the provisions of the Social Covenant.¹⁴

With reference to Article 24.2.c, the Committee on the Convention on the Rights of the Child emphasises that malnutrition and illness among children must be combated adequately and the risks of environmental pollution must be heeded. In its opinion on Grenada's state party report in 2010 the Committee emphasised that the government, together with international partners, should draw up a development plan on the management of environmental and natural catastrophes in order to avert the negative consequences of climate change.¹⁵ The UN treaty bodies concerned with the women's rights and anti-racism conventions now argue on the basis of climate change, too. Finally, we must mention what so far has remained only a declaration of intent and thus not binding under international law, namely a »right to development« that posits the obligation to »international cooperation« as fundamental to the effective implementation of human rights.¹⁶

The UN special rapporteurs on the right to food, housing and health in particular have begun systematically to investigate the consequences of climate change and formulate recommendations for action, especially in relation to vulnerable population groups.¹⁷ With regard to

12. IPCC (2007a: 44–47); see also UNDP (2007).

13. Interpretation of Article 6 of the Convention on the Rights of the Child in accordance with General Comment No. 7, CRC (2006).

14. CESCR (2009).

15. CRC (2010).

16. On the right to development in the climate debate, see Baer et al. (2007).

17. Ziegler (2008); Kothari (2008); Hunt (2008); Columbia Law School (2009); Schutter (2010). For an overview of the individual human rights norms and their interpretations in the climate change context, see Caney (2009a); ICHRP (2008 and 2011); Rathgeber (2009). On the extended role of the UN special rapporteurs, see CIEL and FES (2009).

the right to self-determination (Article 1 of both the Civil Covenant and the Social Covenant) it is important in this context that no one should be deprived of their means of subsistence. Each state party is obliged to implement this right even for peoples who do not live on its national territory. The looming submergence of island states due to global warming thus obliges a state party to ensure that peoples threatened by resettlement can continue to exercise their right to self-determination.

Freedom of information and opinion has direct relevance in the domain of human rights. Article 19 of the Civil Covenant contains the right to access to information when it concerns informing the public or issuing warnings in good time concerning foreseeable dangers. Article 6 of the Framework Convention on Climate Change provides precisely for that. Article 25 of the Civil Covenant obliges states parties to consult adequately with those affected and to guarantee that they participate in the opinion-forming and decision-making processes, for example, with regard to measures on resettlement from risk areas. The proactive dissemination of information and the participation of those affected is provided for in the Aarhus Convention of 1998 (*Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*).

Procedural Integration

Besides the normative contents, and in contrast to the Framework Convention on Climate Change, most human rights standards have institutional mechanisms for independent expert monitoring of the implementation of agreements and for giving those affected a direct say, under certain circumstances. Without prejudice to the procedural law obstacles that sometimes exist, such a mechanism gives individual persons a means of complaining about respective national governments. This in turn makes it possible to get a precise overview of how urgent and grave a rights violation is. Special procedures mandate-holders and the Office of the High Commissioner can function similarly. The latter route is easier for complainants since, in contrast to the treaty bodies, they do not have to go through national official channels before making a complaint.

To ensure that these instruments are brought to bear they should be systematically included in the negotiation process. A brief overview of the human rights regime

shows, however, that first of all awareness of the human rights instruments will have to be raised even for the issue of climate change before pressure can be built up on the negotiation process. Individual special procedures mandate holders work out guiding principles for linking human rights and climate change for their areas of responsibility. Although not legally obliged, some states have voluntarily begun to delineate the consequences of climate change for the human rights situation in their country within the framework of the Universal Periodic Review (UPR). It will take longer for a treaty body to produce a General Comment to provide states with guidelines for their obligations and country reports.

Potential Benefits of the Human Rights Approach for the Climate Regime

It is more or less undisputed that human rights standards and their mechanisms offer a wealth of possibilities for legally and politically evaluating climate change and its consequences on a contractually agreed basis and for handling it in a manner appropriate for the victim or legal entity. This is at the same time the first dimension of the potential effect: the human rights-based evaluation of the consequences of climate change put people centre-stage, especially those belonging to vulnerable population groups. Although the reports of the Intergovernmental Panel on Climate Change deal with them, too, they remain in the role of victim and do not emerge as legal entities. In particular because the relationship between establishing causes and responsibility, on the one hand, and damage on the other, is so asymmetrical, impact assessment via human rights shines a light on the weakest in the least developed regions and lends them a voice. Protecting victims and legal entities by means of human rights as a frame of reference also makes it possible to evaluate policy options and their consequences, in turn with a view to the weakest in society.

Local populations in the countries of the global South find themselves in a vicious circle: their low access to resources, relevant information on international mechanisms for exerting influence, opinion-forming and decision-making processes and capacity building and a poorly developed social infrastructure increase their vulnerability and the damage done by global warming. The consequences of climate change also contribute to the unequal distribution of wealth and income and



make it difficult for the local population to utilise or develop their own resources to actively cope with their situation.

A second dimension is related to self-organisation. Invoking human rights legitimises approaches by particular parties that involve compelling a nation-state to justify itself, within the framework of its obligation to engage in international cooperation. Asserting legitimate rights increases the chances of articulating one's interests with others and to ensure active participation in impact assessment and the selection of counter-measures. Although no right to direct participation in the COP negotiations in the climate regime can be derived from the canon of human rights a process of self-organisation can be observed among indigenous peoples both nationally and internationally. Thus they were able to bring forward their concerns in the Copenhagen negotiations and get them into the concluding document. The human rights-oriented policy approach promotes such activism.

A third dimension encompasses the mechanisms and instruments with which the consequences of climate change for living conditions can be identified succinctly and through which a dispute resolution process can be launched on a contractually agreed basis. The complaints mechanisms enable members of the local population to participate actively and, in an internationally accepted terminology, to demand that those concerned take responsibility and compensation. Human rights describe the minimum amount of social security and free development that the state must provide. The dispute about the human rights anchoring of the Millennium Development Goals indicates how efficacious such a linkage is. The approach could also help nation-states to determine the extent of necessary support and international cooperation as regards financing and technology and also to set up a monitoring system. The Human Rights Council's UPR procedure can be developed in this direction.

A fourth dimension concerns setting the right priorities in regulating the impact of climate change. This refers to the urgency and existential threat in view of irreversible meteorological processes that prevent some population groups from accessing the resources they need to maintain their livelihoods and culturally determined ways of life. The human rights approach helps bring vulnerable

population groups to the forefront, both domestically and internationally, for example, in negotiations on financial and technology transfers, forest protection mechanisms, alternative forms of energy, such as agrofuels and their impact on food security and the provision of water and health care. In establishing priorities from the standpoint of those affected it is indispensable to evaluate the impact of climate change in accordance with minimum social, cultural, economic and political human rights standards. International bi- and multilateral cooperation is not something to be provided from the goodness of the donor's heart but an obligation arising from contractual agreements.

Supplementing the climate regime the human rights approach provides as a fifth dimension a topical orientation towards the challenges arising from climate change in the development of poor and the poorest countries. Questions of justice and fair compensation, adaptation measures, prevention strategies and technology transfers can be answered by means of human rights benchmarks. Cooperation between states with different interests finds an authentic platform in human rights standards. The reservation that this approach calls to account nation-states that have contributed little or nothing to the climate-related violation of human rights cannot be plausibly maintained. In particular, their negotiating position in international cooperation would be strengthened by recourse to human rights.

Unsolved Problems

However, the human rights-based policy approach is not a general-purpose instrument that could provide a simple solution to the problems characterising the climate negotiations. The difficulty remains of establishing proof of causal links for local accidents triggered at a considerable geographical distance. The obligation to engage in international cooperation nevertheless provides a bridge for establishing responsibilities, formulating demands for international cooperation and enabling concrete solutions by means of fund-supported models.

