



## Climate Change Threatens Global Development and International Stability

- A “dangerous climate change” can only be prevented if a post-Kyoto regime is agreed to by the end of 2009 which allows for a global halving of the greenhouse gas emissions until 2050. If this fails, then in the next decades temperature increases can be expected that will lead to fundamental and irreversible changes in the Earth’s system. This could undermine global human development, overtax social coping capacities especially in developing countries and endanger the stability of the international system. Already, climate change endangers achieving the Millennium Development Goals. It requires an enormous international exertion to utilise the very tight time period until 2009.
- Development politics must quickly enter uncharted conceptual territory and must link the struggle against poverty with suitable strategies for adaptation to climate change. In the climate change negotiations until 2009 it will become clear if a controllable global warming of up to approximately 2°C can be assumed or if it will come to an unimpeded climate change with the corresponding fundamental consequences.
- For Germany and the EU there is now the chance of gaining decision-making power in both development cooperation and in energy policy on a global political as well as economic level by being the pioneers that lead the way.

### Radical changes in the Earth’s system

The latest report of the Intergovernmental Panel on Climate Change (IPCC) leaves no doubt that the average increase in global warming is currently approaching 1°C compared to the pre-industrialisation era and is caused mainly by the burning of fossil fuels. Due to the inertia of the climate system, a warming up to 1.5–2°C is practically unavoidable. This will have far-reaching consequences for ecological and social processes of global change in the coming two to three decades. If the attempt to agree to an effective post-Kyoto regime by the end of 2009 that allows for a ca. 50 % reduction in global greenhouse gas emissions until 2050 fails, then a global temperature rise of between 2.5 to over 5°C is most likely. Climate research shows that the risk of irreversible, fundamental changes to the Earth’s system is thereby greatly increased. Regional environments and the global ecological system could radically restructure themselves, the conditions for human development could be drastically altered on a worldwide level and the ability of societies and the international system to adapt overstrained.

Such a tipping point will be reached, for example, if continuing climate change leads to the drying up of the Amazon rainforest. This would not just have unforeseeable effects upon the natural environment of the entire Latin and Central American area and the social dynamics and the agricultural potentials within the region, but

would also lead to a release of considerable amounts of carbon dioxide and would therefore further intensify climate change. Just as dramatic would be a radical transformation of the monsoon in Asia. A sea level rise of one metre would also have far-reaching consequences. New York, for example, whose location in the past has been affected by devastating storm tides every century, would have to expect such flood disasters every four years; seldom extreme events would become frequently recurring phenomena around the world. Whereas metropolises such as New York or Hamburg can presumably afford the necessary financial and organisational adaptation measures, this is doubtful for severely threatened megacities such as Lagos, Calcutta or Dhaka.

Unmitigated climate change could therefore release dynamics that would transform entire world regions. Such radical changes of natural environments are unparalleled in modern history and it is questionable if individual governments, regional organizations and international agencies are capable of peacefully steering the resulting social and economic consequences. An unimpeded climate change would therefore imply a global historical experiment with unknown outcomes. The restriction of global warming and its effects must be a central concern of forward-looking world politics as international stability and sustainable global development depend on just this. As the political direction for the future with regard to an effective post-Kyoto re-

game must be decided by the end of 2009, the time pressure is quite high already.

### Climate change undermines the chances for development

Even without the commencement of radical system discontinuities, the foreseeable environmental changes that would take place with an average global warming of 1.5–3°C would affect the development perspectives of some seven billion people. The developing countries in Africa, Asia and South America, that typically have fewer capacities for adaptation at their disposal than developed countries, will be affected to a much higher degree.

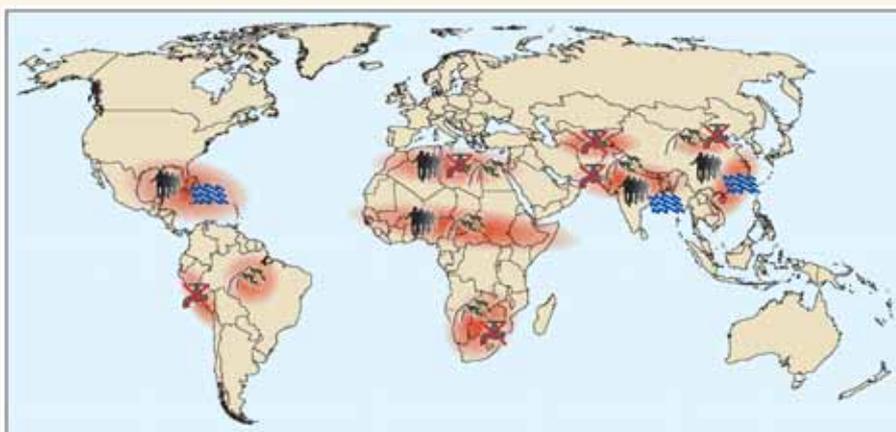
**Africa**, based on its particular sensitivity with regard to climatic variability combined with socioeconomic as well as political stress factors and with very low adaptation capacities, is particularly endangered. Until 2020 the IPCC expects an increase of about 75–250 million people suffering from climate-induced water shortages. In individual countries a fall-off in yields of rain-fed agriculture of up to 50 % is also expected. In the Nile delta the regional food production is threatened by rising sea levels as even a small rise leads to the salinisation of important agricultural farmland. At the same time, the demand for food, farmland and freshwater will presumably increase due to the continuing population growth and the immigration from the bordering dryland regions. In the Sahel region and in southern Africa, where a lot of people are dependent on subsistence agriculture and rain-fed agriculture, the already precarious living standards will worsen further due to more frequent and intensive extreme weather occurrences. In combination with the prevailing weakness of state institutions in many countries of the region as well as complex violent conflicts and large streams of refugees, the risk of a gradual regional destabilisation

