



EUROPÄISCHE AKADEMIE

zur Erforschung von Folgen wissenschaftlich-technischer Entwicklungen
Bad Neuenahr-Ahrweiler GmbH

Direktor: Professor Dr. Dr.h.c. Carl Friedrich Gethmann

NEWSLETTER

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EDITORIAL

■ From 2nd to 9th of October 2007 the Europäische Akademie GmbH and the Department of Psychiatry, Universität Bonn, organises an international and interdisciplinary Summer School titled "The Impact of Current Developments in the Neurosciences on the Concept of Psychiatric Disease".

The Summer School wants to promote an interdisciplinary in-depth discussion of the complex relationship between the neurosciences and psychiatry by focusing on the concept of psychiatric disease. This concept is used in a variety of meanings in scientific, clinical, legal and cultural settings. The lack of agreement concerning the adequate concept of psychiatric disease is not only responsible for misunderstandings between the neurosciences and clinical practice but also has considerable consequences on the impact of psychiatry on society.

The Summer School will convene young European researchers from a variety of disciplines such as medicine, the neurosciences, philosophy, law, the social sciences, and related areas. During the Summer School the participants will present their own work. In addition, lectures by international senior scientists and two excursions will enrich the discussions with state-of-the-art knowledge. The School is funded by the Federal Ministry of Education and Research (BMBF). For the call for papers and further information please see

<http://www.neuroscience-psychiatry.de>

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FOCUS

Climate for action in the greenhouse

Stephan Lingner

For several months climate change has been back again on the agenda of public concern. The latest experience with extreme weather events (hurricanes, heat-waves) and observable glacier retreats as well as this year's mild winter in Europe seem to be drivers of this "hype". Another important factor was the media echo on the so called "Stern Report", the United Nations climate negotiations (both from autumn last year), and on the report of the Intergovernmental Panel of Climate Change (IPCC) which recently published the scientific part of its 4th assessment. The German yellow press supported (or fostered) public fears with headlines such as "Our planet is dying". To this slogan the author would like to add: "... – again". Nevertheless, climate risks are too serious and long-lasting to be objects of cynicism or short-lived alarmism, either. Instead, this paper will discuss reasonable options as concluded from the scientific background and from the recent political situation.

The current debate

■ Coming back to the above-mentioned adverse weather phenomena, one might state for plausible reasons that as a whole they could be partly influenced by results of past human emission behaviour. The advantage of this delay is its disadvantage at the same time: Principally the delay allows early action and, thus, avoidance of adverse effects to the future. Exactly this delay, however, disables early warning which might give invitation to business as usual. However, any uneagerness to act in time might therefore be punished in the end. And that is the overall message of the "Stern Report" which proposes early action from a long-term economical perspective. However, some flawed the report due to its underlying "poor" and questionable monetarisation approach, whereas others welcomed it as "the truth", relying on the credits of the author as a former leading world banker. Nevertheless, uneagerness to act does not only seem to be a result of lacking economical reflection. Corresponding paralysis

might be simply based upon the profound uncertainty on the consequences of acting in a complex environment or even upon myopia in regard to long-term obligations in a heterogeneous world. In fact, the November Conference of the Parties to the Climate Convention in Nairobi "gave birth to a mouse" by postponing provisions for post-Kyoto regulations, while its member states were merely committed to assess its factual emission reductions with regard to the current Kyoto goals. Regardless of these political inertia, the recently published IPCC report on the scientific basis of climate change consolidated the evidence that climate is already changing and that this change is probably influenced by human interaction into the climate system. The IPCC's projections show that further growth of adverse extreme weather events is very likely and that future global warming might overstep critical thresholds within the course of this century: Global warming of more than 2°C (compared to pre-industrial levels) would expose societies to high climate risks

from non-linear impacts of climate change (e.g. abrupt sea level rise due to collapses of polar ice shields) according to the statements made by most relevant experts in this field.