Also unresolved is the inclusion of companies in the human rights system. Although the UN Sub-Commission for Human Rights presented norms on the responsibility of transnational companies in 2003 which provided for

human rights obligations for companies operating internationally, they were quickly taken off the agenda. The follow-up process with the UN Secretary General's special envoy, John Ruggie, produced a framework with guiding principles – UN Guiding Principles on Business and Human Rights – but it is not legally binding and does not contain a complaints mechanism. There is still no legally binding instrument to regulate the global economy with regard to climate.

The issue of refugees also remains unresolved. Relevant studies predict massive refugee movements in the wake of rising sea levels and depopulation. Most refugees will try, as is already taking place, to settle relatively close to their original settlement or to migrate to the cities. Nevertheless, hundreds of thousands rather than tens of thousands of people will seek refuge even beyond national borders from the impact of global warming. Neither national legislation nor the international system of protection for refugees or internally displaced persons have hitherto recognised climate or environmental grounds for flight and thus legal status and protection for those concerned. The very variety of suggested terms – climate refugees, environmental refugees, environmentally displaced persons, environmental migrants – indicates how difficult this urgent problem is. Proposed solutions concern either working out an Additional Protocol to the Geneva Convention on Refugees or the Framework Convention on Climate Change or propose case-by-case measures that could gradually be built up systematically into a protection regime for climate refugees.¹⁸

The human rights approach to evaluating situations has more of a public profile. In the context of climate change it can make clear that not only is the minimum people need for a decent life being infringed, but that, in light of the causes and those responsible, the lack of political will to solve the problem should be regarded rather as a criminal act than a mere misdemeanour. Portraying human rights violations in connection with climate change can, in the medium term, initiate a negotiation-based approach aimed at bringing about change and use human rights as an instrument to speed up political processes.

18. See IOM (2008); Biermann and Boas (2008); Kälin (2010); Ammer et al. (2010); Bauer (2010); Kolmannskog and Trebbi (2010); on the UN directives on internally displaced persons, see UN Commission on Human Rights (1998).

Steps towards Integration

A process is under way in the UN human rights system to integrate climate into the human rights regime and practical effects are already discernible. The study by the High Commissioner for Human Rights, the Resolutions of the Human Rights Council, the results of the Social Forum, the country reports within the UPR procedure, the assessments of the special procedure on the right to food, housing, drinking water and sanitation, and the comments of the treaty bodies have all contributed to this. Institutional linkage to the climate regime is still lacking, however.

The policy institute EcoEquity (a research project of the Earth Island Institute, Berkeley) and the Stockholm Environmental Institute have developed a proposal on the reciprocal integration of the human rights and climate regimes. Their Greenhouse Development Rights approach encompasses the economic, ecological and human rights-social dimensions. It also includes structural problems pertaining to global poverty and inequality in order to focus the climate change negotiations on social justice and sustainable development. The minimal requirements for development oriented towards decent living conditions must be ensured on three levels: the individual, the nation-state and international cooperation on the part of those mainly responsible for global warming.

This approach establishes an income of 20 US dollars a day as the minimum requirement for »decent« development. The authors pointedly disregard the poverty index of one or two dollars a day, referring to the investigations of several UN organisations according to which only from an average income of 16 US dollars a day and upwards can poverty – malnutrition, high child mortality, poor education, food insecurity – be properly overcome. They add another 25 per cent to this in order to break away from merely satisfying basic needs as a development target for the poorer countries. The Greenhouse Development Rights approach proposes that all countries and all population groups in a country whose average income level is below this threshold be exempted from contributing to the cost of combating climate change up to this »welfare threshold« (*Responsibility and Capacity Index*).¹⁹

19. See Baer et al. (2008); for an overview of sustainable development in the context of climate change see Netzer (2011).

In a second step, the argument cites the right to development. This calls for the combination of political, civil, economic, social and cultural human rights as well as international cooperation as the fundamental core of sustainable development and disentanglement from the asymmetrical structure of international relations. The latter determine access to public goods, such as electrical energy or social infrastructure. In addition, the availability of cheap energy sources, such as oil and natural gas, which enabled the industrialised countries to grow rich, is no longer an option for the countries of the global South. In any case, global warming requires alternative forms of energy use. This approach derives from the obligation to engage in international cooperation that countries should bear the costs of combating climate change proportionately, and many should be exempt. Economically powerful countries should make a contribution larger than their share in greenhouse gas emissions. Unequal distribution of the burden is also contained in principle in the Framework Convention on Climate Change.

The welfare threshold reflects minimum human rights standards as they are explained in the interpretations of individual UN human rights norms and as they define states' obligations. With no need to decide on the binding character of the right to development under international law, the Greenhouse Development Rights approach outlines a method of distributing the burdens and benefits between countries and within societies in accordance with the minimum standards for dignified human development. To what extent is this reflected in the climate regime?

Climate Regime and Human Rights

The UN Framework Convention on Climate Change emerged from the critical debate on the limits of growth and the understanding that time is running out if we want to maintain the natural bases of human life in a life-supporting state. In 1988, the Intergovernmental Panel on Climate Change (IPCC) was set up to evaluate scientific knowledge on climate change. In 1992, the Framework Convention on Climate Change and the Convention on Biological Diversity were adopted at the earth summit in Rio de Janeiro. Neither convention was formalised normatively due to conflicting interests, but took on a format, as the Conference of the Parties, on

the basis of which legally binding decisions could be reached in subsequent negotiations. The Kyoto Protocol of 1997 is the result of such a process.

Institutional Framework

Article 2 of the Framework Convention on Climate Change defines as its main goals, first, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Second, such a level should be achieved within a timeframe sufficient to allow ecosystems to adapt naturally to climate change. Third, this timeframe is to be measured in such a way that food production is not threatened and economic development can proceed in a sustainable manner. According to Article 4, the states parties shall, among other things: take climate change considerations into account in their relevant social, economic and environmental policies and actions; set up and implement programmes to mitigate climate change; develop, apply and diffuse (including by transfer) technologies, practices and processes that control greenhouse gases; cooperate in adaptation measures; promote education and public awareness; and involve civil society.

Article 3 posits the common, but differentiated responsibility for climate change and a duty on the part of the developed countries to take the lead. It recognises the special needs and circumstances of the developing countries; talks of the right to sustainable development; and formulates the goal of cooperation towards a supportive and open international economic system. It also establishes the task of developing criteria for distributing burdens and emissions reductions, based on division into politically defined groups (Annex I, Annex II and non-Annex I countries). In the update of the Convention the Annex I countries – basically, the OECD member states and the transition economies in eastern Europe and Asia – promised in the Bonn Declaration 1999 to finance three funds: (i) for adaptation measures, (ii) for the least developed countries and (iii) a special fund for climate change.

The main instruments for implementing the goals of the Framework Convention on Climate Change are the reports of the Intergovernmental Panel on Climate Change (IPCC), the Conferences of the Parties and mechanisms



for minimising global warming. According to the IPCC reports the following are particularly important: the impact of climate change for agriculture and food supply, inadequate financial and technological cooperation and the needs of local populations and their own achievements with regard to adaptation. Financial and technology transfer also plays a prominent role in the debates within the framework of the Conferences of the Parties. Together with questions of mitigation and adaptation to climate change, finances and technology form the four pillars of conference debates.

The participants in the Conferences of the Parties with a seat and a vote come from the state sector. Even representatives of vulnerable population groups have no opportunity, beyond participation as observers and lobbyists, to formally introduce their concerns into the negotiations. As a result of persistent lobbying, indigenous groups and other local forest dwellers are given special consideration as regards forest protection measures in the Concluding Document of the Copenhagen summit of 2009. Only at the Sixteenth Conference of the Parties in Cancún in 2010 did the human rights aspect find its way into an official document: the Concluding Document stipulates that full respect for human rights is extremely important for all activities concerning climate change.

