



# 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

*In Zusammenarbeit mit der Stadt Bad Neuenahr-Ahrweiler und dem "Verein der Förderer der Europäischen Akademie e.V." wurde 2003 die Veranstaltungsreihe „Ahrtalgespräch“ ins Leben gerufen. Der in 2001 gegründete Verein der Förderer der Europäischen Akademie hat den Zweck, die Europäische Akademie GmbH bei der Durchführung ihrer wissenschaftlichen Vorhaben zu unterstützen und im Sinne ihres Auftrages gemeinnützig für die Akademie tätig zu sein. So wurden die regionalen Aktivitäten der Akademie in die Trägerschaft des Vereins überführt. Veranstaltungen wie der Arbeitskreis Medizinethik und die Kunstausstellungen werden seitdem vom Verein getragen.*

*In der neuen Veranstaltungsreihe „Ahrtalgespräch“ werden einmal jährlich Referenten zu politisch aktuellen Themen eingeladen. Nach einer Einführung in das Thema durch die Referenten wird anschließend in einem Streitgespräch zwischen den Referenten und dem Publikum, unter Leitung von Professor Dr. Dr. Carl Friedrich Gethmann, Direktor der Europäischen Akademie, das Thema diskutiert. Die Veranstaltung richtet sich dabei an die interessierte Öffentlichkeit aus der Region. Den Auftakt bildete das Streitgespräch am 20.11.2003 im Rathaussaal der Stadt Bad Neuenahr-Ahrweiler zum Thema „Haben die Gewerkschaften zuviel Macht?“. Am 17.11.2004 fand, abermals im Rathaussaal, die zweite Veranstaltung dieser Reihe statt – dieses Mal zum Thema „Selbstbestimmung am Ende des Lebens?“.*

*Über das Ahrtalgespräch vom 17. 11. 2004 wird im nächsten Newsletter berichtet.*

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## Focus

### On the Staircase to Heaven? Towards the Specification of the Stabilization Goal of the UN Climate Convention

Stephan Lingner

The recent ratification of the Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC) by both houses of the Russian Federation will now give way for its entry into force according to its provisions. This fact could be seen as a breakthrough in operational climate politics, although it marks only a first milestone – not the ultimate goal of the above mentioned UNFCCC. The treaty's widely accepted objective instead is in the end "to achieve ... (the) stabilization of greenhouse gas concentrations ... at a level that would prevent dangerous anthropogenic interference with the climate system" (Art. 2 UNFCCC). And this goal would need for quite more ambitious obligations of the Parties to the Convention than the prescriptions of the Kyoto Protocol to its signatory states. As a consequence, the upcoming commitment periods of the post-Kyoto era might challenge its parties to a larger extent, as "free lunches" seem to be hardly expectable. In advance, and given the serious scenarios at stake, appropriate specifications of the concrete meaning of the Climate Convention's objective remain to be carried out before the world community could be reasonably obliged to respective measures for climate protection.

By broad ratification of the UN Framework Convention on Climate Change (UNFCCC) in the early nineties, the international community gave itself a general but nonetheless binding stabilization goal for anthropogenic greenhouse gas concentrations in the atmosphere (Art. 2 UNFCCC). Nevertheless, the absence of concrete numbers in the treaty and its unclear aim to avoid dangerous developments still give room for conflicting interpretations of the Convention's ultimate goal among the actors of the international climate regime. Concrete targets beyond the Kyoto perspective have not yet been commonly considered and only few efforts had been devoted to the question of how Art. 2 might be understood. Thus, a reasonable specification of the overall climate protection objective is needed for an acceptable implementation of the Convention and the realization of its ultimate stabilization goal. This situation might give reason for considerations and evaluations of

acceptable strategies to interpret the ultimate but yet vague goal of the UN Framework Convention. In doing so, the wording of the UNFCCC and its Art. 2 will not be questioned as a whole, because it resembles the already internationally adopted legal basis for the world community to handle the problem of human induced climate change.