The Kyoto experience

To sum up, one may state that mankind is a major cause for the climate problem, while it is increasingly affected by it. This would strongly argue for effective worldwide prevention of severe consequences by mitigation of greenhouse gas emissions. Consequently, nearly all members of the international community committed themselves to the Framework Convention on Climate Change (UNFCCC) by ratifying its ultimate objective “to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system.” Due to the ratification of this document it became obligatory for all member states. Nevertheless, the convention’s goal is too abstract, and therefore a specification to legitimate concrete measures is required. This task has been pending since 1992, thus leaving the Climate Convention a “toothless tiger”. A supplementary process was initiated ten years ago in Kyoto in order to negotiate nation-specific greenhouse gas emissions which are to be mitigated step by step in the future. Unfortunately, the results of the 2012 ending first commitment period give no reason for optimism:

- First: the largest emitter (USA) did not ratify the Kyoto Protocol and its mitigation goals. Its greenhouse gas emissions grew continuously and will probably grow even further in absolute numbers, irrespective of recent national climate initiatives.
- Second: the majority of the countries of the Kyoto regime including the “EU-bubble” seem to miss their respective mitigation goals. Some others may fulfill their commitments, but are either irrelevant with respect to global emissions (small economies) or owe their CO₂ reductions to their economic transition (which cannot be repeated in the next commitment period).
- Third: China and some other fast developing economies are still reluctant to contribute substantially to the next commitment period, although they will become main emitters.

Overall: the first period of the Kyoto Protocol will probably not fulfil even its modest mitigation goals, although some specific mitigation gains have been achieved or might be expected (but recall that mitigation in absolute numbers counts in the end). In the sense of the above-mentioned metaphor the Kyoto strategy therefore threatens to become a “tigerless tooth”. From the previous experience it is most likely that overall global mitigation gains of the further Kyoto process will proceed only slowly – possibly too slowly to prevent global warming above critical thresh-

olds. Therefore, supplementary strategies have to be fostered in parallel, as long as failures of the international climate negotiations with respect to the prevention of detrimental climate impacts cannot be excluded.

A case of adaptation?

Generally and for prudent considerations, the delayed occurrence of climate change should direct any respective policy clearly towards precaution. This is commonly a motive of prevention or mitigation (of emissions). Nevertheless, adaptation is also directed towards prevention of adverse effects, while applying the causation chain downstream of the climate impact. *Adaptation is clearly also a precautionary option.* Its precautionary nature and its relation to prevention will therefore generally forbid any playing-off of mitigation against adaptation. Conversely, adaptation benefits from relatively smaller uncertainties, because it applies to the lower ends of the above-mentioned causation chain. Moreover, its effects will be more specific and, thus, both characteristics might make higher returns of investments possible. Nevertheless, climate politics should not rely solely on adaptation measures because their problem solving potential is limited and exhaustible. Their arrangement is often erratic and fragmented; adaptation often lacks superior goals and tends to be only reactive. Adaptation measures may indeed bridge the absence of any superior strategy but may not substitute it in the long run. Claims for adaptation are myopic with respect to regions which cannot invest in adaptation or which even cannot be compensated (small island states). *Effective* mitigation of emissions, on the contrary, will enable favourable effects on an aggregated global scale which – in the end – might “harmonise” the burdens of climate change. But expectations towards the socialising potential of respective beneficial effects on global and intergenerational scales will hardly motivate all sovereign countries to make corresponding efforts. Instead, ambitious parties may invite free riders to take their chance; and even worse, the ambitious ones will be punished by higher avoidance costs on a global competitive market.

Thus, in general, no priorities for mitigation or adaptation can be given. In the end, decisions for or against either strategy depend upon the factual willingness of the parties to specify and to comply to rules of *effective* climate protection as well as upon the objective rationales behind them. Rational decisions for abatement and/or adaptation should put into account the characteristics of adverse climate impacts, such as their amount, reversibility, timing, duration, uncertainty, and distribution. However, considerations of political feasibilities as well as concurring challenges from other long-term problems (public debts, demographical change in social care

systems) are necessary parts of the integral decision task.