The Clean Development Mechanism (CDM) came into existence with the Kyoto Protocol. It is designed to enable industrialised countries to acquire emissions certificates by investing in developing countries, thereby enabling them to meet their greenhouse gas reduction commitments. This is a modern-day form of the selling of »indulgences«. To date, this mechanism has not managed to enhance the rights and needs of the countries and populations most exposed to the risks of global warming. By contrast, the »mechanism for reducing emissions from deforestation and forest degradation in developing countries« (Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, REDD and REDDplus) contains elements of a rights-based approach. Thus since Cancún REDDplus has taken into account the rights of indigenous peoples and forest-dependent communities in its activities. Similar programmes provide information on the rights of local populations in the forest, support the pursuit of judicial clarification and try to ensure that locals bene-

fit from services and payments arising from REDDplus. Experiences with REDDplus suggest that although the demands of forest peoples have been given greater legitimacy by this mechanism, in practice one can hardly speak of successful judicial clarification and participation.²⁰

Is integration of the human rights regime in the climate regime even possible under these circumstances? To date, debates on issues of prevention, adaptation, financial and technology cooperation and the design of the two mechanisms have been conducted predominantly without recourse to human rights. The negotiation process under the Framework Convention on Climate Change has not given rise to any institutional integration in this respect. The process has pretty much ground to a halt and the human rights approach would represent a contribution to resolving the conflicts about, for example, international cooperation or burden distribution with other lines of argument and point a way out of the impasse. In academic circles, in any case, the creation of a human rights institution is being discussed which would, for example, deal with the refugee issue. The Framework Convention on Climate Change, similar to the Social Covenant, advocates enlisting international support to carry out the relevant tasks.

The most appropriate institutional format for the possible integration of human rights in the climate regime is provided by the Conferences of the Parties. They could, for example, set up a working group to deal specifically with measures to protect local, particularly vulnerable population groups. The foreseeable consequences of climate change could be put into a conceptually different context and combined with new potential solutions. In implementing the Framework Convention on Climate Change negotiations could commence in the same setting, dealing with the just distribution of the burden, for example, with regard to refugee movements. Not least, local adaptation efforts and their potential for providing global solutions could come to the fore, without letting the main emitters of greenhouse gases off the hook. In the medium term, the aim should be cooperation and coordination with human rights institutions.

20. Notes taken at a symposium on »Rights before REDD« conducted by MISEREOR in Berlin on 27 June 2011; see also Glöckle (2010).

Linking the Climate and Human Rights Regimes

Man-made climate change encroaches upon and violates human rights. The main victims are people in the countries of the global South. The UN Security Council has identified the impact of climate change as a threat to peace. The Framework Convention on Climate Change sets as its key aims stabilising the concentration of greenhouse gas, preserving a life-sustaining ecosystem, guaranteeing food production and sustainable development. At what points would links be plausible and effective?

The most obvious link concerns ensuring food supply. There are many studies on the right to food with express reference to the dangers of climate change. The conclusions are expected to be the subject of the next IPCC report, which will devote more attention to human rights. It is also known that indigenous people have been conducting their own investigations into the impact of climate change in their territories and the resulting human rights violations with a view to the next report so that they can pass them on to the IPCC.

Studies on the right to food could also serve as a basis for policy and government measures within the framework of the climate regime. The human rights regime is able to say which minimum standards are to be maintained, which obligations national governments are complying with and what must be done by means of international cooperation. If those affected are participating and are able to initiate complaints proceedings this provides an opportunity, moreover, to precisely identify threats and specific measures. Integration of the human rights regime would also make it possible to set priorities – based objectively on the merits of the case rather than on affiliation to political groups – in the relevant programmes: the mitigation of climate change, adaptation of ecosystems and sustainable economic development. All this together enables an accurate evaluation of policy options oriented towards human dignity. Not least, it would provide a reference for coherent action at national and international level.

The Framework Convention on Climate Change calls for the anchoring of a justice perspective in international climate policy. It can be inferred from the preceding remarks that research and debates are under way within

the UN human rights system. Human rights standards also constitute a genuine platform for the objective guidance of cooperation between states. Together with the formulation of tasks arising from the common, albeit varying responsibility for climate change the Greenhouse Development Rights approach offers a model to carry out a subdivision of this kind on the basis of human rights. Many countries and population groups are thus entitled to further scope for development for the purpose of reaching the welfare threshold. The human rights approach underpins the demands of the Framework Convention on Climate Change with normative specifications and guiding interpretations.

The same applies to the development of relevant benchmarks on international cooperation, both for adaptation measures and for financial and technology transfer. A number of special procedures are developing guidelines for victim-oriented and fair implementation of legal norms. Two mandates are working directly on a fairer global structure in terms of the global economy and world trade: the mandate on the human rights consequences of external debt and the mandate on requirements concerning international solidarity from a human rights perspective. The expertise of the mandate on extreme poverty should also be drawn on. Although the first two mandates are handicapped by their ideological origins and thus far have not been particularly convincing as regards their substantive implementation, that could change rapidly if the results of these studies, for example, became the object of negotiations at the Conferences of the Parties and a working process was generated to develop a sustainable and open international economic system.

Even the obligation imposed on the industrialised countries in the Framework Convention on Climate Change to take the lead and recognition of the special needs and circumstances of developing countries could be conveniently complemented in this way. Naturally, there would still be controversial items. The linkage with the human rights regime at least makes available a process for scrutinising the concepts and wording of treaties by institutions authorised under international law and for objective mediation. That would not be without risk for the participating states. The states parties to the Human Rights Convention have legally committed themselves to this, however, and are required to give an account of their implementation activities, for example, in reports to the treaty bodies. Since those affected and other



non-state actors have the opportunity to comment on the veracity of the country reports by means of parallel reports to the treaty bodies, they even participate indirectly in the mediation process.

The declaration in the closing document in Cancún that full attention should be given to human rights in all activities related to climate change did not have these scenarios in mind. Nevertheless, this already implies that the recourse to human rights in the negotiation process represents a necessary addition to the Framework Convention on Climate Change. Human rights make possible a very accurate assessment of the policy options and their consequences, particularly with regard to the most vulnerable in society – and by means of the Greenhouse Development Rights approach also the least developed countries. As soon as the next report by the Intergovernmental Panel on Climate Change (2014) a chapter could be inserted on linking the climate and human rights regimes and a working group set up at one of the upcoming Conferences of the Parties.

Given that the line of argument is conclusive and convincing, why has it not been implemented? First, climate sceptics argue that bringing in human rights would slow down and overstrain the climate negotiations. Furthermore, there are already too many principle in the human rights regime that are not complied with. Any more would neither make sense nor be practicable. An additional area of issues would certainly involve more work. It follows from what we have said in this chapter, however, that – conversely – the inclusion of human rights could get deadlocked negotiations moving again and define particular issues more purposefully. The fact that human rights are not observed is down to reluctant or incapable governments – nationally and in the context of international cooperation – and cannot be a criterion for disregarding minimum standards regarded as essential for a decent life. It is clear that the current failure to take the human rights regime into account leads to the erroneous idea that the impact of climate change can be dealt with without a change in social paradigms and solely by means of better disaster management based on insurance.

A human rights-based policy approach to climate change thus demands more concessions from the relevant states than they are currently ready to make. In particular, it would involve drafting a standard into the negotiations, measurements in relation to which would

not be in the sole power of states and would introduce a high degree of transparency. Not every state favours that. Furthermore, it is apparent that the discussions – even among non-state actors – are dominated by different concepts and areas of argument: natural science/technical terminological categories within the framework of the climate regime, and legal and political science tropes with regard to the human rights regime. The present chapter provides an example of this. Fitting discursive and argumentational patterns together is also necessary among non-state actors. What is involved here is rational decision-making, but de facto a process of dialogical rapprochement needs to be organised which will not come about of its own accord.

