



VOLUME 2

Bali, Poznan, Copenhagen

Triple Jump Towards a new Quality of Climate Policy?

By **Christoph Bals**



BALI, POZNAN, COPENHAGEN – TRIPLE JUMP TOWARDS A NEW QUALITY OF CLIMATE POLICY?

This document is based on two documents that have been produced with the financial assistance of the Federal Ministry for Environment, Nature Protection and Nuclear Safety and the Federal Environmental Agency. The sponsors neither guarantee the correctness and accuracy nor the completeness of the information presented here, nor the compliance with third parties' private rights. The opinions and views expressed here need not necessarily agree with those of the sponsors.

Bali, Poznan, Copenhagen – Triple Jump Towards a New Quality of Climate Policy?

Publication Series on Ecology – Volume 2 (English Edition)

By Christoph Bals

Edited by the Heinrich Böll Foundation in cooperation with Germanwatch

Berlin, July 2008

© Heinrich-Böll-Stiftung

All rights reserved

Translation: Marisa Beck, Dörte Bernhardt, Gerold Kier, Isabel Cole (preface)

Layout: graphic syndicat, Michael Pickardt

Printing: agit-druck Berlin

Photos: Jörg Haas (Bali conference, December 2007)

ISBN 978-3-927760-82-0

This report can be ordered from: Heinrich Böll Foundation, Schumannstr. 8, 10117 Berlin

Ph +49 30 28534-0 **F** +49 30 28534-109 **E** info@boell.de **W** www.boell.de

**HEINRICH BÖLL STIFTUNG
PUBLICATION SERIES ON ECOLOGY
VOLUME 2**

Bali, Poznan, Copenhagen

Triple Jump Towards a New Quality of Climate Policy?

By Christoph Bals

In collaboration with Marisa Beck, Miriam Brenck, Jan Burck, Kristin Gerber, Sven Harmeling, Gerold Kier, Anja Köhne, Klaus Milke, Stefan Rostock, Manfred Treber and Hendrik Vygen

Edited by the Heinrich Böll Foundation in cooperation with Germanwatch

CONTENTS

Preface	7
1 A turnaround after Nairobi 2006?	9
1.1 Why the climate summit in Nairobi 2006 failed	9
1.1.1 Is there a first-mover disadvantage?	9
1.1.2 The hidden economic agenda	10
1.2 The right signals towards a new climate treaty	10
1.2.1 The turnaround in the economic perspective on climate change	10
1.2.2 Climate protection as a matter of political leaders	11
2 At the crossroads between Bali and Copenhagen: Which path into the future do we choose?	15
2.1 Scenario A: Uncontrolled large-scale experiment with mankind and nature	16
2.2 Scenario B: Climate apartheid	19
2.3 Scenario C: Global partnership on climate protection	23
2.4 Scenario D: Planet Earth on the Heart-Lung Machine	24
3 The Bali Roadmap: Finally heading in the Right Direction?	27
3.1 Principles for a process oriented at the idea of a global climate partnership	27
3.2 The most important results of Bali	29
3.2.1 Bali's positive results	29
3.2.2 The drawbacks of the Bali results	30
3.3 Mitigation: Avoiding the Unmanageable	31
3.3.1 What has been achieved in Bali	31
3.3.2 What remains to be done	34
3.4 Adaptation: Managing the Unavoidable	36
3.4.1 What has been achieved in Bali	37
3.4.2 What remains to be done	40
3.5 Financial Mechanisms: Giving the right incentives	40
3.5.1 What has been achieved in Bali	41
3.5.2 What remains to be done	41
3.6 Technology: Stimulating innovation and cooperation	42
3.6.1 What has been achieved in Bali	42
3.6.2 What remains to be done	43

4	A hurdle race towards Copenhagen 2009	45
4.1	Governments worldwide: Enhance the political will!	46
4.2	Germany: Reconcile aspiration and reality of climate policy!	47
4.3	EU: Take the lead in an international push-and-pull strategy!	47
4.4	Civil society: Increase the pressure!	48
	References	49

PREFACE

Following the Bali conference, the climate negotiations are going into marathon mode. Never before have such complex negotiations had to be coped with in such a short time. But the challenge is urgent: we must succeed in stopping the rapid growth of greenhouse gas emissions within the next 10 years and then begin a rapid decrease. All this at a time in which the world economy is undergoing profound upheavals and the global economic and political balance of power is shifting. Identities are teetering, especially in the old industrial states of Europe and the USA; insecurity and fear is spreading.

The necessary turnaround in climate policy will have profound effects. Accordingly, the negotiation process is not merely an exercise for diplomats. The challenges we face can only be mastered if the negotiations are received with comprehension and criticism; if the political pressure builds to make the difficult compromises that are necessary; and if political support in society and the business world can ultimately be mobilized to ratify and implement the results.

Issues of justice are at the center of the global negotiations. Global climate protection requires the cooperation of nearly all the world's states. They cannot be forced to protect the climate; they will only subscribe to an agreement they regard as fair. In Bali none other than Sir Nicholas Stern, author of the *Review on the Economics of Climate Change*, formulated this as follows: justice in climate policy is not merely an ethical question, it is one of political realism. Only an agreement that recognizes "common but differentiated responsibilities and capabilities" (Framework Convention on Climate Change) will meet with all the countries' approval, be ratifiable and combine climate protection with the right to development.

With the Greenhouse Development Framework¹ the Heinrich Böll Foundation has published a yardstick to measure obligations for climate protection and for the financing of adaptation measures according to the criteria of responsibility and ability. It is strongly recommended for further reading.

It is a long and tortuous route from Bali via Poznan to Copenhagen. In this paper Christoph Bals has written a "travel guide" meant to offer you orientation on this journey. Orientation knowledge is power. Thus, this publication is also a small contribution toward the democratization of global governance. We look forward to your feedback!

Barbara Unmüßig
*Member of the Executive Board,
Heinrich Böll Foundation*

Jörg Haas
*Head of Department Ecology and
Sustainable Development*

1 Baer, Paul; Athanasiou, Tom; Kartha, Sivan: *The Right to Development in a Climate-Constrained World*, published by the Heinrich Böll Foundation, Christian Aid, EcoEquity and the Stockholm Environment Institute. Heinrich-Böll-Stiftung, Publication Series Ecology, Berlin, November 2007

1

A turnaround after Nairobi 2006?

The gap between necessities and real action had continued to grow in the years since 1998. Many people who had understood the consequences of unmitigated climate change knew that things could not keep going in the business as usual way. After the climate summit in Nairobi (December 2006) which failed to a large extent, they tried to lift up the climate debate to a more adequate level, to make it a matter of political leaders. When considering the history of the climate debate in this way, it becomes clear that quite a lot has been achieved in a short period. However, it also shows why the world has great expectations of the negotiating process started in Bali which should lead to a new UN climate treaty until 2009.

1.1 Why the climate summit in Nairobi 2006 failed

By the end of 2006, negotiations at the UN Climate Conference in Nairobi did not make any progress. Two reasons – a tactical one and a substantial one – account for the failure of the summit.

1.1.1 Is there a first-mover disadvantage?

Governments were concerned about losing ground in the international climate gamble when revealing their cards first. And everyone brought forward the same argument: If no one else joins in there is no point in me going ahead.

Global climate change is a typical problem of the type “Tragedy of the Commons”. For each individual country exploiting as much of our atmosphere as possible is a completely rational decision. Initiating climate protection efforts at home bears the danger that other countries continue exploiting and moreover benefit from the realised savings. (Expressed in economic terms this means: If I consume less fossil fuel its price will decline which makes other players want to buy even more of it.) That is why everyone points at the inactivity of the others instead of making the first step. In fact, the head of the Chinese delegation announced that there will be no negotiations about reducing emissions in China until 2080 (!). Until then, he said, it is necessary for China to focus on a strategy of economic growth that is mainly based on energy supply from coal-fired power plants. India, in fact, with its significantly lower per capita emissions was not even willing to discuss any kind of contributions – let alone targets. Japan, the industrial country with the highest energy efficiency in the world made its decision on further reduction targets dependent on an accordant commitment from the USA. And at the climate conference in Montreal (2005), the U.S. delegation, representing the richest country world-wide with immensely high emissions, even left the room when other industrial countries showed their willing-

ness to consider more stringent targets. Over and over again the U.S. government referred to the fact that emerging nations such as China and India were not assigned any reduction targets in the Kyoto Protocol despite their fast growing emissions. And although the European Union has extensively expressed its willingness to negotiate in Nairobi, the credibility of this announcement appeared more than doubtful considering the EU's struggle with accomplishing its Kyoto targets and its failure to commit to any serious reduction goals for the time until 2020.

1.1.2 The hidden economic agenda

Even more important was another substantial reason that was closely related to the tactical one presented above. The environment ministers were well aware of the fact that the ministers of economy and the heads of government at home would veto against taking a leadership role in climate protection. Since the invention of the steam engine, fossil fuels have been the driving force behind the wealth of industrial nations and recently also behind the fast growing “islands of prosperity” in the newly industrialising countries. And from the USA to India, from Europe to China governments were concerned that serious climate protection might constrain their chances for economic success. The arguments of an influential industry lobby that has been trying extensively to impede the realisation of any constructive suggestions ever since the preparative negotiations preceding the UN conference on environment and development in 1992 had started were actually making an impact. Even today U.S. delegates emphasise that they are not ready to take any binding reduction commitments for their own country into consideration since these are said to hurt the economy. “The fundamental question is whether or not we will be able to grow our economy and be good stewards of the environment at the same time,” Bush said during a question-and-answer session after a speech on the federal budget in Arkansas in October 2007.²

1.2 The right signals towards a new climate treaty

1.2.1 The turnaround in the economic perspective on climate change

Up to now the Stern Review has provided the most important basis for illustrating economic interests in a constructive manner. The current IPCC report (IPCC, 2007) has contributed further fundamental findings. The insight that climate change is more than a “soft” issue but that it could actually induce the most severe recession since the second world war has raised the attention of many politicians who up to now used to degrade the priority of climate change and treat it as a minor problem that is not really worth spending any time on. The observable change in the politicians' attitude is a necessary but not yet a sufficient condition for finding a fair balance of different developmental and economic interests. Only if this balance is achieved, a pact between the highly emitting industrial and emerging nations and the particularly affected LDCs³ and AOSIS states⁴ becomes feasible. This pact is required for

² <http://www.enn.com/climate/article/23891>

³ Least Developed Countries

⁴ Alliance of Small Island States

agreeing on a bundle of measures addressing climate protection and adjustment to the consequences as an appropriate response to the challenges we are facing.

The economic reasoning for serious climate protection

On October 30, 2006 the former chief economist of the World Bank, Sir Nicholas Stern, demonstrated in a review report for the British government that missing the opportunity to work against climate change will cause significantly higher costs than getting active now.⁵ Stern considers global climate change to be “the biggest market failure in history”. His calculations show that about 1 per cent of the annual gross domestic product world-wide could be sufficient to prevent disastrous developments in global climate change (stabilisation at a level of 550 ppm CO₂ equivalents). (Here he uses a scenario that includes reductions which are substantial but not substantial enough to avoid a global temperature rise that exceeds the threshold of two degrees compared to preindustrial levels with sufficient probability. This requires a stabilisation level of less than 450 ppm.) But he also demonstrates that doing nothing would cost 5 to 20 times as much.

The review which covers the time period until 2100 serves as a warning saying that global climate change could cause the most severe recession since the Wall Street crash and the following great depression. The review is seen as the most relevant cost estimation of climate protection and of the damages caused by climate change that has been done up to now. Of course it has also aroused criticism. However, it is a fact that the estimated damages caused by global climate change have increased in value over the last years whereas at the same time it became clear that serious climate protection including an appropriate political framework and assuming the avoidance of an increase of global temperature of more than two degrees can be realised at significantly lower costs than initially anticipated in the economic models. The latter statement also reflects the most positive conclusion of the latest IPCC report saying that the costs of stabilising emissions at a level below 450ppm of CO₂ equivalents in order to comply with the two-degree limit do possibly not exceed 0.12 per cent of the annual economic performance. In this calculation it is assumed that a suitable political framework accelerates technological progress.⁶

1.2.2 Climate protection as a matter of political leaders

Since the first climate summit took place in Berlin in 1995 the Germanwatch team has been observing all of the UN climate summits. In 2005, ten years after the beginning of negotiations and after years of postponing, the Kyoto protocol eventually entered into force when Russia announced its ratification. Finally, the formal base for a discussion on serious negotiations for the time after 2012, the end of the first commitment period of the Kyoto Protocol, was given. But even the UN climate summit in Nairobi in November 2006 only resulted in “talking about talks”. By then it was clear that negotiations on the level of delegates and environment ministers could not induce the needed political momentum. This can only evolve if the govern-

⁵ Stern, 2006

⁶ IPCC, 2007

ments offer significantly more support to their environment minister and enhance their discretionary power in the negotiations.