Being prepared

Any future detrimental climate change should be prevented, as far as it is reasonable and possible. For this aim, three critical conditions have to be fulfilled: Corresponding mitigation efforts are global tasks and therefore there is a need for *concrete and international regulations which are binding* to the emitting parties. These regulations have to *enter into force in time* due to the time lags of the climate system. Moreover, corresponding *obligations* have to be *ambitious enough* in order to solve the problem substantially, given the above-mentioned projections of global warming and related severe climate risks. Nevertheless, worse political scenarios cannot be excluded and may be characterised by (a) coming too late, (b) poor participation of the emitting countries and/or (c) insufficient mitigation efforts by the international community of states. Thus, the parties should also be prepared in case the international climate regime failed. *Being prepared* in this sense would strongly include appropriate sets of adaptive strategies on regional scales, which might also be better achievable on a national or the European level. This should rather complement than exclude any mitigation efforts, as long as sufficiency of either strategy cannot be guaranteed. It therefore seems to be prudent to develop parallel strategies together with mitigation-oriented regulations considering under broad international participation (post-Kyoto regime) plus implementation of adequate adaptation measures on regional levels. Along this line, the actors should decide for reasons of environmental long-term justice and third-parties protection as well as for ensuring the well-being of the present. In order to fulfil these objectives, there is need for early mitigation, as today’s emissions will influence the climate in a distant future, regarding the inertia of the climate system as well as the long-lived emission of energy infrastructures, and early adaptation is needed, as climate change (from historical emissions) is already going on and has adverse effects even for the present and the near future. This finally means that *climate politics have to be implemented instantly on both international and national levels* regardless of any preferences for mitigation or adaptation and priorities.

Dr. rer. nat. Stephan Lingner, Dipl.-Geol., is deputy director of the Europäische Akademie GmbH. He has coordinated diverse interdisciplinary projects on the assessment of climate and environmental change and was an expert reviewer for the recent 4th Assessment Report of the IPCC.

WORKING GROUPS

PROJECT MEETINGS

■ Project Group “Societal Implications of Electrical Power Grids”:

12./13.2.2007 in Düsseldorf

■ Project Group “Potentials and Risks of Psychopharmaceutical Enhancement”:

7.2.2007 in Berlin

■ Project Group “Responsibility for Future Generations. Implementation of Sustainability in Schooling”:

19./20.2.2007 in Ludwigsburg

SPOTLIGHT

Responsibility for Future Generations

■ In a short lecture and during an additional poster session, Dr. phil. Georg Kamp presented the outlines of the project concerned with the implementation of sustainability in schooling at the conference “Klimazwei” in Berlin on 28th February and 1st March. The conference was organised by the German Aerospace Centre (DLR), the agency responsible for the programme “Research for Climate Protection and Protection from Climate Impacts”, funded by the German Federal Ministry of Education and Research (BMBF), in order to bring together all the implementation-oriented projects out of this programme of which the academy’s project is one.

In his presentation Kamp, the project coordinator, gave a survey of the project group’s intention and marked the limits of goals too optimistic of an education for sustainable development as they are for instance articulated in official UNESCO statements. According to these, the World Decade of Education for Sustainable Development 2005–2014 aims to “integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behavior that allow for a more sustainable and just society for all.” Now, on the one hand the integration of such “values” may conflict with others, e.g. that of an “inviolable dignity” each person owns by the provisions of the German Grundgesetz which guarantees – according to the Kantian origin of this formula – the autonomy of each pupil in determining his or her own purposes.