#### Specification – why and how?

The specification task might be confused by certain parties to the convention which were yet reluctant towards any specification effort although they have formally affirmed the commitments of Art. 2 and thus its implementation. They mostly emphasise scepticism regarding existent scientific uncertainties which is often combined with a general optimism about technological progress and adaptive capabilities of the future. Others are highly critical about the "arbitrariness" of any specification but are eager to accept the

arbitrary outcomes of a "muddling through" in climate politics. Therefore, sceptical conclusions on specification cannot be reasonably supported as both arguments seem inconsistent. Moreover, it has to be recalled that appropriate specifications are a must, as they are constitutive for any political objective and thus for the stabilization goal of the treaty, too. Otherwise, there would remain only the broad but vague aim to control emissions without binding obligations for any Party which would probably result in business-as-usual. Calls for specification in decisive terms concerning emission quantities, allowed time-frames and the specific obligations of the respective actors concerned are therefore implicitly embedded in Art. 2 UNFCCC as a political aim and common interest of its Parties. This interest is expressed by their membership to the Convention. *Claims of any Party not to specify the treaty should be therefore rejected.* Furthermore, even *how* to specify is prescribed by binding claims of the internationally adopted legal rules of the Vienna Convention of the Treaties in a way that international conventions like the UNFCCC have to be interpreted "in good faith and with regard to their original purpose". Consequently, *any strategic or particularistic reasoning in this sense should be rejected as not acceptable.*

### Challenging constraints

The treaty's stabilization goal to avoid dangerous levels is augmented by the constraints *to allow for ecosystems adaptation, to ensure food production and to enable sustainable economic development.* A specific problem of the specification task is given by the strong interrelationships between these constraints which may lead to complex and sometimes conflicting trade-offs especially between the ecological and economical aims of the treaty. Moreover, each of the three constraints can be interpreted and assessed quite differently with respect to their relevant spatial and inter-temporal scales, their specific uncertainties, as well as the distributional consequences associated with impacts from climate change and climate politics. Therefore, policy-makers may have to impose reasonable restrictions on any of these trade-offs between the three constraints as well as on the mentioned four dimensions of the three constraints in order to find operational ways to deal with questions as to which scale of regional and temporal disruptions are acceptable or how to bridge the distributional implications of unequal climate impacts or policies. This may, for example, become evident concerning the question if local, regional or global food production would have to be secured and consequently, on which spatial level respective compensations by trading foodstuffs would be necessary.

### The ethical perspective

The aim to avoid "dangerous interference with the climate system" as well as its framing constraints cannot be described by science only. Instead, all claims of Art. 2 are clearly related to normative questions. Thus, due to the absence of concrete legal measures, any reasonable interpretation of Art. 2 has to undergo ethical weighing. Some sceptics may point out that there might be severe divides among the ultimate principles of ethics which may obstruct any normative orientation. Nevertheless, some reasonable *practical convergence* may be expected on the level of applied ethics, thus avoiding confusion from theoretical differences.

Indeed, given some modest premises about inter-temporal obligations and precaution, almost all ethical theories and approaches seem to converge towards a consensus with regard to the ultimate objective of the climate convention. Moreover, as the wording of Art. 2 lacks any requests for utility maximising, its ultimate goal might be mainly interpreted along deontological claims against victimization or injury for the present and the future, thus resulting primarily in recommendations for safety-oriented measures. Corresponding claims, like avoiding false-positive outcomes and/or large-scale damages, may argue in favour of relatively *low stabilization levels.* Additional statements can be concluded from reasonable obligations towards future generations: Given the acceptability of comparative standards, members of future generations would have strong moral "claims" to living conditions, which should not be worse than those of our contemporaries. If this was to be combined with the precautionary principle, only relatively low stabilization levels could be justified. Nevertheless, somewhat higher stabilization levels might be tolerable if absolute standards like basic-needs considerations would have met with some reasonable optimism about adaptive capabilities of the future to a changing climate.

Different approaches in environmental ethics provide a variety of arguments as to how strict the above mentioned constraints should be interpreted: For instance, the ecosystems adaptability-constraint cannot be restricted to global cycles if reasonable obligations in favour of sentient creatures and their habitats should have to be considered. Therefore, the need to protect these habitats on regional or even local scales is also to be seen as an argument in favour of low stabilization levels. Food production and its availability, on the other hand, is only partly a function of climate change. Therefore, low stabilization levels can only be claimed by adequate co-evaluation of all social, economical and cultural drivers of potential food shortages. There are various interpretations of the sustainable economic-development-constraint of Art. 2 according to different theoretical approaches towards the meaning of "sustainability". Correspond-

ing evaluations of natural systems relative to the production of goods and services would therefore lead to quite different results. The corresponding outcome is especially relevant for balancing the needs for ecosystems adaptation and economic development. However, a coherent and ethically sound interpretation of Art. 2 which parallels food availability, habitat protection and low greenhouse gas levels can be outlined. The crucial problem remains to give the "sustainable economic-development"-constraint a reasonable interpretation which fits into this picture. It could be weakened if the ecosystems and food constraints were interpreted more ambitiously.