Germanwatch commented on the results of the climate summit in Nairobi in the end of 2006 with the headline: “Now climate protection has to become a matter of political leaders.”⁷ We called for four actions in order to terminate the gridlock:

■ First of all, the EU has to prove its leadership skills and demonstrate its willingness to act under the German EU presidency in the first half of 2007 by committing to a 30 per cent reduction target.

■ Secondly it is crucial that the G8 summit – under German presidency as well – in co-operation with the five most important emerging nations clearly signals the common political will to provide the necessary mandate for negotiating a post-2012 treaty.

■ Thirdly, this signal that might for example be given in a General Assembly of the UN needs to be backed up by a large number of government leaders all around the world.

■ The fourth point is that the German government should think about possibilities to send another strong political signal to the global public – just like the British government has done with the Stern review.

Based on the further confirmation of the scientific facts⁸, on economic cost calculations of realised and refrained climate protection measures, on declaring “the biggest market failure that the world had ever seen” (see box above), on Al Gore’s wake-up calls concerning the “inconvenient truth” and on a stronger and stronger civil society all around the globe⁹ climate protection indeed became a top-priority issue. And Angela Merkel, German chancellor, president of the European Council (first half of 2007) and chair of the G8 summit in 2007, substantially contributed to this change. Hats off to her performance in international climate politics of the last 15 months! (It remains to be seen, whether she has the backbone to demonstrate the leadership qualities that are required for the domestic implementation and the transformation of resource policy.) Examples for the German role:

■ Due to Merkel’s initiative the European Union took on an international leadership role at the EU summit in spring in Brussels. The heads of government agreed on reducing their emissions by 20 per cent until 2020 compared to 1990 even in case the international UN negotiations should fail. Assuming that international climate negotiations actually succeed, a 30 per cent cut of greenhouse gas emissions was accepted. The German government even committed to a reduction of 40 per cent compared to 1990 emissions in order to support the realisation of the EU target. A few months later the German chancellery and the Ministry of Environment announced their belief that UN negotiations will be successful and their preparations for achieving the 40 per cent national goal. On December 5, 2007 the German government presented a law package that is supposed to entail reductions of at least 30 to 35 per cent in Germany – but again various lobby groups are already trying to defuse the bills’ effectiveness. The EU backed up its decision on greenhouse gases by passing two more decisions of similar importance and impact concerning the areas of renewable energy and energy

7 Bals et al., 2006

8 IPCC, 2007

9 Harmeling, 2007

efficiency. If possible the inclusion of air traffic into the European emission trading scheme should be passed during the next months. (Interestingly Germany belongs to a group of countries that is in favour of less ambitious targets than those suggested by the environmental committee of the EU parliament.) There is no doubt that the decisions that were adopted at the EU summit in spring 2007 have secured the EU's leading position in international climate protection. "We have always demanded from the industrial countries to make the first step. Now the EU has done so – and it is our turn to respond," told us the head of the South African delegation. If the promised law package will actually be realised in a convincing way within the next months – this still needs to be proven – the EU is in an optimal position to become a core member of an international "Green Group" that is taking the lead in turning the post 2012 negotiations into a success. The detailed proposals of the EU-commission, presented in January 2008, have strengths, but also considerable weaknesses. They have to be strengthened to get a policy approach that is really up to the challenge.

■ On the occasion of the G8 summit in Heiligendamm a common signal for serious post 2012 UN climate negotiations was sent. In fact, it was not possible to adopt the two-degree limit, which is the goal of international climate politics of the European Union, as the objective of the UN negotiations. However, even the hesitating presidents of the USA and Russia, Bush and Putin, finally demonstrated their willingness to "consider seriously" a target including mitigation of global emissions by at least 50 percent until 2050.¹⁰ One of the roles of the oncoming G8 summit in Japan (July 2008) is to change the wording "consider seriously" into "accept". (Unfortunately there was no agreement in Heiligendamm on taking 1990 as reference year for reductions. A reduction by 50 per cent based on the year 2007 only equals a decrease of 38 per cent as compared to the level of 1990. This is probably not sufficient to comply with the two-degree limit.) For the first time ever the Bush-government accepted in Heiligendamm the UN process as the suitable institution for administrating the negotiations. Furthermore, it was agreed that the debate should result in concrete decisions until 2009. Setting this time frame is very important for serious negotiations. The schedule leaves enough room for the treaty to go through the ratification process in order to have it into force by January 1, 2013 – on time to directly follow up on the first commitment period of the Kyoto Protocol.

■ On the occasion of the UN high-level event on climate change in New York in September 2007 more than 80 of the world's leaders confirmed the urgency of serious negotiations about the reduction and limitation of greenhouse gas emissions and about adaptation issues.¹¹ But this conference only helped to build momentum for the start of real negotiations at the UN climate change conference in Bali in December 2007.

■ Now that the Stern Review has impressively demonstrated the economic case for action, a fundamental study published by the German Advisory Council on Global Change (WBGU) revealed the correlation between climate change and security.¹² The impacts of climate change on security policy are concisely illustrated, particularly with regard to the following conflict constellations: food supply, freshwater, storm and

10 G8-Gipfel 2007 G8 summit 2007

11 <http://www.un.org/webcast/climatechange/highlevel/index.asp?go=b070924>

12 WBGU, 2007

flood disasters and migration. Shortly before publication of the report in May 2007 the closely related issues of climate and energy security were discussed by the UN Security Council for the first time. This happened on demand of the British government. The relation between the two topics was further established at the UN General Assembly in September. Furthermore, Al Gore and the IPCC were awarded the Nobel Prize for *Peace*. It turns out that a promising strategy for international climate protection is to address the issues of climate security, energy security and access to energy (in developing countries) altogether.

This approach seems to be rational from an economic as well as from a security policy perspective. Enhancing energy efficiency, promoting renewable energy and – in case this path proves its feasibility – CO₂ capture and storage from fossil fuel power plants (or from second generation biofuel processes) represent “no-regret” strategies since they help to reach both targets at the same time. In practice, however, we currently observe boosting investment in the exploration of coal and oil sands and energy production from these sources. This is part of a strategy that plays off energy security against climate security.

2

At the crossroads between Bali and Copenhagen: Which path into the future do we choose?

Taking into account the topic's rather prominent media coverage world-wide prior to Bali and the public's growing perception of climate change as a matter of increasing urgency, more and more heads of government competed in their rhetoric pleas calling for action in the combat against climate change. Even President Bush tried to convince the governments of the 16 most emitting countries world-wide whom he had invited to Washington in September 2007: "What I'm telling you is, is that we've got a strategy; we've got a comprehensive approach."¹³ However, when taking a closer look at the suggested plans it can be found that often a similar wording is used to express very different intentions regarding the future of our climate system and the people and ecosystems living in it. In order to facilitate the assessment of different alternatives that were put up for discussion in Bali Germanwatch developed the following set of four scenarios. They provide a simple and intuitive overview of the confusing variety of possible future incidents. Furthermore, they deliver important yardsticks that help to evaluate the results that were achieved in Bali and put them into perspective. The scenarios mainly differ in three aspects: Firstly, in the magnitude of emission reductions envisaged, secondly in the degree of fairness that is reflected in the implied allocation of opportunities and risks related to climate protection, adaptation and possible catastrophes and finally in the legitimacy of the applied measures.

Our Climate Future

■ Scenario A: Large-scale Experiment with Mankind and Nature

Unmitigated climate change

■ Scenario C: Global Climate Partnership

Combination of binding UN process, bi-/trilateral agreements, technological innovations, self-financing process (auctioning emission trading etc.)

■ Scenario B: Climate Apartheid (with Elements of a Climate Dictatorship)

Major concern of industrialising and developing countries: serious climate protection limiting growth in developing countries

■ Scenario D: Planet Earth on the Heart-Lung machine (geo-engineering)

Self-regulating mechanisms of the earth collapse. Large-scale technical measures of permanent adjustments; significant side-effects and potential for misuse.

13 <http://www.whitehouse.gov/news/releases/2007/09/20070928-2.html>

2.1 Scenario A: Uncontrolled large-scale experiment with mankind and nature

Global emission trends show that unmitigated climate change will result in a large-scale and uncontrolled experiment with mankind and nature that is of unimagined dimensions. Having only read the speeches of the heads of governments and heads of state e.g. at the UN General Assembly one might easily have the impression that the problem of climate change is very close to being solved. The development of global emissions however, tells a different story. In fact, the growth of energy-related CO₂ emissions has been progressively increasing since the beginning of the new millennium. In the time period between 2000 and 2004 emissions increased almost three times as fast as in the years between 1990 and 1999 (3 per cent instead of 1.1 per cent annual growth).¹⁴ Taking the small differences in the data base used by the IPCC into account and comparing it with the observations presented in this paper one sees that the actual development ranges at the upper end or even slightly above the most energy intense IPCC scenario.¹⁵

The main reason can be found in the fast growing coal consumption world-wide and the enormous economic growth in China. "Every kilogram of coal being transformed to carbon dioxide captures a hundredfold of warmth in the atmosphere as compared to what we gain from it – it is time for a turnaround in energy supply," points out Carlo Rubbio, winner of the Nobel Prize for physics in 1984. But even the words of a Nobel Prize winner do not instantly initiate a change in the behaviour of politicians, producers and consumers. On the contrary, measured in absolute values coal is the fastest growing energy source of the new millennium. Although high oil and gas prices combined with concerns about energy security lead investment flows in the direction of renewable energy and enhanced energy efficiency, energy production from carbon and other CO₂-intense alternatives, for example the exploration of oil sands in Canada, still attract major parts of capital inflow. Thus, financial markets experience the so-called "Carbon Paradox" since the global discussion on climate protection coincides with an unexpected investment boom in the coal market. The reference scenario of the International Energy Agency leads towards the large scale experiment mentioned above. However, the jump in emissions that was observable over the last years even exceeded the assumptions made in this scenario. Up to now the experiment is undamped, it is even accelerated.

Scientific research has repeatedly shown within the last years that the trespassing of certain threshold values regarding the rise of global temperature could cause abrupt and irreversible changes in the system of the earth. We must be prepared to face these consequences when global warming reaches certain tipping points. The relation between global climate and the system of the earth is a complex and non-linear process including several feedback loops. The history of the earth shows that ocean streams have frequently stalled abruptly and that ice shields have suddenly melted or the monsoon has unexpectedly collapsed. Often even small disruptions were sufficient to entail fundamental changes. Simulations that are based on the knowledge about abrupt climate changes in the past as well as the scientific school

¹⁴ Raupach et al., 2007

¹⁵ Rahmstorf et al., 2007

of analysing highly complex processes that has been established since the 1970s support the finding that our climate and the system of the earth might react to this larger and accelerated greenhouse gas experiment with changes of enormous magnitude.

Will Steffen from Australia who used to be director of the International Geosphere Biosphere Programme from 1998 to 2004 summarises: “Sudden changes are the rule and not an exception.”¹⁶ Are we blinded by an unjustified feeling of safety having experienced the benefits of an era of 10 000 years of relatively stable climate which enabled our modern and complex cultures to thrive and prosper?

We live in a geological phase of exceptionally stable climate conditions. According to Richard Alley, one of the leading scientists documenting the unanticipated rapid melting process in Greenland, there were only two periods of that kind within the last 100,000 years. The first one, when the ice sheets were the biggest and the world was the coldest. The second one is the period we are living in. He refers to the example of strong temperature fluctuations that occurred at the end of the last ice age around 12,000 years ago when the ice sheets all over Europe retreated. Suddenly the temperature trend reversed and for the following 1,000 years the world was caught in a new cold spell that finally came to an abrupt end. According to the analysis of the ice nucleus that was carried out by Alley and his research colleagues temperatures increased by at least 5 degrees Celsius over a period of only 10 years.¹⁷

The second expulsion from paradise?

As a consequence of exceeding certain threshold values of global warming we might face a second expulsion from paradise: the paradise of stability which sheltered human civilisation for the last 10,000 years.

Several possible tipping points have been identified so far. John Schellnhuber has developed the first version of the map¹⁸ that has become an icon by now and that illustrates the rapid climate change and its effects. This icon is one of the “prostheses of political imagination”, which help to visualise the unimaginable. Murray Gell-Mann who was awarded the Nobel Prize for physics in 1969 asks for instruments like these considering the highly complex challenges that our geological system is confronted with. We here show a revised version of this icon.

In some cases exceeding certain temperature thresholds could entail dangerous positive feedback (blue), in other cases there could be enormous direct consequences for human life (red) and in some cases both reactions could occur in parallel (red-blue).

For several tipping points the critical value of global temperature rise lies in the range of 2 to 5 degrees Celsius compared to preindustrial level.¹⁹ However, at least in Greenland it cannot be excluded that an irreversible melting process might possibly already be induced by an even lower increase of global temperature.

¹⁶ Cited from Pearce, 2007: 42.

¹⁷ See Pearce, 2007: 43.