Recourse to the human rights regime is no panacea, able on its own to solve the substantial problems that bedevil the negotiations on climate change mitigation. It would be an experiment, whose success is not guaranteed. Above all, it would have to be supported by actors actively demanding such an approach. Some of those affected by climate change have set in motion self-organisation processes, both nationally and internationally. Indigenous peoples have been able to increase the pressure towards a human rights policy approach for their issues by means of their demonstrations within the framework of the recent Conferences of the Parties, their own policy papers and studies and intensive lobbying. But the actors in the current climate change landscape are not enough to bring about the reciprocal integration of the human rights and climate regimes.

Depictions are increasing in the media, academia and political think tanks that treat the impact of climate change in terms of human rights violations and thus the public is becoming more aware. The chances of permanently shaking governments and the general public out of their traditional notions of development are growing. However, no critical mass has as yet been achieved as regards a broader public. Recourse to human rights should be deployed as a means of speeding up political processes so that the necessary pressure to demonstrate legitimacy emerges and the impact of climate change is addressed with the requisite urgency.

The activities of the Alliance of Small Island States (AOSIS)²¹ can serve as guidance with regard to how the

21. See: <http://aosis.info>.



proposed approach could be implemented. All stages of intervention are taken into account in seeking solutions for specific locations: from damage assessment or a corresponding prevention strategy within the local framework, through programme and project activities by nation-states, to the negotiation of the necessary components on the part of international cooperation. Bringing in the human rights regime would substantially enhance the obligatory character and standards, in the sense of benchmarks or thresholds. The human rights obligations of individual states would be derived from this, as well as the responsibility of individual countries. The debate on the division of labour among states would not have to begin again from scratch.

Recommendations for Action

Linking the human rights system to the climate regime is a complex challenge and not to be tackled piecemeal. A variety of options are available for active implementation. The following recommendations are limited to thematically defined areas of action in which the first steps can be taken or, in some instances, have already been taken. The states parties of both regimes and thus governments have a key role in this. However, other actors also have their own possibilities for bringing to bear a human rights-based policy approach to coping with climate change. The recommendations are oriented towards German policy, but they may be adapted to other policy constellations.

One initial step would be to align national constitutions with existing human rights standards and relevant conventions for both regimes. Besides the Framework Convention on Climate Change that would include the Aarhus Convention and, especially, ratification of the Social Covenant and its Additional Protocol, as well as agreement that the treaty body can extend and demand government accountability to human rights-related measures concerning climate change mitigation. Accordingly, the German government would be obliged to detail such measures in its country report. However, it has yet to ratify the Additional Protocol to the Social Covenant.

The government could also issue a statement that in the implementation of the Framework Convention on Climate Change it will be governed by human rights in both domestic policy and foreign and development po-

licy. This would include policy towards prevention and adaptation measures, financial and technology transfer and safeguarding the food supply. First, the German government could insert in its report on the human rights situation a chapter on activities within the framework of climate change. Furthermore, in its development cooperation it could support partner countries, ratify any remaining standards and implement greater accountability in climate change matters.

In the context of the Framework Convention on Climate Change at the international level the government should play its part in orienting cooperation primarily to regions, countries and population groups at particular risk from the impact of climate change and lacking resources of their own due to their asymmetric embedding in the global economy. Preferential resources should be provided for these areas in order to fully assess the consequences of global warming and to work out a strategy and action plan based on human rights premises. Such a plan could aim not only at dealing with the direct effects, but also the development of a country and its population towards the welfare threshold. The government should also help ensure that gender aspects are an indispensable part of such initiatives. Depending on the circumstances, studies and evaluations can also be conducted with NGOs.

The German government could set a good example in the supervision of such measures and strategies. In the Human Rights Council it could support the systematic assessment of the impact of climate change, for example, via the special procedures mandate, as well as the establishment of a corresponding specific mandate. In its UPR report the government could also voluntarily discuss its human rights-related activities on climate change and support efforts to develop a directive for the purpose in the procedure.

Within the framework of international cooperation the government should explore the establishment of procedures on the human rights-related consequences of climate change and actions for compensation in regional courts. At the moment, this affects the European, Inter-American and African human rights courts. Discussions are needed to open up access to the courts. This would require both normative and procedural reforms, whose development should receive both technical and financial support.

The Parliament – the Bundestag – could organise hearings and expert workshops on the abovementioned proposals on its own account in order to assess the measures or their omission. Furthermore, one might imagine discussion forums that periodically bring together parliamentary committees with the German Institute for Human Rights and civil society experts to discuss relevant reports by UN bodies and the results of climate change conferences. The question of the consistency of climate and human rights policy could also be examined.

Finally, there are a number of measures in the area of participation and competence-building that could be implemented relatively easily. Government and parliament could ensure that there is an institutional climate policy consultation process on human rights involving civil society. In the medium term, such a process could also be launched in development-cooperation partner countries. As required, the government should make resources available to provide potential participants with the competences they need for such consultations.

Those involved in the various climate and human rights debates should widen the possibilities for more intensive discussion of linking the two regimes, arguments for and against and favourable windows of opportunity. They should also engage in more intensive awareness-raising so that the reciprocal integration of the climate and human rights regimes finds enough supporters and can become a reality.

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Climate Adaptation – Dealing with Extreme Events: »Loss and Damage«

Thomas Hirsch

Climate Risks on the Rise

Climate change is increasingly causing environmental, economic and social harm that can no longer be prevented by climate protection and adaptation measures.

Such harm is caused by extreme events, coming out of the blue, such as tropical cyclones (for example, in the Caribbean or the Indian Ocean), »record floods«, as recently experienced in Pakistan (2010) and Thailand (2011) or catastrophic droughts, like the one in the Horn of Africa. Although not all of these natural catastrophes can be attributed directly to the impact of climate change, much scientific research would seem to indicate that both the increasing frequency and the greater intensity of many extreme events are to be ascribed to anthropogenic climate change. The special report published by the Intergovernmental Panel on Climate Change (IPCC) in mid-November 2011 provides a recent overview of climate change and extreme events.¹ According to the Report, we can be pretty certain that the number of very hot days will continue to increase, as, in all probability, will torrential rains and wind speeds in storms. An increasing number of droughts – for example, in north-east Brazil and Sub-Saharan Africa – can also be predicted. Nevertheless, large parts of the Report appear remarkably cautious, unfocussed and with a tendency towards generalisations and qualifications. The authors of the Report seem to have tried to avoid making any errors in their scientific prognoses of likely occurrences and thus it is often very sketchy, something that the German government pointed out while the report was still being written.