Concluding from the ethical convergence thesis on low stabilization levels, certain prescriptions in favour of possible emission paths can be justified if a set of relevant criteria, principles and priority rules were considered, too. Applied to the conceivable energy scenarios published by the so-called "Special Report on Emission Scenarios" (SRES) one might favour those developments towards *global decarbonisation, sustainability and equity improvement* – resembled by the SRES-scenario B1.

### Political feasibility?

The interpretation and specification of the ultimate objective of the UNFCCC will probably become a key issue in climate negotiations beyond the upcoming enforcement of the Kyoto Protocol. The recent positioning of political actors on Art. 2, on concrete greenhouse gas emissions and targeted concentrations may already shape the current negotiation process. This could contribute to an early clustering of key players into potential coalitions. Those who are willing to push the agenda towards the stabilization goal – such as the member states of the European Union – are currently facing strong resistance by the USA or a few of the developing and transitional countries (G77) who want to postpone or even refuse any commitments. Countries of a third, more intermediate group – like Russia or the other members of the G77 – could tip the scales in setting the future agenda in one or the other direction.

However, the heterogeneity of the G77 induces also potential conflicts within this undecided group that may contribute to slowing further progress on achieving the ultimate objective. Nevertheless, the need for accelerating the process may prevail with increasing attention of developing countries to their own vulnerability to impacts from climate change. A unifying crucial element within the G77-countries seems to emerge with respect to the *fair access of all Parties to the atmosphere* as a common global good for the deposition of greenhouse gases. Therefore, equity questions might become cross-cutting issues in the upcoming negotiations, enabling the formation of *coalitions*

between the EU, the G77 and China among possibly others. If the European Union succeeded in strengthening the equity issue on the next agendas in combination with its relatively ambitious goals for climate protection it might initiate the aforementioned coalition building which again might question or even alter the currently different position of the USA upon the climate problem. This could – in the end – contribute to the solution of the recent transatlantic differences on this issue.

Irrespective of any strategic considerations, it would be desirable to allow for fair negotiations. Transparency, consistency, and universal validity of any argumentation put forward towards specification of Art. 2 may support its acceptability and preferably its factual long-term acceptance. Whether pursuing the long-term aspirations of Art. 2 is compatible with the often shorter-term negotiation horizon remains – however – an open question.

This contribution summarizes some central concerns of the recently released academy's study "Reasoning Goals of Climate Protection. Specification of Art. 2 UNFCCC" which was conducted on behalf of the Federal Environmental Agency of Germany (UBA). This topic will be also discussed early December 2004 on the occasion of a side-event to the 10<sup>th</sup> Conference of the Parties to the UNFCCC in Buenos Aires. The complete study may be downloaded from the academy's homepage ([www.europaeische-akademie-aw.de](http://www.europaeische-akademie-aw.de)), both in English and German language.

Dr. Stephan Lingner is member of the scientific staff of the Europäische Akademie. He coordinated diverse projects on the rational treatment of climate and other environmental problems.



## Working Groups

**Nanomaterials, Nanodevices, Nanocomputing. Standortbestimmung und Perspektiven.**

The project group held a meeting in Puidoux/Lausanne (Switzerland) from 22 to 24 September. There, modalities and details of the upcoming Mid-term Meeting were planned and prepared. The Mid-term Meeting itself took place in Bad Neuenahr-Ahrweiler on 8 October, framed by another project group session from 7 to 9 October.

At the Mid-term Meeting, preliminary study results were presented to a total of 11 peer reviewers that had previously been sent the report and asked to judge its quality. The referees were Dr. Gerd Bachmann (VDI-Technologiezentrum Düsseldorf), Professor Dr. Peter Bäuerle (Abteilung Organische Chemie II, Universität Ulm), Professor Dr. Paul Borm (CEL Technohouse, Hogeschool Zuyd, The Netherlands), Professor Dr. Harald Fuchs (Fachbereich Physik, Universität Münster), Professor Dr.