¹⁸ Kemp, 2005

¹⁹ John Schellnhuber is currently editing a special issue of the research journal PNAS (Proceedings of the National Academy of Sciences), in which leading experts estimate the probability that certain tipping points will be reached and what the threshold values are. As soon as this information is available we will update our own estimates that are based on various sources.

Many aspects of these highly complex processes are not yet fully understood. The models that are used by climate scientists are not yet advanced enough to illustrate these dynamic processes with their multiple feedback loops. For some of the phenomena it will always be impossible to make reliable predictions since even minimal fluctuations at decisive points can induce very different outcomes. Therefore the anticipated developments are no deterministic predictions but rather well justified scenarios. On a scale of 0 to 100 Hans Joachim Schellnhuber, president of the Potsdam Institute of Climate Impact Research and climate advisor of the German chancellor since the beginning of 2007, estimates the reliability of the simulation results for many of the feedback processes ranging “maybe at 30 to 50, for others only at 10”.²⁰

Hence there is no reason for anyone to pretend that there is an exact forecast of the future with regard to these non-linear, extremely complex processes. “We are conducting a disastrous experiment whose outcome we are just about to see”, summarises the theoretical physicist David Gross who received the Nobel Prize in 2004 for his contribution to quark research. “We do not have the appropriate instruments to anticipate the impacts of these drastic changes that we are talking about. The only serious climate experiment that we can conduct is the experiment that is done by emitting greenhouse gases. Only when we actually experience these devastating non-linear effects we will truly know where this is leading.”

Gerhard Berz was head of the department of geological risks at the Munich Re, one of the world biggest re-insurance companies, for several decades – his role was comparable to being the “master of disaster”. During the conversation with the Germanwatch team he points out another aspect: “If we were heading towards another ice age we would have a rough idea of what to expect. In this case we could use our knowledge about the past. But we are not given a map when entering the future of the greenhouse earth.”

Outlooks on this type of abrupt change must therefore be handled with care. However, together with geological simulations showing that many of the described tipping point processes have already taken place before in the history of our planet the latest computer models indicate the dimension of the large scale experiment with mankind and nature that is conducted through the continuing climate change and the dimension of the surprises that we should be prepared to experience.

The risk of extensive discontinuities is a category of particularly drastic dangers induced by the continuing increase of global temperatures. However there are other equally important risk categories whose occurrence is highly dangerous even without taking discontinuities into account:

- the loss of unique ecosystems
- the increasing number of extreme weather events
- the probability that the negative effects of climate change outweigh the positive ones on global average.

Even a rise in global temperature by 1.5 to 2.5 degrees compared to pre-industrial levels causes these risks to increase significantly.

²⁰ Schellnhuber, 2007

2.2 Scenario B: Climate apartheid

At the UN conference on environment and development in Rio de Janeiro (1992) the former President of the United States, George Bush, signed the UN Framework Convention on Climate Change that defines in Article 2 the objective of avoiding dangerous climate change. Accomplishment of this goal would imply a reduction of global emissions by at least 50 percent as compared to 1990.²¹ On the exact same Earth Summit the U.S. president also announced that the American way of life is not a matter under discussion. It is not impossible that there are paths towards a new, low-emission model of prosperity. Quite a number of different life styles fit to this new model of prosperity. But there are severe doubts whether it is possible to make a lifestyle that is based on air and car traffic, carbon based energy supply, air-conditioned bungalows and meat-intensive nutrition accessible for everyone and to avoid the dangerous impacts of climate change at the same time. Without an ecological transformation of today's dominating life style in industrial countries and among the booming elites of the emerging economies retaining this way of life is "structurally unfair – or only at the price of making the earth inhospitable".²² Many people in the industrialising and developing countries fear a climate apartheid that allows industrial countries to secure their privileges and take advantage of the necessity for climate protection by using it to keep new competitors off the stage of global economics. That is one of the main reasons why the emerging nations, particularly China and India, hesitate to commit themselves to international climate protection.

First of all it is a question of justice: Why should they consider commitments as long as the United States with per capita emissions that are five times as high as in China and even twenty times as high as in India are not willing and getting active to reduce accordingly? Since the industrial revolution the European and American progress has been built on fossil energy sources such as coal, oil and gas. "And just when we – the Chinese and the Indians – are about to develop they say: You cannot do that anymore," points out A. Sen, Indian Nobel Prize winner for economy. Secondly, international climate protection is a matter of legitimacy and participation – it is understandable that particularly India being the largest democracy worldwide is very sensitive to this issue. One has the impression that the international institutions including the UN and their Security Council, the WTO or the World Bank, do not properly integrate the individuals and states that are mostly affected by their decisions.

That is why the well-known Indian environmentalist Sunita Narain (CSE) is worried that industrial countries will not change their behaviour but instead intend to deny the industrialising countries their right on mitigating poverty and development through growth. She criticises the arrogant attitude of the industrial nations that used fossil energy sources to accumulate their wealth and thereby excluded the rest of the world from experiencing this kind of development. And now – without having even implemented any ambitious climate protection measures themselves – they demand drastic efforts from the newly industrialising countries.

²¹ IPCC, 2007: 15

²² Sachs/Santarius, 2005: 158



Greenland

Instability of the Greenland ice sheet due to non-linear melting processes

Gulf stream

Instability/collapse of the gulf stream due to the increased inflow of melt water from Greenland and declining salinity

Sahel zone

Bistability of the Sahel zone: Initial greening, then significantly dryer

Amazon rain forest

Instability/collapse of the Amazon rain forest, inter alia due to land-use changes

Oceans

Ocean acidification and decline in CO₂ buffer capacity

West Antarctica

Instability of the West antarctic ice sheet due to non-linear melting processes

Arctic

Collapse of the Arctic ice shelf and albedo decline

Permafrost/ methane clathrate

Methane gas emissions due to the melting of the Siberian permafrost dissociation of marine methane clathrate

Himalaya


Melting glaciers in the Himalaya and decline in the Albedo in the Tibetanian highlands

Summer monsoon

Bistability of the Indian summer monsoon: weakening due to air pollution or intensification due to global warming

El Nino

Intensification/persistence of the El Nino phenomenon

 Tipping points with direct and significant effects on mankind

 Tipping points with positive feedback effects on temperature

Source: Germanwatch, modified after Schellnhuber

Energy-related CO₂ emissions in the USA have increased by almost 20 per cent within the time period between 1990 and 2005. Similarly, those of the EU-27 only decreased by 3 per cent – the “Gorbachev effect” in the new EU member states accounts for parts of this reduction. In the EU-15 emissions actually increased over the same time period by almost 5 per cent. There is no doubt: The convincing evidence that prosperity without fossil energy sources is feasible has not yet been provided by the industrial countries although they promised in Kyoto in 1997 to take a leadership role. As long as this is the case it is fairly understandable that the emerging economies are hesitant to become involved in the international climate strategy.

Evaluation of the approach of the present U.S. government

What is the meaning of the new proposal presented in October 2007 by U.S. President George W. Bush in this context?

It basically shows that the U.S. government has finally an international climate strategy that goes beyond the only destructive attitude of the last years. But how constructive is this strategy? Its main objective is to close the differentiation that the UN Framework Convention on Climate Change has introduced: the principle of “common but differentiated responsibility”. It is the differentiation between those countries on the one side that are historically the biggest greenhouse gas emitters and that even today have the highest per capita emissions worldwide and those rapidly developing countries on the other side that experienced a jump in development over recent years, entailing increasing emissions. However, per capita emissions in these countries are still comparably low and the majority of the population still suffers from disastrous poverty.

The rhetoric of the U.S. government had two main implications: First of all, we all have to get active – which is itself nothing new – however, the common action should not be organised by the principle of common but differentiated responsibilities but instead the rich and the poor should move in lockstep. And second of all, the US and rapidly developing countries, both are economically not in the position to accept binding targets. Crystal clear is Sunita Narain's comment on this point: “This is the ultimate and deadly bribe to seduce India and China.” She sees the main message of the U.S. approach as follows: “We will not allow the Europeans and others to push us into legally binding targets. This way is better: voluntary commitments and no targets.” But Sunita Narain contradicts: “Just think. This is a way in which we will all go to hell together. The fact is that the world needs to act.” (Narain, 2007).

In detail Bush suggests:

■ Those countries with the highest emissions join in a process organised by the USA to aim for a common, non-binding long-term goal. (These targets are not expected to be very ambitious since the most affected small island states and the poorest developing countries do not participate in the negotiations.) Only for the long term the US government might accept a relatively ambitious target – as it doesn't imply to act in the foreseeable future.

■ In a next step every country should determine its individual strategy to contribute to the accomplishment of this long-term goal. Setting global and

national targets without any obligation means gambling with the climate security of mankind. This is because players of the financial markets have clearly signalled that the necessary reformation of investment streams towards low-emission technologies requires a binding political framework (emission trading or eco-tax) that is relevant to financial decision-making.²³

■ Bush's government denies the need for a strong CO₂ price signal that is either set through emissions trading or taxation. Instead it hopes for technological innovations. But even if these will actually become reality, which we all hope for, they require suitable political and financial regulations. A clear and long-term CO₂ price signal serves as a necessary but not yet sufficient instrument.

■ Finally the U.S. president adds a significant cutback: A country's access to energy sources, its state of development and its economic needs should be considered in the definition of emission targets.²⁴ That sounds like a banality. But it actually implies that the current government of the richest country in the world intends to relativise the need for climate protection according to its individual economic objectives and its climate-unfriendly lifestyle. This attitude is incompatible with a commitment to the necessary cuts in emissions.

■ After all the U.S. government confronts the rest of the world with the following alternatives: Large-scale climate experiment or climate apartheid – the latter option including a manifestation of American privileges and serious climate protection by all other countries. The U.S. government will probably know how to make their proposal sound positive. One therefore has to pay attention to the information that is given between the lines which reveals very different scenarios from what one might think at first glance.

2.3 Scenario C: Global partnership on climate protection

The main focus of the UN Climate Conference in Bali was directed on organising international negotiations in a way that allows for the agreement on a global partnership on climate protection until 2009. The main objective was to develop a roadmap for further proceeding including:

- serious negotiations on a post 2012 agreement
- which have a workable structure
- and which in particular define the commitments of industrial countries within the framework of a global partnership with regards to mitigation and adaptation in developing countries.
- These commitments have to reflect ambition to comply with the two-degree limit and reflect the vision of equal per capita emissions and
- they need to be complemented by fair contributions of the emerging economies following the principle of common but differentiated responsibilities.

²³ "Financial markets need a clear and long-term regulating framework to enable them to fulfill their function." This is said in a statement of the "Finanz-Forum: Klimawandel" on the occasion of the second climate research summit organised by the Federal Ministry of Education and Research (BMBF, 2007).

²⁴ White House, 2007

■ This process has to come to an end within an appropriate time frame, i.e. until 2009.

"Only" the beginning of serious negotiations?

Some people among the general public might be disappointed. Considering the public pressure of the last 18 months one could expect decisions on further commitments instead of "only" the preliminary arrangement of serious future negotiations. But this viewpoint reflects a certain degree of naivety and the failure to really understand the dimension of this task. It is about setting the stage for a massive transformation of the energy, traffic, building, agriculture and forestry system. It is about the first technological revolution that is initiated by political regulation. Considering that this revolution must be debated among more than 150 states a 2-year time frame is extremely ambitious.

2.4 Scenario D: Planet Earth on the Heart-Lung Machine

Considering the extremely high risks and the – at least up to now – very slow political process and rapidly growing global emissions, another scenario is put up for discussion: Using the technical means of geo-engineering to take control of the earth's self-regulating systems that are more and more overstrained by anthropogenic greenhouse gas emissions. Possible approaches are depositing iron in the oceans, spreading reflective materials in the atmosphere or using other reflection systems. James Lovelock²⁵ has found a meaningful analogy to these attempts. He recalls the never ending problems of individuals whose kidneys do not work properly and who therefore are constantly concerned with balancing their intake of water, salt, and protein. Dialysis helps but the side-effects are significant and it is never a real replacement for the kidney's functioning self-regulation. Many of the methods of geo-engineering would plug our earth to a heart-lung machine.

The latest IPCC report clearly expresses this point: "Geo-engineering options, such as ocean fertilization to remove CO₂ directly from the atmosphere, or blocking sunlight by bringing material into the upper atmosphere, remain largely speculative and unproven, and with the risk of unknown side-effects. Reliable cost estimates for these options have not been published."²⁶

Ken Caldeira from Stanford University in California has done several research studies on the options of strategically influencing our climate.

There are three categories of questions that need to be taken into consideration. First of all questions of security and efficiency. Secondly the broader questions of moral, social and political dimensions. "And one of the most irritating questions is that people begin getting used to the idea that technical solutions might be available and less expensive than mitigation and therefore they begin to rely on them as an alternative to reducing emissions."

He therefore discourages from implementing these techniques too early but instead he calls for further research.

²⁵ Lovelock, 2006

²⁶ IPCC, 2007: 15.

But whoever demands further research in this area should be aware of potential consequences: The results might easily be misused.