Extreme events lead to sudden changes and damage (sudden onset effects). Besides that, slowly developing changes (slow onset effects) in climate parameters such as temperature, precipitation, evaporation and wind can also have a serious impact. The latter include harvest losses due to thermal stress and growth disturbances

affecting plants; lack of water as a result of changes in hydrological conditions; the spread of temperature-dependent diseases, such as malaria or dengue fever; and the loss of arable land due to salinisation and rising sea levels. Thus the IPCC's fourth Assessment Report points to the negative effects of global warming on agriculture in most of the earth's climatic zones, as well as to the attendant risks to food security.² For example, even an increase of 1 °C on the global mean is likely to lead to a fall in yields. A temperature increase of just under 3 °C – according to the Assessment Report – would result in another 65–75 million starving people. Furthermore, two and a half to three billion people would be affected by water shortages. In the event of a temperature increase of more than 3 °C 3.3 to 5.5 billion people would find themselves living in regions affected by a serious decline in plant growth potential. With a temperature increase of more than 4 °C within the next 100 years most ecosystems and food chains – including those in the oceans – would probably collapse. A good half of the surface of the earth could become uninhabitable and the planet's global sustainability would fall to one billion people or less. This is predicted by the Climate Action Centre, based on their analysis of current research.³

The Least Developed Countries and Small Island States Are Particularly Vulnerable

The 2011 World Risk Report (issued by Bündnis Entwicklung hilft [Alliance Development Works] in cooperation with the Institute for Environment and Human Security of the United Nations University) shows that the poor developing countries are most susceptible. The group of states at extreme risk comprises Afghanistan, Haiti and 13 African Least Developed Countries (LDCs). The group of countries at high risk consists of another 25 African,

1. Intergovernmental Panel on Climate Change (IPCC) (2011): *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, available at: www.ipcc.ch (last accessed on 12.3.2012).

2. Intergovernmental Panel on Climate Change (IPCC) (2008): *Fourth Assessment Report*, available at: www.ipcc.ch (last accessed on 12.3.2012).

3. See Brot für die Welt (ed.) (2009): *Deepening the Food Crisis – Climate Change, Food Security and the Right to Food*, Analyse 06, available at: <http://www.germanwatch.org/klima/climfood-sum.pdf> (last accessed on 12.3.2012).



eight Asian and two Oceanic countries – this does not include any industrialised countries and only one emerging country (India).

The particular risk to which these countries are exposed results from the concurrence of two factors: a strong geographical exposure to negative climate effects and a low resilience. Natural hazards are particularly pronounced in susceptible tropical and subtropical ecosystems, especially rainforests, arid regions, high mountain areas, river deltas and small islands. A country's resilience is the result of its ability to prevent catastrophes, capacity to cope and capacity to adapt to long-term changes through innovation and change. The lower a country's resilience, the higher its vulnerability and – with a correspondingly high likelihood of negative climate events – the greater the risk.

In 2010, the union of countries most vulnerable to climate change, the Climate Vulnerable Forum (CVF), published a study entitled »Climate Vulnerability Monitor 2010: The State of the Climate Crisis«. The study examines the short-term effects of climate change – extreme weather events, heatwaves, water shortages, glacial melting, rising sea levels and so on – on people and the economy in 184 countries and comes to the conclusion that climate change has already led to considerable, widespread and increasing damage. Methodologically speaking, it is very difficult to determine the incremental – that is, additional – damage caused by climate change since much loss and damage is the result of a complex interaction of many factors and also depend on the effectiveness of preventive measures. Furthermore, it is almost impossible to ascribe specific events – such as individual tropical storms – to climate change. Even in the case of rising sea levels, which vary greatly from region to region and even within a specific region, such as the South Pacific, vary between a few millimetres and more than a centimetre from year to year, other factors besides climate change, such as current conditions or postglacial and geotectonic rises and falls of the earth's surface must be taken into account.

Nevertheless, the Climate Vulnerability Monitor makes a number of assertions about trends. For example, the annual number of victims of climate change is estimated at 350,000 human lives, including not only the victims of extreme events but also victims of starvation and vector-related diseases. Virtually all victims are in developing countries and more than 80 per cent are children. The economic losses are estimated at around 150 billion US

dollars, 65 billion in the developing countries. Although the industrialised countries, in absolute figures, have higher losses to complain about, the relative damage in the most vulnerable states is higher: for example, in the low-lying Pacific island states of Tuvalu, Kiribati or the Solomon Islands the losses due to rising sea levels alone amount to 3 per cent of GNP. While the big reinsurance companies keep underlining in particular the increasing losses due to extreme weather events, the Report tries to qualify this, attributing the majority of losses to slow onset effects (droughts, agro-climatic harvest losses, the loss of arable land through desertification and salinification, fishery losses due to the acidification of the oceans and so on). In individual cases, however, extreme events lead to massive losses. The GNP of the Caribbean states Antigua and Barbados fell by two-thirds in 1995 as a result of the damage caused by tropical storm Lewis.⁴

Damage and loss – especially as a result of extreme events – can be limited by appropriate prevention measures and damage that has already occurred can be compensated, at least to some extent, by means of compensation mechanisms. Both mechanisms function more or less well in highly developed countries, but more or less badly or even not at all in poor countries. International cooperation is key to doing something about this. But what can be done when people lose their homes and livelihoods because of climate change – for example, due to desertification, salinification of river deltas (for example, Mekong, Ganges) or coastal erosion, to which more and more atolls are falling victim? Papua New Guinea's Carteret Islands alone, according to the 3,000 islanders' Council of Elders and the NGO it founded, *Tulele Peisa* (a partner of Brot für die Welt), have lost around 30 per cent of their land area to the sea over the past 40 years. The Climate Vulnerable Forum refers in the abovementioned Briefing Notes to investigations by the Norwegian Refugee Council's Internal Displacement Monitoring Centre according to which in 2010 35 million people had to be resettled, either temporarily or permanently, because of hydrometeorological extreme events (including the catastrophic flood in Pakistan). If nothing is done, by 2050 rising sea levels alone will force millions to resettle. This would affect in particular 24 densely populated river deltas, of which only two – the Mississippi and the Rhine

4. The *Briefing Notes of the Climate Vulnerable Forum – Dhaka Ministerial Meeting* of 13–14 November 2011 refer to these and other instances of damage. Available at: http://daraint.org/wp-content/uploads/2011/10/cvf-Briefing_Notes.pdf (last accessed on 12.3.2012).

– are in OECD countries, with four in Latin America, six in Africa (including the Nile and the Niger) and 12 in Asia (including the Indus, the Brahmaputra and the Mekong).

»Loss and Damage« as Object of International Climate Policy

»Loss and damage« were long ignored in the UNFCCC negotiations. Although the facts were not seriously disputed many industrialised countries feared – and continue to fear – that they would be held liable by the affected countries on the basis of the polluter-pays principle and in accordance with the Rio principle of common, but differentiated responsibility according to the level of responsibility and ability to pay. In keeping with that, for years they prevented discussion of the issue in the negotiations. Even a number of African states from the African Group, as well as the ALBA Group (including Venezuela, Bolivia and Ecuador) played a part in marginalising the sensitive issue of »loss and damage« in the UNFCCC negotiations. This is because their indiscriminate demands for annual financial compensation in the amount of up to 3 per cent of OECD countries' GDP as reparations for climate damage and for the »ecological guilt« of the colonial powers in respect of the former colonies were regarded as over the top.

But other UN bodies have thus far not taken up the issue or only to a limited extent. While the extremely important issue of coping with climate-induced internal displacement or cross-border migration is definitely regarded as virulent by the UN High Commission for Refugees – and addressed to some extent in the dialogue with the affected countries, for example, by means of capacity building (for example, in Papua New Guinea) – a change in the UN Refugee Convention to grant »climate refugees« their own status for the first time and thus certain rights as refugees is not currently in prospect and does not seem likely for the foreseeable future. Not least even many experts on international law disapprove of opening up the Convention since they – presumably with good reason – fear that the status of political refugees would thereby be diluted and even jeopardised in the wake of such a reform.⁵ Until further notice, therefore,

outside the UNFCCC efforts on this issue will remain confined to limited attempts at agenda setting, including in the UN Human Rights Council.⁶

In light of all this, the first breakthrough in the UNFCCC process, which was managed by the island states – the AOSIS Group – at the COP 16 in Cancún at the end of 2010 must be regarded as even more important. In the Cancún Adaptation Framework for the first time »loss and damage« is recognised as a relevant UNFCCC topic: paragraph 25 »recognizes the need to strengthen international cooperation and expertise in order to understand and reduce loss and damage associated with the adverse impacts of climate change«.⁷ At the same time, the Subsidiary Body for Implementation was tasked with elaborating the issue within the framework of a work programme by COP 18 in 2012. In a first step, the member states and organisations with observer status were asked to put forward suggestions concerning further activities in four areas regarded as key: improved risk management, insurance mechanisms, rehabilitation measures for slow onset effects (including resettlement/migration) and stakeholder participation.⁸

This progress would not have been possible without persistent urging and continuously improved articulation of the interests of vulnerable states from one COP to the next, first decisively on the initiative of the Maldives and increasingly also with the active participation of other states, for example, from the Pacific (Kiribati), the Caribbean (Barbados), Africa (Tanzania) and Asia (Bangladesh). The group of states, which (still) does not have its own status at the UNFCCC, at first organised as a loose platform, the Climate Vulnerable Forum. Eleven countries participated in the founding conference in Male (Maldives) in 2009. Now other states have joined. In 2010, the ministerial conference took place in Tarawa at the invitation of Kiribati and in 2011 in Dhaka (Bangladesh).