Uwe Hartmann (FR 10.2-Experimentalphysik, Universität des Saarlandes, Saarbrücken), Professor Dr. Christoph Hubig (Institut für Philosophie, Universität Stuttgart), Professor Dr. Martin Möhrle (Lehrstuhl für Betriebswirtschaftslehre, Universität Bremen), Professor Dr. Reinhard Nesper (Laboratorium für Anorganische Chemie, ETH Zürich, Switzerland), Professor Dr. Andreas Offenhäusser (Institut für Schichten und Grenzflächen, Forschungszentrum Jülich), Dr. Markus Pridöhl (Degussa AG, Hanau) and Dr. Eberhard Seitz (Projekträger Jülich, Forschungszentrum Jülich, formerly with the Research Directorate Generale, European Commission, Brussels). They agreed with the report's basic structure and approved the interdisciplinary point of view taken by the group. In addition, they commented on the project group's definition proposal of the term "Nanotechnology" and stated possible concerns about its simplicity, its specific purpose and its consistency with the rest of the study.

All of the suggestions were thoroughly discussed by the project group afterwards. The project group will now consider to broaden the definition, accounting for the fact that Nanotechnology's roots can lie in Nanoscience as well as in Nanoengineering, or in both. The results of the internal evaluation of the referees' views will now be incorporated into the study, leading to altered text contributions and to a higher degree of coherency.

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## Environmental Noise

The project group invited Dr. Henk Miedema (TNO Delft) to discuss a paper on its recent progress meeting on 13 September 2004. The paper on "Annoyance caused by environmental noise" focused on empirical based relationships between annoyance and exposure as well as on the role of other factors, like source-specific fears or individual noise sensitivities. Therefore, annoyance from aircraft noise might result in higher levels than those from car traffic, even if the physical loads were in the same order. Concerning the problem to estimate noise annoyance in the practise (prospective noise mapping) Dr. Miedema highlighted the necessity to model the effects of environmental noise from multiple sources. He recommends to calculate cumulative noise annoyances by an annoyance equivalents model, which predicts elevated but non-additive sum-effects of mixed noise loads. The results of Dr. Miedema's expertise will be integrated into the respective sections of the future study report. Moreover, the

members of the project group discussed numerous internal papers on: historical reflections of noise acceptance, noise-induced communication disturbances, calculation of emissions from traffic noise, principles of standard setting and on respective weighing problems on levels of the German legislative and executive.

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## News

### Expert Groups

Professor Dr. Dr. C.F. Gethmann was member of the accreditation commission of the accreditation institute ACQUIN for the BA-study course "philosophy and economics" at the Universität Bayreuth. The solemnisation took place in Bayreuth on 9 July 2004. Furthermore, Professor Gethmann was member of the expert group "Jugenddiskurs Bioethik" of the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF).

### Technology Forum "Mit Lebensmitteln heilen? – Wachstumsmarkt Functional Foods"

The Europäische Akademie presented its study "Functional Foods" at the technology forum "Mit Lebensmitteln heilen? – Wachstumsmarkt Functional Foods" at the Chamber of Commerce and Industry in Potsdam on 27 October 2004. Professor Dr. Gerhard Reckemmer, who was member of the academy's project group "Functional Foods" and holds a chair for "Biofunktionalität der Lebensmittel" at the Technische Universität München, presented in his speech the study and reported about its results. The study on "Functional Foods" has been published in April 2004 and examines the public perception of functional foods as well as legal/political, economic and ethical questions and provides recommendations for public action. Further information about the study can be found on the academy's web site [www.europaeische-akademie-aw.de](http://www.europaeische-akademie-aw.de).

120 representatives from the policy-making community, research and industry participated in the conference which aim was to provide an overview about the recent developments in the food sector and to discuss the different processes, chances and limits of functional foods with specific focus on the regional potential of Brandenburg. The technology forum has been organised by the "Verein zur Förderung der Nutrigenomforschung e.V." and the "Landesarbeitsgemeinschaft der Industrie- und Handelskammern des Landes Brandenburg".

## Art

Von Oktober 2004 bis März 2005 sind die Bilder der Künstlerin Margarete Gebauer in den Räumen der Europäischen Akademie ausgestellt. Aktueller Mittelpunkt des Schaffens von Margarete Gebauer sind Darstellungen des nackten, weiblichen Körpers. Die Werke der Künstlerin können täglich zwischen 9.00 und 16.00 Uhr besichtigt werden.