In 1946 scientists from General Electric revealed that dry ice molecules – frozen carbon dioxide – can transform to ice crystals which are identical to those that are found in clouds. This finding led to further research with the objective to supply rain to droughty areas.

It is worth mentioning how rapidly these ideas of controlling rain fall were used for military purposes. As far as we know the US forces were the first to make use of weather modifications during the Vietnam war. The secret mission had the code name *Popeye*. The U.S. Air Weather Service used three adapted transportation air planes of the type WC-130 to generate artificial clouds and strong rain falls over the Ho-Chi-Minh path. The plan was to extend the monsoon, soak the ground and thereby make tracks that were vital for logistics and communication impassable.²⁷ In the early 1970s the media uncovered the secret attempts to change the weather and induced a wave of public outrage. The US Congress put a fact-finding commission in charge and its findings substantially contributed to the UN treaty on banning environmental weapons of 1978.

In 1994 a plan of the U.S. Air Force called *Spacecast 2020* became public. In contrast to the UN charter this strategy included controlling the weather. The interest in military weather control has never stopped. The report “Weather as Force Multiplayer; Owning the Weather 2025” published by the U.S. Air Force reveals the options for action: Using antennas to heat the ionosphere in order to disturb the opponent’s communication. Using laser to produce lightnings in order to make invasive air planes crash. Using air planes to spread micro dust in order to induce continuing rain falls. Redirecting winds to control the fall-out. On request China could be flooded or Europe could be deep-frozen. The Air Force is confident that by 2025 they will be able to create the suitable weather conditions for ever military operation.

Anyone who thinks that referring to the scenario “Planet Earth on the Heart-Lung machine” is a valid option should not only consider the unanticipated side effects but also the unexpected consequences on our highly complex global system. Furthermore, the fact that the possibilities to externally control global climate could be applied to meteorological warfare as soon as individual states know how to manage the art of changing the weather – or at least think they do so.

²⁷ see Durschmied, 2005: 319ff.



3

The Bali Roadmap: Finally heading in the Right Direction?

3.1 Principles for a process oriented at the idea of a global climate partnership

Germanwatch clearly votes for Scenario C, the establishment of a global climate partnership. It is essential for the attainability of this goal that on the road to the climate summit in Copenhagen 2009 we stop quarreling over burden sharing with sorrowful faces but instead enter the race for a new model of prosperity – driven by an active civil society and supported by financial markets that see opportunities in the oncoming massive transformation²⁸.

Prior to the conference Germanwatch defined the following central criteria and principles that were supposed to serve as an orientation in the negotiation process:

■ **Climate effectiveness:** The negotiation process must provide the basis for passing a treaty by 2009 that leads towards limiting global warming to **less than two degrees Celsius** as compared to preindustrial levels. The treaty must therefore give highest priority to setting the stage for **reaching the peak of global emissions by 2015**. The long-term goal must be to **reduce global emissions by 50 to 85 per cent (compared to 2000) until 2050**.²⁹

■ Moreover, the agreement should be *comprehensive* in terms of including all relevant and methodologically sound carbon sinks as well as, at last, emissions from air and maritime traffic and it should provide incentives to avoid deforestation on a national level. We need an effective mechanism equipped with substantial funds to stop deforestation soon, especially in tropical countries. But we also need to act cautiously: the “avoided deforestation” cannot be integrated into international emissions trading. Thus, an enormous amount of very cheap certificates would lead to a rapid decline in the price of certificates. Even worse – to the extent that rain forest protection would take place, less climate protection would occur domestically. More rain forest protection means more coal-fired power plants domestically if avoided deforestation can be offset against industrialised countries’ targets. It would be absurd to design the urgently needed rain forest protection mechanism in a way that eliminates serious international climate protection.

²⁸ Potsdam Memorandum, 2007

²⁹ Of course, reaching the trend reversal in global emissions before 2015 is preferable from a climate protection perspective. However, taking into account that emissions have grown progressively worldwide over the last couple of years this objective appears to be beyond reach. Possibly technological breakthroughs will make more ambitious reduction targets than 50 to 85 per cent appear feasible but for the time being, keeping the right to development and social issues in mind this seems to be rather unrealistic.

■ More concretely, this requires a negotiation process that leads to a **reduction commitment of 30 to 40 per cent until 2020 (compared to 1990) in industrial countries** on the one hand; in addition to this amount of reduction achieved domestically, industrialised countries must commit themselves to substantial emissions reductions to be achieved in the framework of international emissions trading or a reformed CDM by way of climate protection measures in developing and emerging countries (co-)financed by industrialised countries.

■ In addition, we need serious negotiations (instead of the previous talks) about the **“fair share”** of rapidly developing countries which they contribute with substantial transfer of funds and technologies. Nobody should expect that these negotiations result in absolute emission limits or even reduction targets for newly industrialising countries until 2020. However, increasing energy efficiency by 4 per cent annually as compared to the business as usual scenario could be required. And this must be backed by substantial financial and technological support of industrialised countries. The implementation of appropriate measures would reduce costs, enhance energy security and support climate protection at the same time.

■ **Equity:** The process should aim to create a **global climate partnership**. The idea of **common but differentiated responsibilities** is a basic principle of the Framework Convention on Climate Change which applies to both emission reductions and adaptation. Equal per capita emission allowances worldwide by the middle of the century ought to be an important guideline. But other criteria like capability might be of relevance as well.

■ **Dimension of adaptation:** We need a **larger range of opportunities to finance adaptation to climate change and we must provide financial post-disaster support for affected people**. Many industrial countries have not yet realised that they have to enter into substantial financial commitments in the area of adaptation in order to successfully conclude the negotiations.

■ Here it is crucial to **support local approaches** to adaptation. Moreover **innovative instruments of risk allocation** such as internationally **co-financed insurance instruments** need to be developed. They should not only help to **bear the damages** but also to **create incentives for local adaptation processes**.

■ **Relevance for Investment:** The international market for emission allowances needs an effective political framework that is considered to be **“long, loud and legal”**³⁰ and that induces the development and significantly accelerated implementation of innovative technologies. Bali must send a clear signal to the financial markets assuring that the chosen path will be continued with even more **stringent** targets and a **much more considerable CO₂ price signal**.

■ The framework needs to **coherently comply with developmental and environmental targets**. This means on the one hand that the climate targets mentioned above need to be coherent with the objective of energy security and on the other hand that the framework has to include a strategy of decarbonisation in developing and industrialising countries which aims at reducing emissions and furthering adaptation without eroding the millennium development goals.³¹

³⁰ see defra, 2006

³¹ Harmeling/Bals, 2007a

■ Aside from **preventing dangerous climate change**, Article two of the Framework Convention on Climate Change also defines **sustainable development** as a major goal.

■ a framework that enables a **boom in technological development**;

■ an impulse for **innovation and technological cooperation** (south-south; north-south)

■ the climate regime as a **self-financing system of combined incentives for climate protection and adaptation**;

■ **synergies between the central UN process and complementary processes** (Gleneagles, G8, Major Emitters Meetings etc.).

Bali brought decisions that allow to *negotiate* about the path towards a road of climate partnership. But it is totally open whether the different actors will *agree* on the necessary steps. The summit has created a concrete time table, an acceptable agenda and a meaningful process. However the conference has also demonstrated that there are still major obstacles to overcome on our way to an agreement that will actually induce a turnaround in global climate policy within the next decade. Bali is not the end, but the begin of a hurdle race until Copenhagen 2009.

3.2 The most important results of Bali

3.2.1 Bali's positive results

In addition to the already existing Ad Hoc Working Group (AWG) that deals with the advancement of the Kyoto Protocol an additional Ad Hoc Group was created.³² (The Kyoto Protocol had been prepared by an Ad Hoc Group as well: AGBM, Ad Hoc Group on the Berlin Mandate.)

Already in spring 2008, these two negotiation groups will meet for the first time – supposedly in Thailand. From now on the pace of negotiations will considerably increase. In future, the number of annual negotiation rounds will be doubled from two to four. This means that the necessary negotiations towards an effective and comprehensive post 2012 agreement involving all of the relevant actors can actually start with the required intensity.

The scientifically well-founded benchmark of global climate protection efforts that is to be reached within the next 24 months was publicly communicated by the international community (only the United States disagreed), however, it is not yet accepted as a binding commitment: In order to limit damages caused by climate change, emission reductions in industrial countries by 25 to 40 percent as compared to 1990 must be achieved. On a global scale, the peak of emissions must be reached within the next 10 to 15 years – followed by an immediate decline that leads to reductions of more than 50 percent until 2050. By referring to the IPCC report the negotiation process was put on a scientifically sound base.

³² It will probably be one of the key challenges for the upcoming climate conference (2008) in Poland to unite these two working groups.

3.2.2 The drawbacks of the Bali results

Despite the conference's dramatic last couple of hours which finally paved the way for the future negotiation process one must not oversee the shortcomings of the results. Although climate change has never before been so prominently placed on the agenda worldwide, the international community failed to define a clear direction regarding contents and explicit specifications of future negotiations. Instead, compromises – even concerning central questions – open the door for whatever interpretation is favoured by different interest groups. Thus, neither the objective to limit global warming to less than two degree Celsius above preindustrial levels nor a range for absolute emission reduction targets were bindingly accepted. The determination of legally binding commitments will now be subject of further discussions in the initiated negotiation process, as well as obligatory measures for adaptation, technological cooperation and financing – not more and not less than that. Enormous hurdles need to be overcome in all of these areas to finally pass a legally binding international agreement on obligatory actions in 2009. This framework must seriously and not just rhetorically combat global climate change. The danger that the US government may organise the “Major Emitters Meetings” with the major industrial countries and emerging economies with intent to undermine the UN process in its effort to establish binding targets has been mitigated but not yet averted. Regarding the UN process, it is therefore important to work out a balanced, equitable and comprehensive package for further decisions by policy makers. There is no doubt that Bali was just the starting point for this “hurdle race” – with Copenhagen in 2009 being the finish line.

In the run-up to Bali Germanwatch had insisted on measuring the conference results and the initiated negotiation process against different criteria that were illustrated above. In the following section Bali's central outcomes will be measured against these criteria and Germanwatch's expectations prior to the conference. The discussion will refer to the four major negotiation tracks:

■ One track dealing with mitigation of greenhouse gas emissions, including the advancement of emission trading and instruments promoting international forest protection.

■ A second track dealing with the provision of support for particularly affected regions and states in their efforts to adapt to the unavoidable consequences of climate change.

■ A third one should result in regulations and incentives for providing the necessary technologies that facilitate mitigation and adaptation. This negotiation package goes well beyond what had been treated under the subject of technology transfer before.

■ And a fourth one aiming at developing new and innovative mechanisms to finance technologies, adaptation and forest protection.

Many of the central actors hope that the consolidation of the Kyoto and the UNFCCC negotiation streams to a “committee of the whole” will be achieved at the UN climate conference in Poznan (Poland) in December 2008. From this point on negotiations could come to carefully balanced results by the time of 2009 (UN climate conference in Copenhagen). The three hosts of the climate conferences 2007-2009 (Indonesia, Poland and Denmark) have formed a working group that is in charge of coordinating the dramaturgy of the negotiations.

3.3 Mitigation: Avoiding the Unmanageable

Negotiations in Bali were expected to focus on keeping global warming below two degrees Celsius. From Germanwatch's point of view this means in particular to reach the peak of global emissions by 2015. By 2050, reductions of 50 to 85 per cent need to be achieved worldwide. In order to accomplish the global mitigation target the negotiation process needs to result in reduction obligations for industrialised countries of 30 to 40 per cent by 2020 (as compared to 1990). Moreover, from an equity perspective it is important that the introduction of equal per capita emission rights by the middle of the century serves as a long-term objective – other criteria like capability might be added.

3.3.1 What has been achieved in Bali

On the convention track³³, it was not agreed on a publicly visible benchmark for the success of negotiations that adequately reflects what needs to be done. However, contrary to what was reported in large parts of the media, this was achieved regarding the negotiations on the further commitments of industrialised countries under the Kyoto Protocol. The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG) that was implemented two years ago points out in its final document from Bali that the avoidance of serious damages requires to reduce emissions in industrial countries by 25 to 40 percent until 2020 as compared to 1990. Furthermore, it is stated that *global* greenhouse gas emissions (i.e. including the emerging market economies) need to peak within the next 10 to 15 years and drop significantly afterwards so that by 2050 emissions will be at least halved as compared to the level in 2000. These targets were derived from the IPCC scenario assuming an increase in global temperature of 2 to 2.4°C above preindustrial levels. The IPCC also emphasises that in addition to the mentioned range of reduction in industrialised countries it is necessary to engage emerging nations in climate protection.³⁴ It is therefore remarkable that emissions in emerging economies are implicitly included into the two mitigation objectives that were mentioned before (to decrease substantially below 50 percent and to reach the peak of emissions within 10 to 15 years). Being parties to the Kyoto Protocol these countries have also agreed to make these objectives the yardstick for future negotiations – however, they have not yet accepted them as targets for the global community, and totally open is the question

³³ The negotiations on this issue led to the formation of a coalition between the Least Developed Countries, AOSIS, and the EU with the goal to oblige industrialised countries to reduce emissions by 25 to 40 percent until 2020. This proposal was rejected by the USA and Japan. China, India and Malaysia were very hesitant at the beginning to include references to the IPCC's Fourth Assessment Report since they considered some studies and assessments of developing countries cited by the IPCC to be inadequate.

