

## **International Year of Planet Earth**

### **Four reports on status and trends\***

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**2007** – Seen internationally, it was the year of climate, of climate change and climate policy. The Stern report, the 4<sup>th</sup> Assessment of the Intergovernmental Panel on Climate Change (IPCC), the bestowal of the Nobel Peace Prize on the IPCC and the climate communicator Al Gore, and the 13<sup>th</sup> Conference of the Parties of the UN-Framework Convention on Climate Change in Bali have made it clear that climate change is unequivocal. Metaphorically speaking: Planet Earth got fever – and the fever is rising.

**2008** – The United Nations declared this year as the “International Year of Planet Earth”. Again this will include the issue of climate change but other environmental issues will have to be considered. It could be that the Earth is not only suffering from ‘fever’ but from other metabolic diseases as well - like gout, rheumatism and diabetes mellitus.

In a historically unique but non-concerted action, four voluminous reports demonstrate the state and the trends of Planet Earth – two of them with an overall, comprehensive view on global change, and two with a focus on climate change which for many is the greatest challenge of this century.

The structure, message and timing of the **IPCC** report, on which 450 lead authors, 800 contributing authors and 2.500 review authors have collaborated, appears well-nigh ingenious – at least on first sight. The complex theme of climate change was not only split into three manageable working groups – *The Physical Science Basis; Impacts, Adaptation and Vulnerability; Mitigation of Climate Change*, – but the results were also presented in a specific time sequence and at different places in the world. This guaranteed lasting attention by the public from February to May, 2007, and then again

with the Synthesis Report in November, 2007. All this led to an unprecedented presence of the climate issue in the media – including the effect on the Nobel Prize Committee. But it was not only for show – just to the contrary.

With clear words and forcefulness, whilst remaining cool-headed and pragmatic, the knowledge on the causes and impacts of climate change are being presented, both with regards to the sectors of the economy and to the various regions of the world. The emerging inherent strain is a function of the chosen methodology: The IPCC uses six different scenarios with which the full range of possible climate changes towards the year 2100 are highlighted. Optimism or pessimism on future developments depends on the identification with one of these scenarios. While the optimist will snap to the 2 – 2,4°C warming scenario, the pessimist will land at the 4,9 – 6,1°C scenario. This then leads to the forming of two groups: those who think mitigation of climate change still to be a possibility; and those who think adaptation is the only option left.

Regarding the causes of climate change, the IPCC report (*Working Group I*) is extremely concise. Differing uncertainties are characterised by fine-tuned terms, ranging from *high agreement, much evidence* to *medium agreement, medium evidence*; from *very high confidence* to *very low confidence*; and from *virtually certain >99%* to *exceptionally unlikely < 1%*.

Also for the impacts of climate change (*Working Group II*) on the various sectors of the economy, primarily their vulnerability and reactivity, the report is highly imaginative as none before. It even includes a true surprise: the forests as climate stabilisers and the “forest option” of climate policy. This is the first time they have received adequate attention.

For the regional effects of climate change, a special typology was developed with which the consent of the possible allies of an active climate policy could be attained. It is understood that the one who knows of the threats to his own region will be more sensitive towards concrete climate information and necessary protection activities.

The biggest weakness of the IPCC report lies in the part on mitigation of climate change (*Working Group III*). A more accurate section heading would have been 'pro-active climate policies'. But its authors do not adhere to the normal policy cycle, or to a consistent concept of international policy. Instead, they understand their contribution as "preliminary considerations" on possible policy formulation – a task that is left to others to implement in the future. And in using as many as six different scenarios, they avoid what is politically feasible. In the real world, it is the "best case", the "worst case", and the "intermediate case" that counts; not six different cases.

This limited understanding of politics is astonishing in view of the dramatic words in the first two parts of the report. There is neither a consensus on a strict climate policy goal, for instance the 2°C stabilisation goal found in the academic discourse and in documents of the European Union; nor on concrete measures, particularly the introduction of a global carbon tax. There are also no innovative suggestions made as to the institutional framework of an effective policy. The IPCC report 2007 which was believed to basically reform international climate policy, is itself left behind with the need for reform.

This judgment also holds for the second report, though in a different way. This year's Human Development Report by **UNDP** has as a subtitle "Fighting climate change - Human solidarity in a divided world". In the Introduction it is stated that at the beginning of the 21<sup>st</sup> century we are confronted with "merciless urgency" by a crisis that connects present and future: "Climate change is the all-dominant problem of human development in our generation" (p.1).