On the other hand, there are the dilemmas of rational choice most of our actions with positive or negative effects on the environment are riddled with: The more precisely a rational decision-maker will know about the consequences of his and his co-agent’s behaving, the more precisely he will know that his contribution to the whole amount of emissions of greenhouse gas is not significant for any climate effects – and his omission will not be ei-

ther. Hence, the individual decision-maker has no incentives for any “changes in behaviour” as long as there is no modification in the surrounding conditions for his action relevant for his decision. Whether humans are rational decision-makers or at least regularly behave as if, is of no relevance here: The supplier of schooling may take this question into account as far as the question is concerned *on how* to offer certain subject matters. In this connection, however, a normative question is posed: If it is seen as a teacher’s task to change the pupil’s behaviour at all, he is supposed to do so by reason alone, and therefore has to presuppose that the pupils are rational actors and decision makers. Hence – as the project group “Responsibility for Future Generations” is currently working out – it should be a prominent goal of an education for sustainable development to improve the pupil’s competences to cope with complex and dilemmatic conditions for their decisions and actions, even if the consequences are ambiguous, uncertain, and long lasting.

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CONFERENCES

2nd Space and Society Conference

■ From 27th February to 1st March 2007 the International Astronautical Academy (IAA) and the European Space Agency (ESA) held a conference on “Space Options for the 21st Century” at the European Space Research and Technology Centre (ESTEC) in Noordwijk/NL. Dr. rer. nat. Stephan Lingner contributed to the session “Space Technology Benefits” with a talk on justification of manned spaceflight based on a joint paper by Dr. rer. soc. Kai-Uwe Schrogl and Dr. rer. nat. Nicola Rohner (both DLR).

NEWS

Descartes Prize for DLR research team

■ The European Commission has awarded the 2006 Descartes Prize for Collaborative Scientific Research to a European research team for its work on solar hydrogen production via water splitting, also known as the HYDROSOL project. The Descartes Prize for Scientific Collaborative Research is awarded to transnational research teams which have achieved outstanding scientific results through collaborative research in any field of science, including economics, social sciences and humanities.

The department of Solar Research of the German Aerospace Centre (DLR) is part of the HYDROSOL researchers and 2006 Descartes Laureates including Dr. rer. nat. Ruth Klüser, who was a team member of HYDROSOL at DLR and now works as a project coordinator at the Europäische Akademie GmbH.

The prize comprehends a monetary amount of 333,333 € and a special diploma, presented to the team at the awards ceremony in Brussels on 7th March 2007.

The production of purely renewable, solar hydrogen from the HYDROSOL process creates new opportunities for countries in Southern Europe that can become local producers of energy and therefore offers a new energy future to many poor regions of the world which have a large solar potential. The highly-recognized Descartes award can help to support the insertion of Solar Hydrogen as an important component in a sustainable energy system.

Vernissage

■ On 29th March 2007, the Europäische Akademie GmbH opens its latest preview showing paintings by the artist Bobo Kriechel from Bad Neuenahr-Ahrweiler. He will be presenting his exhibits until the end of September on the premises of the academy. Kriechel was born in Bad Neuenahr and studied philosophy in Heidelberg and fine arts and painting in Köln and Bonn. Since 1990 he has shown his paintings all over Germany, e.g. in Köln, Bonn, München, Mannheim, Berlin, Düsseldorf and Mainz.

Since the foundation of the academy, numerous regional artists have presented their exhibits. The current exhibition which is supported by the sponsors’ club (“Verein der Förderer”) can be visited during the opening hours of the academy.

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Media Meeting

■ On 22nd February 2007, the director of the academy, Professor Dr. phil. Dr. phil. h.c. Carl Friedrich Gethmann and three project coordinators presented the current work of the academy to the local media. The following project groups have begun in 2006 and will publish their results by 2008 or 2009:

- The Research Guiding Function of Metaphors from the Information Sciences and their Relevance to the Transformation of the Philosophy of Man;
- Fuel Cells and Virtual Power Plants as Elements for a Sustainable Development Innovation Barriers and Implementation Strategies;

- Potentials and Risks of Psychopharmaceutical Enhancement;
- Pharming. Genetically Modified Plants and Animals as Future Production Site of Pharmaceuticals?;
- Responsibility for Future Generations. Implementation of Sustainability in Schooling;
- Societal Implications of Electrical Power Grids.