³⁴ This aspect needs to be taken into account when discussing the share of reductions in industrialised countries that can be accomplished through CDM certificates. If the two degree limit is taken seriously it is definitely necessary to enhance climate protection in emerging economies in addition to the required reductions in industrialised countries. However, the CDM in its current form entails that all of the efforts made reduce efforts made in industrialised countries. This trade-off is not compatible with the two degree limit.

how the efforts would have to be shared between nations. The respective phrase in the final document has aroused high expectations and therefore put the Kyoto parties under enormous pressure. Considering the previous course of negotiations, it was rather unexpected that even countries like Canada, Australia and Russia, as well as the major emerging nations, which up to that point demonstrated a quite reluctant attitude, eventually approved this phrase in the conference's final meeting. It is important to note that this is far from being a legal codification of the according objectives which then still need to be distributed equitably among the countries. Nevertheless, the level of aspiration for the next two years is hereby defined. It may be expected that the Japanese host of the G8 summit 2008 intends to debate the issue with the major industrial nations and the five most important emerging economies in order to achieve a preliminary decision on the determination of a global reduction target until 2050 and the timing for the peak of global emissions.³⁵

In contrary to what was achieved in the decision paper concerning the Kyoto parties, it was not possible to include a similar reference to the most ambitious IPCC scenario in the final document concerning the members of the framework convention. The convention was also ratified by the United States. Although the cooperation between developing countries and emerging nations (G77 plus China) and the EU proves more and more to be a success in the negotiations, the current U.S. administration impeded the determination of such a far-reaching target. In fact, the most ambitious IPCC scenario is only one of several scenarios that is referred to in a footnote of the final document. At least it is stated that obligations should be "comparable" for all industrialised countries. Consequently, the document passed in the Kyoto track and the commitment to agree on "deep cuts" also define a level of aspiration for the USA. Yet again, this is only a political and rather flexible agreement with no legal status. In the worst case, this wording might even induce Kyoto countries to claim that they are not willing to do anything more than the U.S. government, thereby initiating a downwards adjustment of ambition.

As already mentioned above it can be considered one of the most positive surprises that occurred in Bali that not only countries like South Africa, Mexico and Brazil, which have been promoting the acceptance of climate protection efforts in emerging economies for quite a while already, but also China and even India expressed their support. With a changed mandate on the last two decisive days of the conference, India had finally played a very constructive role. In the Bali Action Plan the rapidly developing countries assert their intention to engage in measurable, reportable and verifiable mitigation measures at home. These efforts shall be "supported and enabled" (BAP, 1bii) by equally measurable and verifiable actions concerning technology cooperation, financing and capacity building undertaken by industrialised countries. It was indicated that the emerging economies would have been willing to accept an even stronger wording if in turn U.S. government had only committed to ambitiously quantified reduction targets. One can hope that the phrase "supported and enabled" is not interpreted in the sense that *all* of the emerging economies' "homework" should to be financed by the industrialised countries. On the other hand it becomes obvious that a new and pathbreaking framework will only

35 Darren Samuelsohn, CLIMATE: G8 summit seen as likely venue for deal on emissions goal, in *Greenwire*, 8.1.08;

be achievable if industrialised countries offer financial and technological cooperation on much larger scale.

Equal emission rights per capita did not play any role in the negotiations. However, the Indian delegation thought about introducing this claim to the negotiations (and introduced it some weeks later at the “Major Emitters Meeting” in Honolulu). And implicitly, the convergence of per capita emissions until 2050 functions as an important yardstick in the evaluation of a fair agreement. Because after all, any possible approach must be considered equitable by emerging economies and developing countries, otherwise it will be impossible to reach a satisfying agreement by 2009. Moreover in the Bali Action Plan it was stated that the shared long-term vision and the long-term mitigation objectives should be in compliance with the principle of “common but differentiated responsibilities and respective capabilities” (BAP, 1a). Particularly due to pressure exerted by the U.S. government, it was added that social and economic circumstances and other relevant factors also need to be taken into consideration.

Regarding mitigation objectives in the United States as non-Kyoto country it can be considered an accomplishment that the Bali Action Plan (BAP)³⁶ requires that the obligations of all industrialised countries should be “comparable” (BAP 1bi). However, the BAP also requires the consideration of specific national circumstances in this context which might serve as a loophole. In any case, the term “comparable” leaves some room for interpretation.

It was moreover determined that “measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives” (BAP 1bi) should be agreed on. Thereby it is not yet guaranteed that the U.S. government will accept any binding mitigation targets, in fact, it seems unlikely that a turnaround of this sort will occur under the current administration. However, by the end of 2009, it may be possible to reach an agreement with the new government (The most promising candidates Clinton, Obama and McCain all stand for a climate turnaround in the US).

It is remarkable that the phrase which says that technology may be considered under or outside the convention is ambivalent. On the one hand this wording allows to include the activities of a future U.S. government (assuming compliance with the respective criteria) in case that a new agreement might not be ratified with the required two-thirds majority. On the other hand, there is the risk that the UN convention might lose more and more of its power due to the fact that an increasing number of activities take place outside of it. All in all, it was not possible to achieve more than that with the current government. Still, it is interesting that some observers of the U.S. delegation indicated that the U.S. chief negotiator, Paula Dobriansky, unlike the White House, was ready to accept the start of negotiations on binding targets for the USA. It will be exciting to observe these internal dynamics in the coming months.

Furthermore, the inclusion of avoided deforestation in developing countries in the Bali Action Plan can be considered a success. First of all, the implementation of pilot projects was supported. Moreover there will be negotiations dealing with new policies and financial incentives for the time after 2012. It may be a threat to the architecture of a post 2012 treatment that the promotion of afforestation was included

³⁶ Decision -/CP.13, http://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_act_p.pdf

as well. If programs to promote afforestation were supported through CO₂ incentive mechanisms, industrial monocultures with severe effects on biodiversity, soil and groundwater contamination might be the consequence.

Unfortunately, the Bali Action Plan does not include an explicit mandate for negotiations on the limitation of emissions from international aviation and ship traffic. At least, a rather general phrase about “cooperative sectoral approaches and sector-specific actions” (BAP 1biv) allows for indirectly integrating these sectors into the development of a concrete work program. Additionally, after decades of standstill there were two signs that give hope for a possible progress regarding the issue of aviation, the sector with the strongest growth in greenhouse gas emissions. First, a workshop that was organised by Norway outside of the UN process (and therefore excluding countries constantly blocking progress) illustrates that methodological problems related to the inclusion of aviation are quite easy to solve.³⁷ Second, the U.S. delegation communicated in informal talks that they see aviation next to the forest sector as a possible pilot sector for sectoral agreements. At first glance this appears quite positive. Nevertheless, as long as no details are known, it is important to consider as well that this approach might have been put up for discussion simply to impede discussions on the integration of international flights leaving from and arriving in the EU into the European emissions trading scheme.

3.3.2 What remains to be done

■ One of the key tasks in the next two years will be to turn the reduction ranges that were accepted as a yardstick for negotiations by the Kyoto parties into legally binding targets for industrialised countries and meaningful obligations for emerging economies. Individual countries then need to decide on concrete measures to reach these ambitious goals. Germany, whose performance will be measured against more stringent criteria since up to now the country was able to benefit from the consequences of the fall of the wall, will have to realise a reduction of 40 to 55 percent compared to 1990 until 2020. (A certain share of the reductions can be realised through international emission trading or the Clean Development Mechanism – CDM.) All governments are urgently asked to start immediately with the implementation of their respective plans for action and not to wait until 2009.

■ It will be crucial for the overall architecture of the treaty to soon reach consensus with the new U.S. government regarding serious reduction commitments for the USA. In principle, this seems to be feasible with several of the potential candidates running for presidency – with all of the Democrats and particularly McCain among the Republicans. However, it may be considered a severe obstacle that some of the potential candidates expect China and India to accept targets that are similar to those of the USA. Climate policy is primarily regarded from an industrial perspective. But for the emerging economies this way of treating the unequal equally means entering the dreaded scenario of “climate apartheid”. Per capita emissions in the USA are

37 Vgl. “Bunker fuels: It’s time to act” in: ECO Bali Issue No. 9, <http://www.climatenetwork.org/eco/bali-ecos/ECOcop13n09.pdf>

about five times as high as in China and almost 20 times as high as in India. But these countries fear to be assigned almost identical reduction targets. These equity related questions will be one of the major issues on which the realisation of a pathbreaking post 2012 framework will depend.

■ On EU level one key task in the next few weeks will be to decide on the inclusion of international aviation in the European emission trading scheme. Unfortunately, on December 20, 2007, the environment ministers have significantly weakened the EU parliament's proposal in this matter. It is important for the progress of the international debate that the EU parliament puts through its agenda in the upcoming discussions – even against the resistance of the German government. The next step will then be to arrange bilateral talks with representatives from countries depending on tourism and emerging economies about measures that help to increase acceptance. (For example a promise of EU , that a certain share of certificates from CDM projects realised in these countries would contribute to target achievement.) Moreover it needs to be clarified bilaterally with the U.S. government what they expect from a sectoral agreement on international aviation. Only in case that this proposal will not turn out to be an attempt to impede the inclusion of international flights in the European emissions trading scheme this might be an interesting point to discuss at the Major Emitters Meetings (MEM) that will be organised by the U.S. government.

■ It is very important to closely observe and assess pilot projects to avoid deforestation. The biodiversity conference that will take place in May 2008 in Bonn (9th UN Convention on Biological Diversity) needs to define requirements for all climate related incentive programs with regards to biodiversity and soil quality. In the upcoming negotiations incentives for avoided deforestation should be strictly separated from measures to promote afforestation since the challenges and requirements concerning social and ecological integrity must be very different. Otherwise there is a risk that instead of protecting the rainforest, the creation of large-scale industrial monocultures is promoted. This would also lower worldwide acceptance of the future climate treaty. There are many disadvantages – for the forest and for the Emission Trading system – to combine incentives for avoided deforestation with the Emission Trading system. So funds solutions should be preferred.

■ The close and constructive cooperation between the EU, major emerging economies, and the Least Developed Countries that evolved in Bali needs to be continued and advanced. This “coalition” might serve as an important strategic pillar in the construction of a far-reaching post 2012 framework. The Least Developed Countries played an extremely constructive role – in close partnership with the Small Island Countries (AOSIS). Currently, the U.S. government's attitude towards both their own minimal commitments as well as what they expect from emerging economies is appalling these countries. This situation should be seen as an opportunity by the EU that could now push for a common position with the emerging nations, also by intensifying bilateral cooperation. An important point will be to agree on the design of an organisational framework for technology cooperation and financing that effectively prevents the construction of new coal-fired power plants without CCS. Initiatives of this kind might create the basis for taking on a leading role in future negotiations.

■ The following elements seem to be of particular importance:

- Regarding the ambition of climate protection targets, the findings of the IPCC provide the yardstick against which a successful agreement must be measured.
- It was interesting that, with reference to the IPCC, the group of newly industrialising and developing countries (G77 and China) pointed out that an extension of the international carbon market as well as significant financial and technological assistance provided by the industrial nations is required to realise the great transformation of global economy in an efficient and equitable way. The Stern Report³⁸ also supports this claim. The strategy of the developing countries and emerging economies, notably China, in the SB meetings was obviously built on these two IPCC-based statements.
- Moreover a comprehensive approach requires to significantly enhance support for adaptation in the most affected regions and states on a much larger scale. The Least Developed Countries and the Small Island States (AOSIS) expect massive support for their adaptation efforts since they face the most severe consequences of climate change without having markedly contributed to the growth in global emissions. On the other hand, they support a strategy that considers substantial reduction and limitation of emissions in industrialised and newly industrialising countries to be the primary and most urgent step towards successful adaptation.
- All objectives need to be consistent with an emission path that envisages the convergence of equal emission rights per capita by the middle of the century.

These elements represent cornerstones of a new framework that the EU should build on. This construction process must be initiated in bilateral and multilateral cooperation with developing countries and emerging economies.