In four chapters, the challenges of climate protection and the risks and vulnerabilities in a divided world are described, and the tasks of mitigating dangerous climate change and adapting to the inevitable are outlined. The report is not a genuine piece of climate science but the authors are anxious to connect the major results of the IPCC report with the UNDP mandate, i.e. international cooperation to overcome poverty in the world.

So, the UNDP report, quite in contrast to the IPCC, commits itself firmly to a threshold of further global

warming of 2° Celsius, because only such a level will avoid dangerous climate change under which the poor of the world would suffer most. Regarding measures, both a CO<sub>2</sub> tax and emissions trading are being advocated, especially as with such measures the developing countries could become beneficiaries of global policy. But then, as often happens with technocrats, they succumb to the idea of so-called ground-breaking technologies, specifically CO<sub>2</sub> sequestration, instead of concentrating on what really should get priority, especially in the developing countries: the rapid introduction and implementation of renewable energies.

There are a number of other inconsistencies one would not expect to find in a report by the United Nations. So, whilst adaptation to climate change in developing countries ranks high in the report, no attention is paid to the up-coming new waves of migration – the “environmental refugees”. So, attention is given to the problem of forest loss in the developing countries, but the only solution is thought to be financial transfer from North to South. An institutional solution is not being considered, neither in form of a UN Convention on Forests, nor in a Forest Protocol under the UN Biodiversity Convention. Actually, there is no serious reflection on how an ecological reform of the United Nation could be started, especially the necessary institutional, financial and personnel up-grading of the UN Environment Programme (UNEP). This, to my mind is a *contradictio in adjecto* to the words of the Introduction on the “merciless urgency” of a crisis that climate change indicates.

If grand words really would add weight, the authors should have had another idea: Again, the part of the UNDP report on indicators (pp.281-408!) is formidable; yet climate relevant indicators show up on position 23 (*energy sources*) and 24 (*carbon dioxide emissions and stocks*) only and not at the very beginning. Furthermore, if one would have studied the enormously diverting statistical figures on renewable energies and CO<sub>2</sub> emissions of the 177 states and the 8 regional groups carefully, a strategic report on future sectoral and regional climate policy could have evolved, a report the United Nations have not delivered so far.

**GEO-4** has been produced by UNEP in collaboration with 54 institutions around the world. The contents, message,

design and presentation are all impressive. Actually, GEO-4 can be considered a milestone of ecological and environmental reporting that deserves the highest praise. On pp. 498-501 the process is being described with which some 960 authors from all parts of the world had been networked, a unique database (GEO Data Portal) established (though not easily accessible) and a brilliant report consolidated.

Its claim is formidable: GEO-4 is to “provide a global, comprehensive, reliable and scientifically credible, policy-relevant and legitimate up-to-date assessment of and outlook regarding the interaction between environment and society” (p.498).

The report assesses the state and trends of the global environment in relation to the drivers and pressures, the consequences of environmental change for ecosystem services and human well-being as well as on progress and on barriers towards meeting the commitments under multilateral environmental agreements. This is a claim that raises high expectations. How are they being fulfilled?

GEO-4 consists of six sections with ten chapters: a section on state-and-trends of the environment 1987-2007 in the compartments atmosphere, land, water and biodiversity; a section on regional perspectives 1987-2007; a section on human dimensions of environmental change; an outlook – towards 2015 and beyond; and a final section on sustaining our common future.

Methodologically, the report is based on the drivers-pressures-state-impacts-responses (DPSIR) framework, analysing environmental change in the past and in the future. This framework attempts to reflect the major components of the multidimensional, spatial and temporal chain of causes and effects that characterize the interactions between society and the natural environment. In this way, a detailed picture of the ecological status and trends in the various sectors and regions emerges, which is visually well presented with the help of 40 tables, 147 boxes and 217 figures. Each chapter ends with a view on major challenges and opportunities. It thus appears that global environmental policy is a much broader arena than climate policy, especially that de-carbonisation of the economy should be accompanied by de-materialisation - and that Planet

Earth is not only suffering from fever but also from obesity and diabetes.

The concluding chapters build on the previous ones by exploring how current economic, social and environmental trends may unfold along divergent paths in the future, and what this might mean for the environment, for development and human well-being. Using narrative storylines and quantitative data to explore different policy approaches and societal choices at both global and regional levels, four scenarios to the year 2050 are being presented: *Markets First*, *Policy First*, *Security First* and *Sustainability First*.