Although loss and damage is not the vulnerable states' exclusive focus it is a key concern for those for which »climate change represents an existential threat to their nation, culture and way of life« (*Male Declaration of the*

5. See Brot für die Welt (ed.) (2010): *Climate Refugees beyond Copenhagen. Legal Concept, Political Implications, Normative Considerations*, Analyse 12, available at: http://www.brot-fuer-die-welt.de/downloads/fachinformationen/analyse_12_englisch.pdf (last accessed on 12.3.2012).

6. See Brot für die Welt (ed.) (2010): *Protection and Reparations for Climate Refugees*, Facts 06, available at: <http://www.brot-fuer-die-welt.de/downloads/fachinformationen/facts06.pdf> (last accessed on 12.3.2012).

7. Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (Decision 1/CP.16), Agreement 25, available at: <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2> (last accessed on 12.3.2012).

8. Ibid., Agreement 26 ff.

Climate Vulnerable Forum, 2009). Thus the AOSIS states made adoption of the work programme on loss and damage in Cancún a condition of their assent to the Cancún Agreement. But what is this work programme about?

Limiting Losses by Improving Catastrophe Prevention

Prevention makes it possible to significantly limit damage and the number of victims of natural catastrophes. While in Japan hardly anyone dies because of typhoons and material damage remains limited, the same storms cost many lives in the Philippines every year and destroy the livelihoods of thousands. Because extreme weather events are increasing, significantly at-risk groups in all countries must be systematically assessed and prepared. Because training for this purpose is needed right down to the village level stakeholders must participate fully at national, regional and local level if anything is to be done.

Damage Compensation for Extreme Events by Means of Risk Insurance

Insurance is indispensable if material damage as a result of extreme events is to be prevented from destroying livelihoods. While in Germany most houses are insured against storm damage or flooding and fire insurance is compulsory, such insurance against damage by the elements is almost unknown in most developing countries. This applies in many other areas, including health care and agriculture. Virtually no African farmer is insured against drought damage. Even when such insurance is offered, the damages paid are generally too small and cover, for example, only the costs of replacing the seeds. Because climate extremes and their associated risks are increasing broader risk protection via insurance mechanisms is an important element in improving individual coping capacity in the face of loss and damage. Since vulnerable states are clearly overwhelmed by this, international support must be mobilised. The work programme on loss and damage offers a framework for this purpose. The major international reinsurers – including Swiss Re and Munich Re – have shown an interest in this and some have already made submissions to the UNFCCC.⁹ Effec-

tive insurance companies can and must make a substantial contribution. However, the market alone cannot provide sufficient mechanisms for the poorest among those most affected. It is up to the responsibility, cooperation and financial support of the international community, for example, by setting up funding windows within the framework of the Green Climate Fund. Pilot measures – also with regard to bilateral cooperation – would be particularly important in the initial phase. Raising awareness and generating the political will for this purpose is also a task for party politicians concerned with climate issues.

Small atolls cannot be protected against rising sea levels. Resettlement is the only solution. In the case of Kiribati, that could affect an entire island nation. The international community and in particular the industrialised countries are duty bound to take on the lion's share of the costs, to support rehabilitation measures and, if need be, to accept refugees. The bilateral measures taken so far – for example, the admission of very limited quotas of immigrants from Kiribati and Tuvalu by Australia and New Zealand – are not enough. Furthermore, the internal coping capacities of many vulnerable states are extremely limited, as the example of the Carteret atolls shows. The Carteret Islands belong to Papua New Guinea. They rise barely a meter above the water and are succumbing to rising sea levels. This problem has been apparent for at least 10 years. Since the government has not helped the 3,200 or so islanders over the years and the atolls are increasingly uninhabitable – people have no more drinking water, agriculture is virtually impossible and in the event of storm tides high palm trees provide the sole refuge (people tie themselves to them and wait until the danger passes) – the Council of Elders founded the organisation *Tulele Peisa* to draw the world's attention to their plight and to take responsibility for resettlement. *Tulele Peisa* is now preparing the resettlement of the islanders to the nearest large island. There are similar projects on the Solomon Islands, Vanuatu, Kiribati and Tuvalu, to name only a few.

A funding window is also needed for this problem in the Green Climate Fund and other channels of climate funding. A pragmatic, gradual approach within the framework of the UNFCCC is the only alternative in the medium term. Over the long term, the aim must be an Optional Protocol on climate-related migration to supplement the Refugee Convention, if need be extended to cover the category of environmental refugees. In preparation, the UN Human Rights Council and other bodies in the UN human

9. See, among others, Submission by the Munich Climate Insurance Initiative (MCII), August 2011; available at: www.unfccc.int (last accessed on 12.3.2012).



rights system – even the UN Security Council – should make this issue a fixed concern. Climate-related migration and appropriate action on the part of the international community is highly relevant as a human rights issue.

Next Steps

Dealing with loss and damage can replace neither sufficiently ambitious emissions reduction nor the targeted expansion of adaptive mechanisms to boost climate resilience. Transitions to the latter are fluid. Nevertheless, dealing with and limiting loss and damage, as well as compensation and rehabilitation remain indispensable components of a future ambitious and fair agreement, binding under international law. Until then, we need a policy of targeted steps in order to counter problems that are already virulent.

The abovementioned steps in the areas of catastrophe prevention, risk protection and rehabilitation must be implemented swiftly, systematically, with a long-term orientation and with adequate financial underpinning. The systematic inclusion of those affected is particularly important in this: target group participation, transparency and the requirement of non-discrimination must be strictly adhered to. In prioritising the measures to be taken the principle of risk assessment must be used, taking into account both high risk and high vulnerability. The proposition that high risk groups should be helped first is not least a human rights imperative.

Furthermore, besides the direct costs, the indirect ones should also be included, for example, those arising from falling productivity or the loss of entire livelihoods, not to mention social uprooting and resettlement. The work programme can make important contributions to a comprehensive and integrated understanding of loss and damage. Much more research and stakeholder consultations, but also intensified capacity-building in the affected regions are basic conditions in this respect. Since those affected are for the most part population groups that have been marginalised in manifold ways the inclusion of civil society is essential because it often has much better access to these groups than many state actors.¹⁰

10. See, among others, the UNFCCC Submissions of Brot für die Welt/Evangelischer Entwicklungsdienst/DanChurchAid of February 2011, as well as that of CAN International of August 2011; available at: www.unfccc.int (last accessed on 12.3.2012).