3.4 Adaptation: Managing the Unavoidable

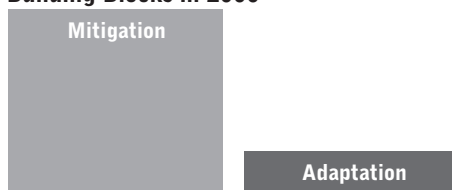
Mitigation – the avoidance of the unmanageable – is of central focus but it represents only one of the two pillars of a global climate partnership. Since the effects of climate change are already visible all around the world but particularly obvious in poor countries, means of adaptation need to be expanded. We need a new dimension of financing for adaptation to climate change and for providing security for the most affected people. Many decision-makers in industrialised countries have not yet realised that a successful agreement requires their commitment to substantial financial contributions in the area of adaptation. In Bali several major decisions concerning adaptation were points of the agenda including the establishment of the Adaptation Fund as well as the start of negotiations for the development of innovative instruments to spread risks among industrialised countries and emerging economies (e.g. through co-financing of insurance instruments).

³⁸ http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/

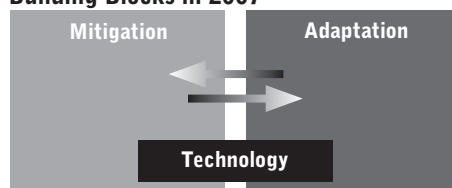
Adaptation: Managing the Unavoidable

- New dimension and bindingness of the adaptation package
- Combination with combating poverty
- Support for Community Based Adaptation
- Innovative Instruments to protect the "Uninsurable" (e.g. international Cofinancing of the reinsurance for Micro-Insurance)

Building Blocks in 2000



Building Blocks in 2007



Quelle: UNFCCC

3.4.1 What has been achieved in Bali

Many interventions in Bali have shown that already today a large number of countries are strongly affected by the adverse consequences of global climate change and that they will have to cope with severe risks in the future.³⁹ Taking these facts into account the Bali conference has clearly demonstrated that without the willingness of the industrialised countries to offer massive support to the most affected states and regions for their adaptation measures it will not be possible to pass the necessary far-reaching framework by 2009.

In Bali the extensively discussed decision on the creation of an adaptation fund was finally passed. Although the fund is still far from reaching its necessary size, it is one of the conference's central results. The fund has some very innovative features, for example, it mobilises capital through the CDM levy which is the first international environmental levy at all. Therefore it represents a first concrete building block to construct the innovative financial architecture of an international climate regime. Approaches of this kind are necessary to cope with the enormous financial challenges posed by the requirements of mitigation and adaptation.

The future management of the adaptation fund was one of the most critical points to debate. The "Adaptation Fund Board" will be given authority in all major issues.⁴⁰

³⁹ See also the results of the Climate Risk Index published by Germanwatch, <http://www.germanwatch.org/klima/crri.htm>

⁴⁰ The fund will be managed by an executive board comprising a total of 16 members whereof the majority will be representatives of developing countries. The executive board will be supported by a secretariate residing at the GEF. The World Bank will function as an interim trustee; it will be in charge of creating a trust that will hold the proceeds from the sale of emission certificates that are provided for the AF. The executive board will start working in spring 2008 already. The board's members and their substitutes are nominated by governments. Marita Steinke from the Federal Ministry for Economic Cooperation and Development was elected to represent Germany.

The Global Environment Facility (GEF) that administers the already existing funds under the framework convention will function as a secretary to support the Board in its work. Hence, the GEF is given significantly less authority than it was initially striving for. This restriction in power was an important precondition for the group of the G77 plus China to finally accept the GEF's role as a secretary. Moreover the fund's executive board will not meet in Washington, where the headquarters of the GEF are located, but it will use the UN climate secretary's facilities in Bonn. Furthermore, the Least Developed Countries have accomplished various negotiation goals regarding the fund: They are a fully accepted member of the fund's Governance Body and Bangladesh was elected first to take this position. The implementation of a fast-track process was accepted and direct access to the fund was provided.

The adaptation fund may have a much more meaningful role in the future. This is conveyed by a negotiation paper on the Review of the Kyoto Protocol due at the next climate summit in Poland (December 2008) passed at the Bali conference. In this context it will be negotiated whether the international environmental levy that is currently charged for project based emissions trading with developing countries (CDM) will be extended to also include the Joint Implementation mechanism and transactions on the international carbon market. This measure alone would multiply the financial resources of the fund. And assuming that, as required, reduction targets will become even more stringent this amount would significantly increase. The Bali Action Plan also suggests the need for assisting the most vulnerable countries in their adaptation efforts through "innovative means of funding" (BAP, 1e, iii). Questions concerning the access to "adequate, predictable and sustainable financial resources"⁴¹ as well as the exploration of new and additional financial resources will be debated in the following two years. All in all, the issue of financing for adaptation is part of the agenda for the upcoming negotiations so that the required results may be achieved by 2009.

The Bali Action Plan has bravely taken the first steps towards the deployment of new instruments for adaptation and risk distribution. "Means to incentivize the implementation of adaptation actions" as well as "risk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance" (BAP, ci and cii) are explicitly put up for discussion. Speaking in the name of the Munich Climate Insurance Initiative (MCII) a Germanwatch representative has made an intervention when the Nairobi work program on the consequences, vulnerability and adaptation (NWP) was discussed in the plenary.⁴² This track of negotiations may indeed open doors for the introduction of innovative instruments that facilitate risk sharing among industrialised countries and emerging economies. Options of operationalising the polluter-pays principle may be explored in order to financially assist the affected people in developing countries. Moreover, it offers the opportunity to mobilise capital on private financial markets as a complement for public funding. In addition to that, innovative financial flows may now come into play since the

⁴¹ It is particularly remarkable that for the first time a strong coalition between the Least Developed Countries and the AOSIS countries was noticeable in the negotiations. It was this country group that finally put through this phrase within the group of the developing and newly industrialising countries and in the decisive negotiations with the "Friends of the President".

⁴² Statement by Christoph Bals, 4 December 2007.

technology track of negotiations explicitly includes adaptation technologies. In the best case these mechanisms may even induce the creation of incentive based systems for adaptation in the developing and newly industrialising countries. However, it is the details that eventually decide on failure or success of the approach.

New concepts concerning risk splitting and risk reduction

1. The frequency of disasters due to weather and climate increases and particularly affected are the most vulnerable people in developing countries who are not able to pay for private insurance.⁴³ We therefore see a growing necessity for transferring parts of the risk of floods, droughts, hurricanes etc. to global financial and insurance markets and providing incentives for adaptation at the same time.
2. Private insurance alone will not be a solution for people in developing countries who are the most vulnerable but who are not able to pay for private insurance.
3. However, there is a rapid establishment of micro-insurances in developing countries. This development must not be undermined but supported.
4. For answering the question “How can we reach the poor?” we should definitely consider private-public partnerships (PPP). Almost all of the successful insurance systems that offer advantages to the poor in developing countries are PPPs of any kind.
5. Nevertheless, it is important that the involvement of the public authorities should not disturb a major function of insurance: Through insurance the society realises the price of risk – in this case the price of weather extremes. This implies that the risk share of the rate should not be subsidised. The contrary is true. Well designed insurance products can induce the implementation of risk-minimising adaptation measures. One could even think of a system where poor individuals pay their insurance rate by engaging in local efforts regarding flood prevention, drought management or storage of food.
6. One point is to make meteorological and risk-related data accessible. Another point is to enhance the availability of insurance and micro-insurance instruments. Moreover risk-allocation programmes for those who are not able to pay for private insurance could be invented and funded by international contributions. One possibility might be to create reinsurance opportunities for micro-insurances and other climate-related insurance instruments. The international community could cover risks that exceed a certain upper limit. Thereby the sensitivity of micro-insurance concepts and other climate-related insurances could be mitigated. Moreover, it would mean a lower rate of payment for the persons concerned. As an example serves the index-based insurance system in Mongolia. Herdsmen are given the possibility to insure against the loss of their livelihood due to winter or extreme events. Minor losses that do not affect the foundation of their business are paid for by the herdsmen directly. More significant losses however, are transferred to the private insurance industry. And the highest range of losses from disasters are covered by the World Bank. Multi-donor organisations might take this role in future, possibly in cooperation with the World Bank.

⁴³ Harmeling/Bals, 2007b

7. Where should the money come from? From our point of view Annex I countries should make binding commitments to contributing fixed annual contributions according to the principle of common but differentiated responsibilities and capabilities. It is crucial that the fund raising is done in a way that stimulates mitigation of greenhouse gases. The vision is a self-financed climate regime comprising a global system and regional subsystems.
8. What should be done next and who should do it? It does not make sense to start off with a global approach but it is better to gain experience fast in some particularly vulnerable regions. An African insurance organisation might be an appropriate start due to the exceptional vulnerability of the continent. An alternative starting point might be seen in creating an insurance fund to support the necessary substantial transformation in the small island states (AOSIS).
9. Insurance instruments alone do not provide a sufficient solution to the problem. However, they can serve as an important part of an adaptation system that is drastically gaining in importance.

3.4.2 What remains to be done

■ Regarding the need for protecting the “uninsurable” pilot projects should be launched soon in cooperation with relevant players (inter alia MCII, WFO, Oxfam). The major players and interested governments should come up with concrete proposals to feed in the negotiations within the next couple of months.

■ Over the next months efforts must be focused on investigating new and innovative financial mechanisms that are able to generate the required means for funding adaptation measures, technologies, and forest protection. It is crucial for the success of a new and progressive framework that these funds are generated by instruments which promote climate protection. This has two important advantages. First of all, it furthers the implementation of the polluter-pays principle and secondly, it has some beneficial strategic implications for the upcoming negotiations. The necessary funding for adaptation, technology and forest protection will only be generated if the emerging economies and developing countries commit themselves to really ambitious mitigation objectives. This linkage may strengthen the evolving coalition of developing countries and progressive industrial nations that benefits both groups equally. In this way, the climate regime can become a self-financing system.

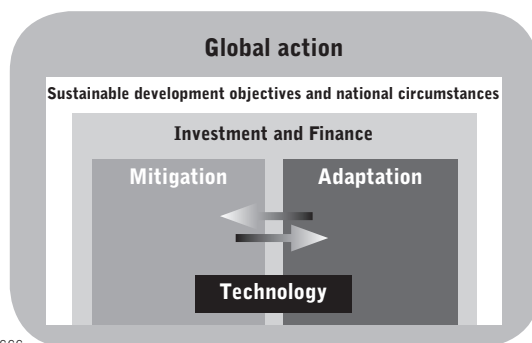
3.5 Financial Mechanisms: Giving the right incentives

The effectiveness of a climate regime in the area of mitigation is measured by its capability of redirecting investment towards more climate-friendly alternatives. The political framework must therefore be perceived as “long, loud and legal” by the international carbon market. At the same time it needs to provide additional incentives to develop new technologies and significantly accelerate their implementation. The expectation for Bali was to clearly indicate to the financial market that continuance after 2012 is guaranteed with even more stringent targets and a far more notice-

able CO₂ price signal. All in all, the climate regime should be established as a self-financing system with combined incentives for mitigation and adaptation.

Financing

- Climate regime that is self-financing with combined incentives for mitigation and adaptation
- Objective: For adaptation and mitigation 50 billion \$ each annually until 2020; (2012: each 12 billion \$) for forest protection x billion \$
- Potential funding sources:
centralised: Adaption Fee on every international emission trading transaction;
decentralised: (EU – Africa, Interamerican, Asian): shares or auctioning of emission trading; levy on air traffic;
- In addition to ODA



Source: UNFCCC

3.5.1 What has been achieved in Bali

Bali has sent a clear signal to global capital markets: The international climate regime will not phase out when the first commitment period of the Kyoto Protocol expires. On the contrary, there is now good reason to believe that

- an international post 2012 framework will enter into force
- that it will include more stringent targets, and
- that the international carbon market will be expanded and that the CDM will be reviewed.

This outcome alone will influence the CO₂ price signal on financial markets since it significantly reduces uncertainties concerning the future of the carbon market. Nevertheless, an appropriate price signal requires a level of certainty that can only be provided by successful conclusion and ratification of a legally binding agreement including the necessary mitigation objectives.

3.5.2 What remains to be done

The investors' willingness to shift capital flows away from CO₂ intense investments is determined by two factors, namely risk and return. While emissions trading increases expected return from investment in low-carbon alternatives, additional financial instruments need to be introduced that help lowering the related risks. To this end policy-makers need to develop the required regulatory framework and development

banks are asked to launch adequate funds that bear the risk and that are attractive for the private market.⁴⁴

Learning from the mistakes of Kyoto: First the mechanisms – then the target

It is important to learn from the mistakes that were made in Kyoto. At that time a reduction target for the industrial countries was set first so that an early decline in emissions could be announced to the public. Some governments, especially the US government, claimed yet another loophole in exchange for every tightening of the targets that was demanded from industrialised countries. To avoid a similar situation it is necessary to negotiate effective mechanisms first this time. The final targets must not be defined before all of the integrated loopholes and flexible mechanisms are known and taken into account. The Kyoto Protocol had enough weaknesses. But now we deal with another scale of urgency to act. In the worst case mistakes in the design of the sectoral CDM, the policy CDM and particularly the consideration of avoided deforestation could make the whole CO₂ market collapse and set the global incentives to internationally transform the energy, transport and building system equal to zero. A deficient negotiation package at this point in time could put the objective to stabilise climate change below the dangerous threshold value of two degrees completely beyond reach. But it is not possible to bargain with nature!