Peak rates and end points of global environmental changes differ greatly among these scenarios. The higher the rate of change, the greater the risk that thresholds in the Earth system will be exceeded in the coming decades, resulting in sudden, abrupt or accelerating changes which could be irreversible. For instance, under *Markets First*, 13 per cent of all original species may get lost between 2000 and 2050 as compared to 8 per cent under *Sustainability First*. The range in 2050 for atmospheric CO<sub>2</sub> concentration would be over 560 ppm under *Markets First* as compared to 475 ppm under *Sustainability First*.

Relying on the market thus has different consequences to relying on active environmental policy; and adhering to security aspects has different effects than giving priority to strict sustainability. GEO-4 thus provokes strategic political thinking, helps in individual perception and appraisal of complex phenomena, and assists in the preparation of alternative societal interactions with nature. This is science at its best!

Due to shortened reasoning, Europe ranks rather high in GEO-4. So, it's good to know that there is also a special European environmental report available, and now in its fourth variation - **EEA-4**. Nearly 17 years have passed since the first meeting of Europe's environment ministers in 1991. Since then Europe has changed enormously, as has its environment. This report underlines the changes that have occurred in the environment and the socio-economic context to help explain the environmental trends that can be observed. Also, successes and improvements are being identified and old legacies registered that need further effort in

research and policy practice. The report covers not only the European Union, EU 15 or EU 27, but the whole pan-European region, which stretches from the Atlantic Ocean in the west to the central Asian plains in the east, from the Arctic Ocean in the north to the Mediterranean Sea in the south.

Some 30 lead authors and 230 contributing authors were involved in preparing EEA-4. The structure of the report is quite different to GEO-4. The first chapter is an overview on Europe's environment in an age of transition; the second is on environment and health. Then follow the chapters on environmental compartments, climate change, biodiversity, marine and coastal environment. And then there is a chapter on consumption and production, indicating that strict slimming is needed to make Europe sustainable. Visually, EEA-4 is also well prepared and readable, with 28 tables, 106 boxes and 117 figures. In the annex, legal instruments, country statistics and international comparisons are presented on Pan-Europe – a creditable accomplishment in itself.

EEA-4 ends differently to GEO-4. In the last chapter, four sectors are being analysed that drive environmental change decisively: agriculture, transport, energy, and tourism. These driving forces are confronted with the principles of strict sustainability, which wider Europe should take more seriously, despite all environmental successes already achieved: "We need to strengthen the will to act", says Jacqueline McGlade, the Executive Director of EEA. And this requires analysis, evaluation, communication, and explication. The EEA-4 report is an important input for the further ecological transformation of Europe, a process that is not only decisive for this continent but for the whole Planet.

General conclusions: The "International Year of Planet Earth" starts with good news - reporting on its status and trends has remarkably improved. Due to the four reports reviewed here, it is as good as never before. However, this reporting has to be improved further. This concerns participation in evaluation which should be as broad as feasible, and it concerns the methodology and the range of coverage of reporting. Environmental problems are always the result of interactions between society and nature, of economic, social and political systems with natural systems. As this is so, natural science investigations do not suffice, however important

they are. It is important that the social science part comes along in an adequate manner. To name just one important example, the political science component of the IPCC report must thoroughly be enhanced. In all four reports a certain timidity regarding political positioning can be observed. But wherever irreversible damages are expected, and whenever confronted with major challenges for the century, you have to show your true colours.

And there is a special conclusion to be drawn: The four reports are so full with facts and figures, so inspiring and seminal, that they also give reason and occasion for changes in our educational systems. Time has come for new research and teaching initiatives on global change. With these reports the statistical and methodological basis for planetary politics, for a truly global environmental policy, have been laid – initiatives can and should start right now.

**The four reports:**

Intergovernmental Panel on Climate Change (IPCC): *Climate Change 2007, Vol. I, II, III*, Cambridge: Cambridge University Press, 2007; *Synthesis Report, Vol. IV*, Geneva: IPCC, 2007, 90 pp.

United Nations Development Programme (UNDP): *Human Development Report 2007/2008. Fighting Climate Change*, New York: UNDP, 2007; 440 pp.

United Nations Environment Programme (UNEP): *Global Environment Outlook – GEO-4*, Valetta, Malta: Progress Press, 2007, 572 pp.

European Environment Agency (EEA): *Europe’s Environment. The Fourth Assessment*, Copenhagen: EEA, 2007, 452 pp.

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