furthermore seems to be quite high. The current endeavours in fighting poverty and regional stabilisation would be set back.

In **Asia** the melting Himalayan glaciers is a central problem. Apart from flooding and landslides, this means primarily a shortage of freshwater resources which could affect more than one billion people in 2050, according to the assessment of the IPCC. In large parts of the continent flooding and temperature increases will impede the containment of typical tropical diseases and will probably lead to higher mortality. India, Pakistan and Bangladesh will be especially hard hit by the foreseeable climatic consequences. The destructive storms and floods that already occur nowadays will take place more and more often and will also unleash a much larger destructive power due to rising sea levels. In addition, salinisation of the soil and changing monsoon patterns will affect the regional food production whose yields could decrease by up to 30 % by the middle of the century. In the densely populated and notoriously conflict-ridden Gulf of Bengal one can also expect that the social tensions could escalate in a violent manner. In China the economically significant southeast coast (tropical storms) and large parts of the hinterland (droughts, heat waves, desertification) will be especially starkly affected. It is hard to tell if the adaptive capacities of the state can match at the same time the challenges of modernisation, social crises, environmental stress and the consequences of climate change.

In **South America** the accelerated glacier melting in the Andes region together with the changed precipitation patterns will most likely lead to a reduction in the available freshwater resources. As an example: the water resources in the conurbation of Lima depend over 80 % on the glaciers of the Andes. These have lost a third of their volume alone between 1970 and 1997 and will disappear within the next decades with continuing

warming. Hence, a highly populated and continually growing agglomeration area within a desert-like environment must be supplied with a new water system in the foreseeable future. In other South American dryland areas salinisation and desertification will intensify and will affect the regional food production. In addition, rising temperatures and declining soil humidity in the eastern Amazon region will probably lead to the gradual replacement of rainforest with savannah by the middle of the century.



Conflict constellations in selected hotspots

- Climate-induced degradation of freshwater resources
- Climate-induced increase in storm and flood disasters
- Climate-induced decline in food production
- Environmentally-induced migration
- Hotspot

Source: WBGU 2007

It becomes clear that climate change will intensify the existing development problems in many countries and regions and will in addition bring forth new constraints for development. Forward-looking development strategies must therefore also think about climate-induced changes to nature and settlement areas as well as necessary adaptation. The more so as climate change already endangers achieving the Millennium Development Goals.

### Climate-induced conflict constellations

The German Advisory Council on Global Change (WBGU) has identified four conflict constellations within this context that are indirectly or directly influenced by the local or regional effects of global warming. If such conflict potential turns to violent conflict and what sort of dynamics are unleashed herewith depends mainly on the problem-solving and conflict-management capacities of those countries and regions that are affected. In those countries where the ever increasing environmental stress encounters already weak governance structures as well as socioeconomic crises, the danger increases that social destabilisation turns into violence and could possibly affect and impair international stability.

Firstly, a climate-induced decline in food production can lead to regional nutritional crises, thereby further undermining the coping capacities. Social destabilisation and violent conflicts benefit from this. An increasing global competition for agricultural farmland for the planting of biofuels could further intensify this conflict constellation.

Secondly, a climate-induced aggravation of freshwater scarcity can lead to destabilisation and violence where adjusted concepts of water management, suitable infrastructure and the institutional prerequisites to avoid corresponding conflicts of allocation and distribution are missing.

Thirdly, climate change will more and more often lead to storm and flood catastrophes that have already led to the escalation of internal tensions from time to time in the past ( e.g. in Bangladesh 1988, in Nicaragua and Honduras 1998 and in West Bengal in 2000). Hurricanes and similar extreme weather events could unfold conflict potential especially in affected tropical developing countries of Central America and in the megacities along the southern Asian coastline, where suitable capacities for adaptation and crisis management are largely missing.

Fourthly, migration can lead to destabilisation and violence wherever humans have to leave their home due to existential environmental changes. The risk of violent conflict escalation increases mainly in transit and target regions.

The outlined conflict constellations can be more easily contained the more effective global climate policy is. Vice versa the risks of the spreading and escalation of

such conflict dynamics is growing with rising global temperatures. Climate policy hence equals preventive security policy.