3.6 Technology: Stimulating innovation and cooperation

An effective and progressive post 2012 framework must enable a significant technological boost. It must provide an impulse for innovation and technology cooperation – both ways South-South as well as North-South. The various possibilities for a South-South transfer need to be supported because the technologies that are used there often are better adjusted to local conditions and needs. Moreover one must search for solutions to provide access to patent-registered technologies that are crucial to climate protection without thereby destroying the incentive for progress and innovation.

3.6.1 What has been achieved in Bali

Bali revealed that technology transfer will be among the key topics of a future agreement. The issue used to be considered a rather dull and little innovative negotiation matter but it has significantly gained priority in the agenda of the emerging economies and the developing countries. This country group insisted on putting the issue on the agenda of the body that deals with implementation (SBI)⁴⁵ rather than continuing to treat it as a matter of scientific and technological advice (SBSTA)⁴⁶. Moreover,

⁴⁴ WBCSD, WEF, 2007: Catalyzing Private Investment through the Clean Energy Investment Framework, vorgestellt beim Gleneagles Action Plan Ministerial Meeting, Berlin, 9.-11. September 2007; www.bmu.de/files/pdfs/allgemein/application/pdf/gleneagles_wbcdswef.pdf [downloaded 14.11.2007]

⁴⁵ Subsidiary Body for Implementation

⁴⁶ Subsidiary Body for Scientific and Technological Advice

they accomplished that the promises made by industrialised countries concerning technology transfer (as well as adaptation assistance) should be measurable and verifiable in the future. In addition to that a comprehensive work program regarding the improvement and extension of technological cooperation was developed. The innovative character of this approach is illustrated by the fact that the opportunities offered by the carbon markets should be taken into consideration. The GEF was asked to present a proposal for a strategic work program to improve technology cooperation among developing countries in May 2008. This program should not be restricted to technologies related to mitigation but should equally include technologies that facilitate adaptation.

3.6.2 What remains to be done

The negotiations on technology have gained momentum and this development is expected to continue over the months to come.

■ First, the U.S. government plans to organise a series of five Major Emitters Meetings (MEM) before the G8 summit in Japan. The debates will focus on the issues of technologies and sectoral agreements. The responses of the invited industrial nations and emerging economies as well as the results of the conference in Bali made clear that the White House's strategy to impede the UN process⁴⁷ and replace binding targets and agreements on technology with voluntary objectives has failed. The intent to reform the process so that at least under a new US-government it may play a constructive role requires defining a row of process-related and principal criteria. For example, the enforcement of the agreements needs to be monitored according to the criteria developed in the UN process. This measure promotes the seriousness of the agreement and the integration into the UN process. It appears to be important to focus the debate on problem areas that partly complement the UNFCCC process (e.g. international standards for cars, competition for sustainable mobility solutions in megacities) and partly function as a preparation for it (e.g. sectoral agreements on aviation, funding solutions for low-emission and low-risk technologies). Particularly with regards to car traffic it may be interesting for the big industrialised countries and the emerging economies to agree on ambitious efficiency standards since all of the major markets for production and consumption will be at the table.

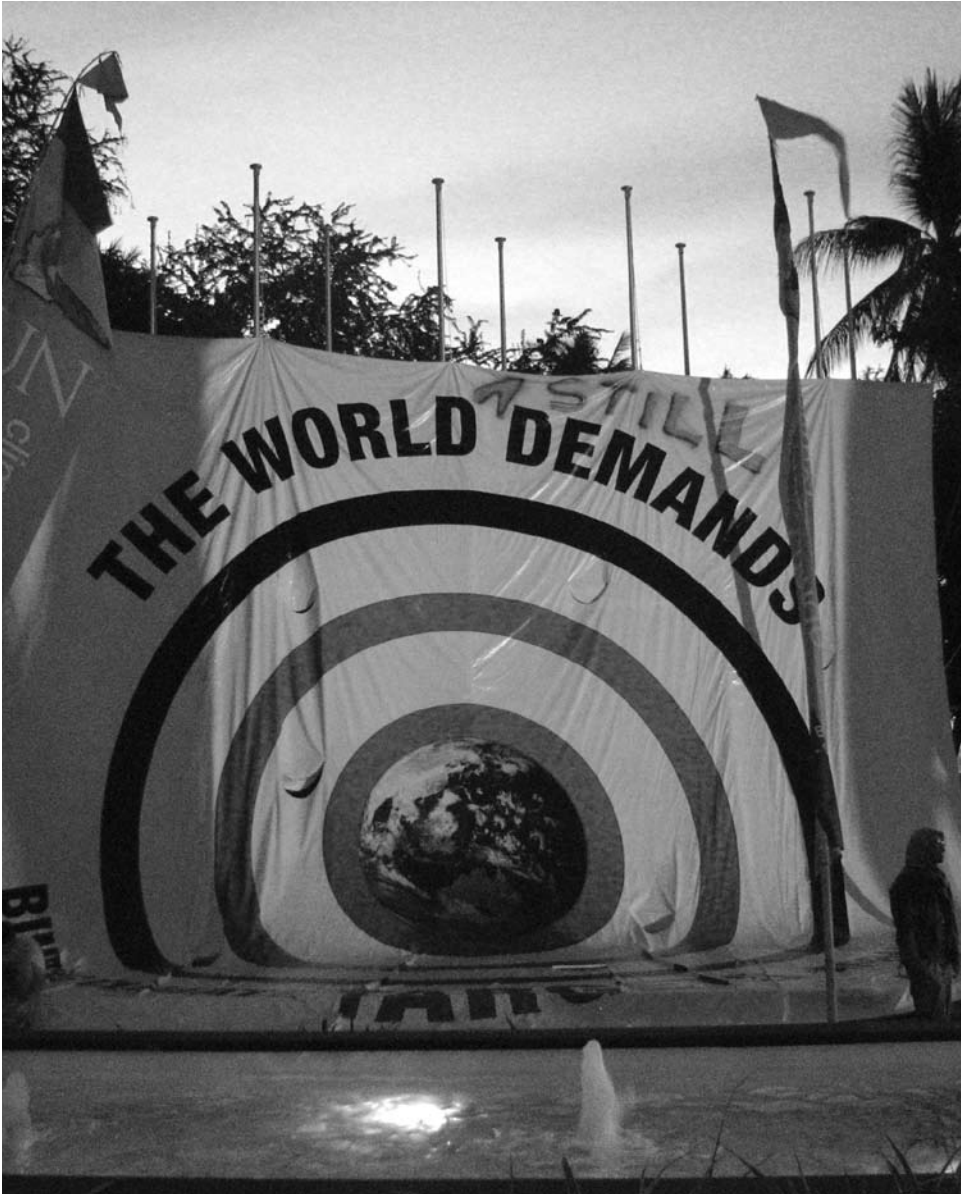
■ Second, it is important that the planned renewable energy conference (March, USA, follow-up of the Renewables2004 and the summit on renewables in Beijing) stimulates the global advancement of these technologies without neglecting the existing critical issues (e.g. relating to biofuels).

■ Third, the EU and each of the major emerging economies need to identify the central needs for action regarding technology transfer so that the synergies between bilateral and multilateral approaches become apparent. Roadmaps to introduce certain technologies into the market, should be developed. Aside from the classical transfer of the technology itself it is equally necessary to provide the appropriate political framework that strongly promotes the launch of technologies for renewable energies and enhancement of energy efficiency in the markets. The German law on

⁴⁷ To our knowledge, the White House still follows this strategy, even though it is now controversial among members of the US government

renewable energy (EEG) has already proved to be a successful export good that can easily be reproduced.

■ It also makes sense to investigate the needs for action regarding adaptation to the adverse effects of climate change in cooperation with the most vulnerable developing countries. Again, this is not only about providing the “hard” technologies but it involves the development of strategies on how marginalised and particularly affected people might benefit from protection measures such as early warning systems.



Christoph Bals Bali, Poznan, Copenhagen – Triple Jump Towards a new Quality of Climate Policy?

4

A hurdle race towards Copenhagen 2009

Although the previous analysis of the Bali results has revealed that some valuable and important steps have been taken to effectively address the problem of global climate change there is no doubt that Bali was just the starting point for a “hurdle race” – with Copenhagen in 2009 being the finish line. And after the take-off in Bali it becomes more and more visible that the obstacles in front of us are really high. The establishment of a global climate partnership requires contributions from every group of countries, every government, every decision maker – and every citizen. All of these actors – everyone of us – have to overcome their hurdles within the next two years to make the new global agreement on climate change a success.

The interrelation between decentralised and global elements of a Global climate partnership

We refer to this scenario as a “Global climate partnership”. To us, a trend-setting framework on UN level seems to be a necessary but not a sufficient basis for the required turnaround in climate politics. A synergetic interaction between decentralised approaches and those on UN level is crucial for a successful outcome. The following points are relevant:

- stringent regulations on a national level concerning climate protection, technology implementation and promotion of research;
- Bilateral and trilateral development cooperations among industrial and industrialising countries. For example, it is very important that the EU succeeds in forming cooperations of this kind with China, India, South Africa, and other emerging nations in order to build trust and provide access to technologies and policies.
- other multilateral processes such as G8+5, Gleneagles, the creation of an International Renewable Energy Agency (IRENA) make an important complementary contribution;
- The World Bank plays a key role in making sure that international financial flows are directed towards climate-friendly investments. Other central players are the IWF and the International Energy Agency.
- Regional approaches (like EU plus Africa) aiming for supporting sustainable development and adaptation to climate change. Regarding these approaches a major part of funding will rather be provided on a regional level than from centralised UN funds;
- Strong engagements of the cities where nowadays more than half of the people worldwide live;
- Companies that proactively accept the challenge of developing business

models that are compatible with the two-degree limit and thereby capitalise on new opportunities;

■ A civil society that organises the necessary atmosphere of change and the pressure from below.

4.1 Governments worldwide: Enhance the political will!

Central decision makers such as the governments of the USA, Canada, Russia and Japan are far from supporting the necessary decisions. By ratifying the Kyoto Protocol parallel to the negotiations in Bali Australia's new government has demonstrated its determination to contribute more constructively than its predecessor. However, it is not yet clear whether Australia as a major coal exporting nation will eventually commit to the required large-scale CO₂ reductions. To achieve this goal, political will has to grow tremendously in 2008 and 2009. In the USA, and probably in Canada as well, elections will take place that could send important signals in this regard. India's position will be easier to assess as soon as the government will have passed its strategy on climate change within the following months. Hopefully Japan's G8 presidency and the G8 summit in Japan from July 7th to 9th will help to create enough public and international pressure to finally make the ministry of economy and technology give up its resistance to constructive climate politics. This way – similar to the developments in the EU under the German G8 presidency 2007 – constructive forces in Japan's government could become superior.

Repositioning of Japan?

On January 6th, an interesting article was published in Asahi Shimbun, one of Japan's major national newspapers. The following translation, prepared by Kyoko Kawasaki, a Japanese NGO representative in Bali, shows that Japanese NGOs in Bali succeeded in imposing pressure upon their government and that this pressure is even increased by the Japanese G8 presidency starting with the new year.

"According to the article, Japanese government was really shocked by the reaction from Environmental NGOs in Bali on its draft COP decision proposal, especially on its ambiguous positions on the targets.

And after "the Bali Shock", at the Four Minister's Meeting on December 27th [2007], Mr. Fukuda (PM), Mr. Kamoshita (Minister of Environment), Mr. Komura (Minister of Foreign Affairs), Mr. Amari (Minister of Economic, Trade and Industry) and Mr. Machimura (Chief Cabinet Secretary) discussed about the basic policy for G8 summit, which PM Fukuda would present at Davos.

Mr. Kamoshita (Minister of Environment) told PM Fukuda, "are we letting the world to see Japan as a nation to blocking to have the targets to for 2020?" by showing a full-page ad of Avaaz.org in Jakarta Post. "How about proposing numerical target of Japan?", Mr. Machimura (Chief Cabinet Secretary) followed. And Mr. Komura (Minister of Foreign Affairs) took sides with him. Mr. Amari (Minister of Economic, Trade and Industry) who is vigorless about setting numerical target left the room without clarifying his position on the matter. After the meeting, the prime minister office shifted toward to present numerical target. ..."

At the MEM conference end of January in Honolulu Japan was the most positive surprise. It supported for the first time the EU position of 25-40% reduction targets for industrialised countries (base year 1990). But it is also visible that there are still some Departments not yet on this track.