Outcomes of COP 17 in Durban

In Durban, the Work Programme on Loss and Damage was further elaborated at the technical level (that is, in the Subsidiary Body for Implementation) by the end of the first week of negotiations and adopted at the end of the conference.¹¹ According to the programme, an expert workshop is planned in the first half of 2012 aimed at bringing together important data, experiences and problems in the area of risk protection, compiling them in a report and incorporating it in the UNFCCC process. Building on that, in a second step, within the framework of four workshops in Africa, Asia, Latin America and the island states, worldwide experiences in dealing with climate-related damage are to be gathered and processed. The outcomes of these workshops are also to be incorporated in various reports, including an aggregated report, a compilation of the literature and a technical paper on dealing with slow onset change.

The results of the work programme are to be presented and recommendations made at the next world climate conference in Qatar in 2012. It is to be welcomed that inspection orders were issued concerning the international mechanism demanded by the island states to address loss and damage, as well as a climate insurance facility and the reinforcement of risk prevention mechanisms. States parties and international organisations and NGOs with UNFCCC observer status have been invited to make Submissions on this by 17 September 2012. This process is important and should be taken advantage of.

It remains to be seen, however, how widely or how narrowly the mandate of the UN Framework Convention on Climate Change will be defined at the next COP in Qatar in terms of making a real contribution to dealing with loss and damage.

The German government, by the way, did not play much of a role in the negotiations on loss and damage in Durban. How far this will change in 2012 we await with some interest, although in the second week in Durban – in other words, after the negotiations on loss and damage had been concluded – the small island states, as the main protagonists in this area, emerged as important climate-policy allies of the EU.

11. See: http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_loss_damage.pdf (last accessed on 12.3.2012).



Rio 2012 and Reform of International Environmental Governance

Nils Simon and Susanne Dröge

International Environmental Governance: Urgent Need for Reform

International environmental governance (IEG) in the early twenty-first century includes the UN's Environmental Programme (UNEP), a multitude of international environmental agreements and various international institutions dealing with environmental issues. The existing governance architecture is thus decentralised and institutionally fragmented. It is fraught with coordination problems, hobbled by a generalised lack of ambition in environmental agreements and subject to serious implementation problems. As a result, the capacities of global environmental goods, such as climate or biodiversity, have reached their planetary limits.

The UN Conference on Sustainable Development (UNCSD) in Rio in 2012 will address the institutional framework for sustainable development (IFSD) in general and the envisaged restructuring of the IEG in particular. This could form the foundations of a robust governance structure for the coming years. In what follows we first present the challenges arising from the current structure surrounding the UN Environmental Programme (UNEP) and the multitude of international environmental agreements. We then examine the reform ideas currently on the table and, finally, discuss the chances of reinforcing governance structures within the framework of Rio 2012.

History and Characteristics of International Environmental Governance

Global environmental policy came onto the international political agenda as an issue in its own right only in the 1970s. Environmental protection issues found an institutional home in 1972 when the UN's Environmental Programme (UNEP) was founded in Stockholm. The relatively small secretariat with its head office in Nairobi was given its own financing mechanism, in the form of the Environment Fund (EF), which was supposed to help it fulfil its mission. This largely consisted of coordinating environment-related activities within

the United Nations and supporting the international community in elaborating new environmental agreements.

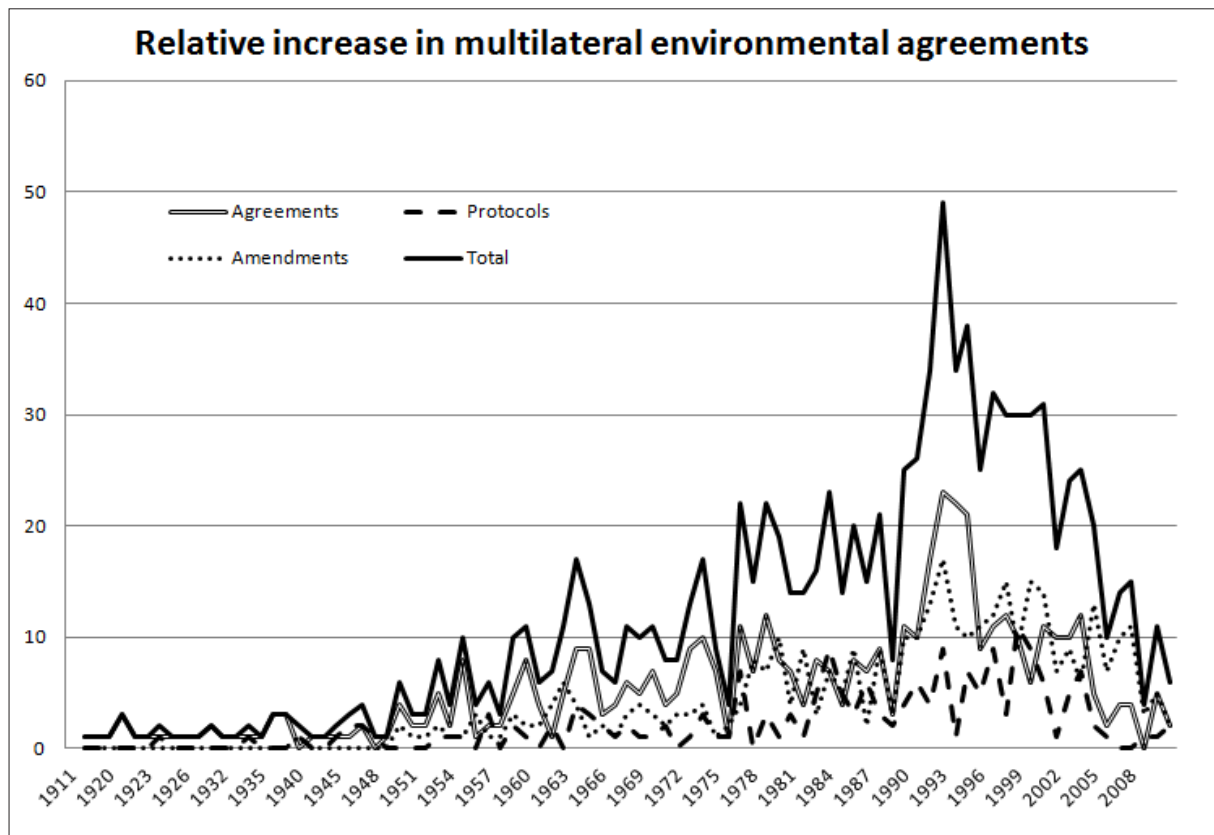
The development of international environmental agreements (multilateral environmental agreements or MEAs) was particularly successful. However, every agreement gave rise to its own administration, making UNEP a victim of its own success: the international community decided to establish separate institutional structures for the majority of MEAs negotiated after 1972. Instead of entrusting UNEP with the administration and thus gradually strengthening it, each new environmental agreement diluted the environmental programme and impeded its function as central UN authority with regard to environmental questions.

The International Environmental Agreements Database Project (University of Oregon, United States) has details on over 1,100 multilateral and more than 1,500 bilateral environmental agreements. Looking at the treaties, supplementary protocols and amending agreements over time reveals that cross-border environmental problems were addressed by separate agreements into the 1990s. After peaking immediately after the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, when almost 50 new MEAs were adopted, the number of new treaties fell markedly (see Figure 1).

Because most environmental problems were taken care of by international legal settings with one or even several treaties, the rapidly growing IEG system soon reached its limits. Accordingly, 20 years after Rio 1992 the international community is confronted with the challenge of implementing the numerous agreements, together with their individual provisions at the national level and, at the same time, of developing them further in international negotiations. Examples are the international climate negotiations or the negotiations on the biodiversity convention, whose conferences attract considerable public attention. It is evident that national capacities – especially in the case of the developing countries – can scarcely keep up with the increasing institutional requirements (Muñoz et al. 2009). Between 1992 and



Figure 1: Trend in the number of multilateral environmental agreements since 1911



Source: Authors' calculations, based on Ronald B. Mitchell (2002–2011), International Environmental Agreements Database Project (Version 2010.3); <http://iea.uoregon.edu> (accessed on 20 October 2011).