For example, Dr. phil. Margret Engelhard, Dr.-Ing. Bert Droste-Franke and Dr. rer. nat. Ruth Klüser presented their work: Engelhard spoke about "Pharming", a new branch of biotechnology that uses transgenic plants or animals as living "factories" to produce human or animal pharmaceuticals. Droste-Franke explained the project "Fuel Cells and Virtual Power Plants". Fuel cell systems are effective high-technological energy conversion systems. They show a good performance with respect to energy efficiency, own energy consumption, and greenhouse gas emissions, and can therefore contribute to a sustainable development. Klüser gave an insight into the project "Electrical Power Grids". A reliable electricity supply is vital for every modern society, and therefore the energy system has to be able to provide the required amount of electric current preferably without any interruptions. Recent blackouts were caused by defects of the supply mains with severe consequences.

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Medical Ethics

■ On 27th February the sponsors' club ("Verein der Förderer") of the Europäische Akademie organised a meeting of the working group Medical Ethics ("Arbeitskreis Medizinethik"). Speaker was Dr. med. Felix Thiele, deputy director of the Europäische Akademie who gave a talk on "Suicide, autonomy, and psychic diseases". He investigated the claim that psychic diseases are regularly if not necessarily connected to a morally relevant restriction of autonomy. Thiele argued that – contrary to this claim – under certain conditions a psychiatric patient may well be in an autonomous state. One of the consequences of this position is that it cannot be excluded off-hand that a psychiatric patient might commit a morally acceptable suicide. Notwithstanding these conceptual considerations, it remains a difficult problem to implement such findings in medical practice.

PUBLICATIONS

Carl Friedrich Gethmann/ Stephan Lingner

■ „Rationale Technikfolgenbeurteilung bemannter Raumfahrt. Die deutsche Diskussion". In: H. Trischler/K.-U. Schrogl (Hgg.) *Ein Jahrhundert im Flug. Luft- und Raumfahrtforschung in Deutschland*. Frankfurt/New York 2007, 479–488

LECTURES

Stephan Lingner 1.3.2007

■ A new approach in justifying space activities – overcoming the dichotomy of "utilitarian" versus "trans-utilitarian": 2nd Space and Society Conference: Space Options for the 21st Century. ESA/ESTEC (Noordwijk/NL)

PERSONALITIES



KRISTIN HAGEN, Ph.D., was born in Norway and grew up in Germany. She studied biology, philosophy and agricultural science at the University of Tromsø, Norway, where she graduated in 1997 with theses on road transport of sheep (biology) and on philosophical aspects of animal welfare science (philosophy). She went on to postgraduate studies at the St John's College/University of Cambridge, UK, with the Animal Welfare and Human-Animal Interactions Group (Professor Donald M. Broom). There, she was awarded her Ph.D. in 2001 with a doctoral thesis entitled "The expression of learning and emotions in cattle". From 2001 to 2002 she worked as a postdoctoral scientist at the Veterinärmedizinische Universität in Vienna, investigating the effects of robotic milking on the health and welfare of dairy cows. Subsequently she conducted research on heart rate variability and vocalisations in cattle with a postdoctoral fellowship at the Freie Universität Berlin and the Research Institute for the Biology of Farm Animals, Dummerstorf. She has published several papers in international journals and contributed presentations at a series of conferences, and is currently a council member and regional secretary for the International Society of Applied Ethology. Since February 2006 Kristin Hagen has been a member of scientific staff at the Europäische Akademie GmbH for the project group on pharming (the production of biopharmaceuticals in transgenic plants and animals). Her tasks include assisting in the project's coordination, writing about animal welfare and animal ethics in pharming. Additionally, she is managing the library of the academy.

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Kristin Hagen, Ph.D., is a member of scientific staff at the Europäische Akademie for the current project group "Pharming, Genetically Modified Plants and Animals as Future Production Site of Pharmaceuticals?".

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