### Increasing burden for the international system

Conversely, unmitigated global warming generates global security risks. Here a cascade of endangerment becomes visible where continuing climate change gradually

- endangers **human security** in many countries and global regions;
- aids and abets subnational, national or even regional **destabilisation and disruption** where especially many people are affected by insecurity and uncertainty and where nations and societies are overstrained politically as well as economically;
- generates **climate crisis regions** where high vulnerability to climate change and the outlined conflict constellations overlap (see map); environmental stress does not stop at national borders and violent conflicts can easily spill over to neighbouring countries.

A thus furthered erosion of social order could strengthen the trend of internal and transnational violent conflicts (as opposed to inter-state warfare) that can be observed since the 1990s. Such dynamics, driven by climate change, would promote **five particular trends** in the current **international system**:

1. *a critical impairment of global economics*, that can result, amongst other things, from the necessary adaptation measures which the safeguarding of local and regional production processes and supply structures will require. Thereby the costs for coping with the consequences of climate change will be the higher, the longer an effective climate policy is procrastinated.
2. *an increasing climate-induced threat to existential human rights* (notably access to water, food security) could undermine the international legitimacy of mainly responsible industrialised nations, but also that of fast-growing anchor countries such as China and India whose emissions are rapidly increasing. Ultimately, this could limit these countries' capacity to act at the global level.
3. *an intensification of international distribution conflicts*, especially with a view to the transfer of compensation payments between those mainly responsible for global warming and those mainly affected by its negative consequences.
4. *a drastic increase in migration* both within the regions heavily affected by climate change as well as beyond these regions, for which humanitarian solutions must be found in order to cope with these problems.

5. *a proliferation of weak and fragile states* that will hardly be able to protect their population from the consequences of climate change and that destabilises the international order as a result of eroding statehood.

Given its current multilateral institutions the international community would quickly reach its limits in the face of each one of these dangers. More than ever, it will be very quickly overstrained if, which seems probable, these dangers accumulate and mutually intensify each other.

### Challenges for Germany and the EU

Climate change could bring the international community together if it understands it as being a threat to humanity and if it initiates the prevention of a dangerous, uncontrollable global warming through an effective post-Kyoto regime ("Avoiding the unmanageable"). The German government, in cooperation with the European Union, is momentarily trying to move international climate policy in this direction. The corresponding climate strategy has far-reaching consequences if one considers the halving of the global CO<sub>2</sub> emissions that is being targeted by the EU until 2050, which implies the renunciation of fossil world energy systems and the build up of a global economy that is based mainly on renewable energy. If this turnaround fails, however, global warming will continue and it will evoke ever more lines of conflict and disparity in international relations and will trigger manifold conflicts of distribution in and between countries: for freshwater, for land, about managing migration and further "collateral damages" resulting from climate change. Avoiding a dangerous climate change under enormous time pressure is therefore the **first challenge** that decision makers must face.

For development politics there also arises a **second challenge**. Existing poverty reduction programmes will have to be intertwined with suitable adaptation strategies in close cooperation with affected developing countries in order to prepare them for the consequences of climate change that can no longer be avoided ("Managing the unavoidable"). In this respect, new conceptual trails have to be explored. Moreover, supportive measures for conflict prevention must be refined, especially in those regions that are particularly vulnerable to climate change. In addition, there has to be a coordination between development politics on the one hand and technology as well as foreign trade politics on the other hand to contribute to enabling the large and rapidly growing anchor countries to reduce their greenhouse gas emissions. All of these tasks are of considerable magnitude. To handle them successfully requires immediate concerted action based on an adequate division of labour.

In recent months, the awareness that climate change belongs to the central challenges of the 21st century has significantly risen around the world. However, in order to commit the international community to joint global policy goals to avert the threatening climate crisis, three partial strategies have to be interlinked: an effective and poverty-sensitive global climate policy that is spurred on by credible and resolved actors; the acceleration of innovation processes within global energy supply and in other areas of resource efficiency; an extension and consolidation of multilateral processes, that especially also include China, India and the USA without whose cooperation a long-term, effective climate policy cannot succeed. Out of this multi-dimensional **third challenge** a great opportunity, so to speak, also arises for the EU; that is the chance to employ its competitive advantages in comparison to other global players. If the EU takes on a plausible and credible pioneer role in international climate politics, it can become a formative global power of the 21st century.



**Steffen Bauer**  
*Researcher at the DIE*



**Dirk Messner**  
*Director of the DIE*

### Literature

*IPCC* (Intergovernmental Panel on Climate Change) – Working Group II (2007): *Climate Change 2007: Impacts, Adaptation and Vulnerability: Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge, UK

*United Nations Foundation* (2007): *Confronting Climate Change: Avoiding the unmanageable and managing the unavoidable*, Washington, DC

*WBGU* (German Advisory Council on Global Change) (2008): *World in Transition: Climate Change as a Security Risk*, London: Earthscan