2007 the 18 largest MEAs clocked up 540 meetings and negotiation rounds, as a result of which 5,084 resolutions were supposed to be implemented (UNEP 2008: 5).

At the same time, the multitude of agreements did not stop the destruction of natural resources. Thus, the MEAs are often criticized as too weak (Speth/Haas 2005: 102). However, even if the agreements contained stricter targets the problem would remain: poorly equipped institutions which are not able to provide developing countries with more than limited aid in their implementation.

UNEP itself, with its annual budget of 220 million US dollars, is small in comparison to other institutions, such as the UN Development Programme (UNDP) with an annual budget of 4.1 billion dollars. A number of international organisations have environmental policy budgets that dwarf the UNEP budget. The Global Environment Facility (GEF), set up in 1991 as central financing mechanism for

environmental projects and supported by UNEP and nine other institutions – has, after several increases in its funding, over one billion US dollars at its disposal.

In contrast to UNDP, the Environmental Programme has no operational mandate and thus cannot be active at the national level and provide direct assistance in the implementation of environmental agreements. However, UNEP has three indirect options available to it for improving implementation: its network of regional bureaux, although their capacities are very restricted; cooperation with other international organisations, invoking, for example, the Memorandum of Understanding with UNDP and thus trying to provide environment-related assistance via the Development Programme and its national bureaux; and finally it can try to get more comprehensive implementation mechanisms included in the MEAs themselves, like in the ozone regime and the well-provided multilateral funds anchored in the Montreal Protocol.



Coordination problems between international organisations continue to plague international environmental governance. Numerous UN institutions conduct activities with environmental components and this, along with the autonomy of many MEA secretariats, leads to a multitude of parallel processes that could yield considerable synergy gains from better coordination. In order to improve coordination between the actors concerned in 1999 the UN set up a specialised coordination committee, the Environment Management Group (EMG). The EMG encompasses 44 UN organisations, programmes and secretariats engaged in environment-related activities. Together with the superordinate coordination council, consisting of the leaders of UN organisations (Chief Executives Board for Coordination, CEB) and the United Nations Development Group (UNDG) the EMG makes up a troika of sustainability institutions within the United Nations. Although the EMG has made some progress on the coordination issues, a lot remains to be done. Furthermore, the parallel coordination committee has brought into being a further level of bureaucracy which also requires coordination. This can be illustrated in terms of the thematically structured projects UN Water, UN Energy and UN Oceans. When, why and in what forum each topic is dealt with is already subject to considerable controversy.

Points of Departure: Reform of Environmental Governance after 2012

In response to longstanding challenges of the international environmental governance architecture a number of attempts and proposals have already been made as part of reforming the Institutional Framework for Sustainable Development (IFSD). The various models that have been discussed exhibit overlaps but are not fully developed or clearly defined. The key models are:

- »UNEP plus«, an incremental, pragmatic process that has already started and thus would be accelerated;
- the founding of a »UNEO« by upgrading UNEP to a specialised agency;
- the founding of an umbrella organisation/structure integrating either the IEG alone or also the institutions of sustainable development;
- the founding of a »WEO« (World Environment Organisation) as a new international environmental organisation.

Models 2 and 4 are basically alike, based as they are on an upgrading or transformation of UNEP into a specialised agency of the United Nations (UN or world environmental organisation). This would have several benefits: a UNEO (or WEO) would be, in contrast to UNEP, an autonomous entity under international law which could thus even become a member of international agreements. As a UN specialised agency in accordance with Article 57 of the UN Charter UNEP would have a more stable budget at its disposal, due to a rule applying proportionately to the UNO budget. One frequently underestimated benefit, however, is likely to be its enhanced status vis-à-vis other organisations.

The European Union has repeatedly called for UNEP's upgrading to a specialised agency, most recently at the October 2011 session of the Environment Council. The prospects of this happening are relatively positive. Traditional opponents of this proposal, such as the United States, have been more muted of late. One reason for this is the extensive preparatory talks held since 2006 in several successive informal consultation processes (Simon 2010: 19 ff).

Within the framework of consultations the participating countries were able to agree on the functions that would be the focus of reform. A reinforced UN structure should (a) provide the scientific basis for environmental-policy decision-making and serve as an interface with the political domain; (b) be a global guiding and reactive voice for ecological sustainability; (c) achieve effectiveness, efficiency and coherence within the UN system; (d) ensure adequate, predictable and consistent financing; and (e) meet country-specific needs.

Not least, strengthening the UN system in the course of preparations for RIO+20 is particularly necessary due to the so-called »green economy«. If a transformation into a sustainable or »green« global economy is to have any prospect of success it must be supported by properly resourced institutions (Dröge/Simon 2011). The EU is therefore proposing the adoption of a »Green Economy Roadmap« in Rio, with four key elements:



- (i) Acknowledgement by heads of state and government of the need for a green transformation of the world economy.
- (ii) Provision of tailored support by all relevant UN institutions for all states declaring an interest in such transformation.
- (iii) A timetable laying out when particular steps are to be taken.
- (iv) A broad selection of possible measures that could be applied in accordance with national conditions.

The last three points will be realised only if individual countries can be provided with adequate support at the UN level. In this context it should also be considered that many climate-policy measures are already targeting the green economy (for example, low carbon development plans). These must be integrated with the roadmap, if such a proposal finds a consensus.

Chances of Reform in 2012 and Thereafter

All UN member states need to be brought on board if there is to be wider reform of the IEG and IFSD. This requires broad acceptance of more regulation of environmental consulting, more coordination of international institutions, agreement on political supervision and reform of the financing of global environmental policy. The latter means not only increasing or consolidating resources, but also looking at the integration of parallel funds.

Obstacles to growing acceptance include objections to aligning national interests with a superordinate environmental institution or to being »instructed« by it. It is also argued that the existing multilateral environmental agreements are sufficient for dealing with global environmental problems. However, there are also reservations to the effect that MEA secretariats could be restricted in a system featuring an enhanced and coordinating UNEP.

In the course of discussing possible reform models, the restructuring option via the functions of a strengthened governance structure met with broad support (»form follows function«). Substantial hurdles remain to achiev-

ing consensus, however, as long as developing countries, although endorsing its functions, nevertheless have reservations concerning the upgrading of UNEP, which is regarded as a European project and as pushing sustainable development only as an environmental policy pillar. In their view, this could be to the detriment of economic and social development.

For this reason, the smouldering reform debate on a more extensive institutional architecture for sustainable development (IFSD) has flared up. Attention is directed primarily towards the unsuccessful Commission on Sustainable Development (CSD), whose nineteenth session in May 2011 was terminated without any conclusions being reached (like CSD-15 four years previously). At a meeting in Solo, Indonesia in 2011 various reform options for IFSD were discussed, including winding up the CSD and establishing a Sustainable Development Council (SDC) as a subsidiary organ of the General Assembly, analogous to the Human Rights Council (Beisheim et al. 2011). Such a development could not substitute for IEG reform, but it could provide a better framework.

At the end of 2011 it became apparent that in Rio institutional reform and the green economy cannot be negotiated separately: a package solution is needed. This is not only because of the political logic of the preparation process, but also for functional reasons. Institutional reform resting one-sidedly on the environmental pillar would be as pointless as adopting an ambitious »green economy roadmap«, which would then lack the necessary UN support. The prospects for reform will become clearer only in the run-up to the summit. Last but not least, not only heads of state and government, but also representatives of civil society and the economy must be willing at Rio 2012 to initiate a move towards a more effective institutional structure and play a part in shaping the process.



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