## Book Series

The 24<sup>th</sup> volume of the Europäische Akademie's book series "Wissenschaftsethik und Technikfolgenbeurteilung" was published recently:

F. Thiele, R. Ashcroft: *Bioethics in a Small World*. Springer-Verlag Berlin 2004, ISBN 3-540-23595-7



## Lectures

Carl Friedrich Gethmann

4.11.04 „Darf der Mensch alles was er kann?“ Podiumsdiskussion Stadthalle Westerberg, Westerwald

8.11.04 „Wissenschaftlicher Forschergeist und gesellschaftliche Verantwortung – Max von Laue zum 125. Geburtstag“. Podiumsdiskussion, Landesvertretung Rheinland-Pfalz, Berlin

10.11.04 „Warum sollen wir überhaupt etwas und nicht vielmehr nichts?“, Institut für Philosophie der Universität Leipzig

24.11.04 „Neuer schöner Mensch? Möglichkeiten und Grenzen der Menschengestaltung durch Gentechnik und künstliche Intelligenz“. Podiumsdiskussion zur Eröffnung der Konferenz „Technik in einer fragilen Welt“, Berlin

29.11.04 „Was heißt universitäre Bildung?“ Podiumsdiskussion Friedrich Naumann-Stiftung, Mainz

Felix Thiele

14.10.04 "Predictive medicine and practice in clinical medicine – the case of genetic testing." Annual meeting of the European association of centres of medical ethics. 14.–16. October 2004. Institut Catholique de Lille, Centre d'Ethique Médicale, Lille

8.11.04 „Bioethis. Theory & Application.“ Vortrag im Rahmen der Einführungswoche für die neuen Ph.D. Studenten am European Molecular Biology Laboratory, Heidelberg

11.11.04 "Is there a difference between genetic data and conventional medical data?" Fachgespräch Genetic data and biobanks. Data protection, patient rights and research needs. Europäische Akademie für Informationsfreiheit und Datenschutz. 11.–12. November, Berlin

12.11.04 „Moralische Probleme der Stammzellforschung.“ 5th Annual Meeting of the DFG-Priority Program 1109 'Embryonic and Tissue-Specific Stem Cells – Regenerative Systems for Cell and Tissue Repair'. 11.–13. November, Potsdam

## Publications

Carl Friedrich Gethmann

„Rechtfertigungsdiskurse“, in: H. Friesen/ K. Berr (Hgg) *Angewandte Ethik im Spannungsfeld von Begründung und Anwendung*, Frankfurt a. M. 2004, 111–158 (mit T. Sander)

"The Special Status of the Human Being as a Topic of Practical Philosophy", in: H.-R. Duncker/K. Prieß (Eds.) *On the Uniqueness of Mankind*, Berlin/Heidelberg 2004, 95–105

Jorge Guerra González

Prevention of the Xenogenic Infection Risk and the Spanish and German Constitutions, in: *Law on the Human Genome Review*, Fundación BBVA, Rev Der Gen H 20/2004 January-June 2004, 123–146

Stephan Lingner

J. Loomis, G. Hefand: Environmental policy analysis for decision making (Book Review), in: *Poiesis & Praxis. International Journal of Technology Assessment and Ethics of Science*, Volume 3, Numbers 1–2, 2004, 148–151



## Personalities



Günter Schmid studied chemistry at the Universität München and finished his PhD in Inorganic Chemistry in 1965. In 1966 he moved to the Universität Marburg, where he performed his habilitation which was completed in 1969. Two years later he got a professorship at the same university and from 1975–1976 he was the dean of the chemical faculty in Marburg. In 1977 he followed a call to the chair for Inorganic Chemistry at the Universität Essen, where he acted as the director of the Institute for Inorganic Chemistry until his retirement in 2002. Since then he is working as an emeritus. From 1977 until 2002 Professor Schmid occupied several academic positions. From 1987–1988 he was the dean of the chemical faculty and from 1988–1992 he was a member of the rectorate of the university, responsible for research.

His scientific interests were and still are focused on the synthesis, investigation and application of transition metal nanoparticles, mainly on the fields of catalysis, medicine and future storage devices. He published more than 300 original scientific papers and edited two books on nanoparticles and is member of five editorial boards of international journals. Furthermore, he is member of the advisory board of the Institute for Science and Ethics at the Universities of Bonn and Essen.

In 2003 Professor Schmid received the Wilhelm-Klemm-Award from the German Chemical Society for his work on Nanoscience and Nanotechnology.

Professor Schmid is Chairman of the Europäische Akademie's project group "Nanomaterials, Nanodevices, Nanocomputing. Standortbestimmung und Perspektiven".



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