4.2 Germany: Reconcile aspiration and reality of climate policy!

With regard to Germany, the government's climate protection program that was presented at the beginning of December needs to be positively acknowledged. However, the program is not free from weaknesses. The important transport sector is almost completely excluded. Hence, company car privileges are not abolished, a general speed limit is not introduced, and the introduced rule on the labelling of fuel consumption is misleading. There is a lack of new measures to strengthen more climate friendly ways of transportation such as public transport and biking. The proposal of the EU Commission to reduce CO₂ emissions of cars is seen as an attack on German automobile industry and therefore rejected by the German government. At the same time, bigger and heavier cars keep on overcompensating the achieved efficiency gains and no solution to this problem has yet been suggested. The German government moreover significantly weakened the quite progressive suggestions of the EU parliament that were made at the meeting of environment ministers on December 20, 2007, concerning the inclusion of aviation. It is time for Germany to finally develop a strategy for its (passenger and goods) transportation system that ensures climate friendly mobility – for ecological as well as for economic reasons.

Furthermore, the government's energy policy is not yet consistent with its climate targets. In case that the plans of various decision makers to build 20 coal-fired power plants will actually be realised, the aspired medium-term targets become unachievable considering the fact that these power plants will stay in use for about 40 years.

In addition, the government lacks of courage to carry forward the social and ecological tax reform (addressing those areas that are not covered by emission trading). Taking the next steps in this matter is necessary and reasonable. In times of high unemployment worldwide a reform of this kind would provide incentives for creating new jobs and it would facilitate the much needed enhancement of energy and resource productivity.

These points require a review of the German climate strategy. Aspiration and reality need to be reconciled. Otherwise Germany's role as a forerunner in the field of climate policy will not be sustainable.

4.3 EU: Take the lead in an international push-and-pull strategy!

All countries, particularly the industrial nations, are asked to get active now and not wait for the outcome of negotiations in December 2009. National strategies for climate protection need to be developed or advanced immediately and they need to aim at complying with the two degree limit. Policy makers need to develop the necessary framework for accelerating the implementation of renewable energies and technologies promoting energy efficiency. Directing investors' money into high-emission alternatives means not capitalising on the economic opportunities that

the current global political situation offers.. Only a few days after the conference in Bali oil prices jumped up to more than 100 dollar per barrel for the first time. Facing energy prices of this scale and considering the decisions made in Bali to continue international climate protection with even more ambitious targets after 2012 there is no reason anymore for being hesitant to invest accordingly. In fact, investment in energy efficiency and renewable energy will pay off much faster than anyone would have expected only a few years ago.

The interplay between two developments will be able to create the necessary momentum for comprehensive and cooperative global climate protection. First, an international climate policy that obliges everyone (in the sense of a pull strategy). And second – without waiting for the first one – the initiatives of a possibly large number of countries heading towards innovative energy and transport systems and thereby demonstrating that a new model of prosperity can be based on renewable energy and energy efficiency (in the sense of a push strategy). The future UN agreement as well as the emerging international network of emission trading systems will play major roles in the implementation of the pull strategy. With respect to the push strategy several factors are of great importance: first laws such as the energy feed-in law and a coal moratorium, top-runner-programs and an international fund to finance to incentivise avoided deforestation and second a World Bank reform and third bilateral and multilateral approaches.

Many observers worldwide expect from the EU and particularly from Germany to not only verbally take on leadership in this push-and-pull strategy. The EU is moreover predestined to play this role since the two upcoming climate conferences will be hosted by EU member countries, namely Poland (December 2008, Poznan) and Denmark (December 2009, Copenhagen). According to Ivo de Boer, general secretary of the UN climate secretary, negotiations in Poland will likely be focused on technology and financing: “I don’t think we’ll have anything concluded by Poland. In this process, nothing will be agreed until everything is agreed. By the time we all leave Poland, we can have a much clearer understanding of what needs to happen in the areas of technology and finance. That I think will be critical.”⁴⁸

4.4 Civil society: Increase the pressure!

It is unlikely that the necessary political will evolves in Germany or anywhere else in the world without having civil society significantly increase pressure on decision makers. It needs to become visible that EU citizens refuse to continue building their prosperity model on the backs of those people who are most affected by the destabilisation of climate – and even the weakest among them.

Every planned coal-fired power plant, every new airport, every new factory producing off-road vehicles gives reason to protest. Purchasing a car, a heating system or an electric appliance as well as renovating the house offer the opportunity to stand up for climate protection. Every election may be turned into a popular vote for better climate policy.

⁴⁸ Darren Samuelsohn, CLIMATE: G8 summit seen as likely venue for deal on emissions goal, in Greenwire, 8.1.08

References

- Bals, C. et al. (2006): Jetzt muss Klimawandel zur Chefsache werden, <http://www.germanwatch.org/klima/c12-hg.pdf>
- Black, R. (2007): Lovelock urges ocean climate fix; BBC News website, <http://news.bbc.co.uk/2/hi/science/nature/7014503.stm>
- BMBF (2007): Erklärung des «Finanz-Forum: Klimawandel» und Start einer Forschungsinitiative mit dem Bundesministerium für Bildung und Forschung (BMBF), Berlin.
- Club of Madrid (2007): Framework for a Post-2012 Agreement on Climate Change, A Proposal of Global Leadership for Climate Action, 10. September 2007, <http://www.clubmadrid.org/cmadrid/phprint.php>
- Council of the European Union (2007): Council Conclusions on climate change, 2826th ENVIRONMENT Council meeting, Luxemburg, 30.10.2007.
- Crutzen, P. J. (2006): Albedo enhancement by stratospheric sulfur injections: A contribution to resolve a policy dilemma?, in: Climatic Change, <http://www.nerc-essc.ac.uk/~olb/PAPERS/len23.pdf>
- defra, dti, The Climate Group, UK Trade & Investment (2006): An agenda for action across business and government; presentation.
- Dürschmied, E. (2005): Als die Römer im Regen standen. Der Einfluss des Wetters auf den Lauf der Geschichte, Bergisch Gladbach: Bastei Lübbe. Original: The Weather Factor. How Nature Has Changed History, London: Hodder & Stoughton, 2000.
- Harvey, F. (2007): Yo, Kyoto, Bush shifts his stance on global warming, in: Financial Times, 2.10.07
- IPCC (2007): Summary for Policymakers. In: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change; Metz, B., Davidson O.R., Bosch P.R., Dave R., Meyer L.A. (Hrsg.) University Press, Cambridge, United Kingdom and New York, NY, USA.
- Lovelock, James (2006): The Revenge of Gaia, London.
- Narain, Sunita (2007): India: be the party pooper, Editorial in CSE's Fortnightly News Bulletin, October 25, 2007, csewhatsnew@lists.csenews.org
- OHCHR, Office of the High Commissioner for Human Rights (1948): Die Allgemeine Erklärung der Menschenrechte. Resolution 217 A (III).
- Pearse, Fred (2007): Das Wetter von morgen. Wenn das Klima zur Bedrohung wird. München: Antje Kunstmann. Original: The Last Generation, How Nature Will Take Revenge for Climate Change, 2007.
- Rahmstorf, S., A. Cazenave, et al. (2007): Recent Climate Observations Compared to Projections. Science 316 (5825): 709ff.
- Raupach, M R, G. Marland et al. (2007): Global and regional drivers of accelerating CO₂ emissions, in: PNAS: 0700609104.
- Sachs, Wolfgang; Santarius, Tilmann (2005): Fair Future, Ein Report des Wuppertal Instituts, München.
- Schellnhuber, Hans Joachim (2007): Der Kampf um die Lufttheit, Ein Gespräch, in: Die Zeit, Nr. 42, 11.10.2007: 53f.
- Stern, Sir Nicholas (2007): The Economics of Climate Change. The Stern Review. Cambridge University Press.
- UNFCCC (1992): Convention on Climate Change, Published for the Climate Change Secretariat by UNEP's Information Unit for Conventions (IUC), www.unfccc.de;
- U.S. Air Force (1996): Weather as Force Multiplier: Owning the Weather 2025, Band 3, Kap. 15.
- WBGU (2007): Welt im Wandel: Sicherheitsrisiko Klimawandel, Berlin, Heidelberg, New York: Springer.
- White House (2007): Toward A New Global Approach To Climate Change and Energy Security, President Bush Addresses Climate Change At First Major Economies Meeting On Energy Security, Washington DC.

HEINRICH BÖLL FOUNDATION

Who We Are, What We Do

The Heinrich Böll Foundation is part of the Green political movement that has developed worldwide as a response to the traditional politics of socialism, liberalism, and conservatism. Our main tenets are ecology and sustainability, democracy and human rights, self-determination and justice. We place particular emphasis on gender democracy, meaning social emancipation and equal rights for women and men. We are also committed to equal rights for cultural and ethnic minorities and to the societal and political participation of immigrants. Finally, we promote non-violence and proactive peace policies.

Our namesake, the writer and Nobel Prize laureate Heinrich Böll, personifies the values we stand for: defence of freedom, civic courage, tolerance, open debate, and the valuation of art and culture as independent spheres of thought and action.

Our culture

Commitment, expert and social competence, creativity and flexibility are features of our employees, both in Germany and abroad. They are highly qualified, team-oriented and, with their high level of motivation, they constitute the most important asset of the Foundation.

Equality of opportunity and respectful dealings between women and men of different ages, religions, ethnic origins and sexual orientations are constitutive for the foundation. Intercultural competence and a productive engagement with diversity are part of our corporate culture.

Mutual respect and trusting co-operation among ourselves and with our partners are the bases of our business relationships.

We constantly evaluate and improve our work. We undertake and take seriously both internal and external evaluations. We handle the funds at our disposal economically and efficiently and assure transparent operations.

We work in close co-operation with our co-foundations in all of Germany's 16 states.

We are a reliable partner for volunteer work and for co-operation with third parties.

As a political foundation, we act independently; this also applies in respect to our relationship with the German Green Party. We are autonomous in selecting our executive officers and staffing our committees.

www.boell.de

GERMANWATCH

We are an independent, non-profit and non-governmental North-South Initiative. Since 1991, we have been active on the German, European and international level concerning issues such as trade, environment and North-South relations. Complex problems require innovative solutions. Germanwatch prepares the ground for necessary policy changes in the North which preserve the interests of people in the South. On a regular basis, we present significant information to decision-makers and supporters. Most of the funding for Germanwatch comes from donations, membership fees and project grants.

Our central goals are:

- Effective and fair instruments as well as economic incentives for climate protection
- Ecologically and socially sound investments
- Compliance of multinational companies with social and ecological standards
- Fair world trade and fair chances for developing countries by cutting back dumping and subsidies in world trade.

For further information, please contact one of our offices:

Germanwatch – Bonn Office
Dr. Werner-Schuster-Haus
Kaiserstraße 201
53113 Bonn, Germany
Ph.: +49 (0) 228 – 60492-0
Fax: +49 (0) 228 – 60492-19
E-mail: info@germanwatch.org
or visit our website:
www.germanwatch.org

Germanwatch – Berlin Office
Voßstraße 1
10117 Berlin, Germany
Ph.: +49 (0) 30 – 28 88 356-0
Fax: +49 (0) 30 – 28 88 356-1



New!

The Right to Development in a Climate Constrained World

Second Edition, September 2008, with new analysis based on updated data

In a world of global poverty and the threat of climate change – what action would be required to deliver human development, economic opportunity and dignity to poor people? The now published Greenhouse Development Rights Framework argues that the best way to break the impasse between the climate and the development crisis is simply by expanding the climate protection agenda to include the protection of development dignity. The Greenhouse Development Rights Framework provides an interesting approach towards combining sustainability goals and development equity.

Publication Series on Ecology – Volume 1:

The Right to Development in a Climate Constrained World

The Greenhouse Development Rights Framework

A report by Paul Baer, Tom Athanasiou and Sivan Kartha

Edited by the Heinrich-Böll-Stiftung, Christian Aid, EcoEquity and the Stockholm Environment Institute

Second Edition, with new analysis based on updated data!

Berlin, September 2008, 96 pages, photos

ISBN 978-3-927760-71-4

This report can be ordered from:

Heinrich-Böll-Stiftung

Schumannstraße 8, 10117 Berlin

Tel. 030-285340, Fax: 030-28534109

E-mail: info@boell.de Internet: www.boell.de



Following the Bali conference, the climate negotiations are going into marathon mode. But the challenge is urgent: we must succeed in stopping the rapid growth of greenhouse gas emissions within the next 10 years and then begin a rapid decrease. All this at a time in which the world economy is undergoing profound upheavals and the global economic and political balance of power is shifting. Identities are teetering, especially in the old industrial states of Europe and the USA; insecurity and fear is spreading. The necessary turnaround in

climate policy will have profound effects. The challenges we face can only be mastered if the negotiations are received with comprehension and criticism; if the political pressure builds to make the difficult compromises that are necessary; and if political support in society and the business world can ultimately be mobilized to ratify and implement the results. It is a long and tortuous route from Bali via Poznan to Copenhagen. This paper can be a «travel guide» meant to offer you orientation on this journey.

Heinrich-Böll-Stiftung

The Green Political Foundation

Schumannstr. 8, 10117 Berlin

T 030-285340 **F** 030-28534109

E info@boell.de **I** www.boell.de

ISBN 978-3-927760-82-0