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Report from the 2004 Berlin Conference on the Human Dimensions of Global Environmental Change "Greening of Policies – Interlinkages and Policy Integration"

Organizational Background

The 2004 Berlin Conference on "Greening of Governance – Policy Integration and Interlinkages" took place on Dec 2-3 2004 at the Freie Universität Berlin. It was the fourth of a series of conferences initiated in 2001 by the Environmental Policy and Global Change Section of the German Political Science Association (DVPW). It was organized by the Environmental Policy Research Centre at the Freie Universität Berlin in cooperation with the international Global Governance Project (GLOGOV.ORG), a joint research programme of the Vrije Universiteit Amsterdam, the Freie Universität Berlin, the Potsdam Institute for Climate Impact Research, and Oldenburg Universität. The conference was endorsed by the Institutional Dimensions of Global Environmental Change Project (IDGEC) and the Industrial Transformation Core Project (IHDP-IT) both core projects of the International Human Dimensions Programme on Global Environmental Change (IHDP).

Financial support was particularly provided by the Freie Universität Berlin, the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety and the United States Diplomatic Mission to Germany.

Objectives of the Conference Series

The main objective of the Berlin Conference series is to provide a forum for social scientists to internationally exchange their research while at the same time confronting them with the needs of policy makers. The conference focuses on policy problems rather than academic questions. This should stimulate problem-oriented, interdisciplinary approaches. All of the Berlin Conferences were endorsed by different IHDP projects. Contributions for panel presentations are publicly invited, while plenary speakers are invited by the organizational committee. The abstracts are reviewed anonymously by a board of experts. The papers that are handed in are initially published on the conference website. After reviewing and editing the papers, a selection of the most important contributions is published in form of an edited volume or a special issue of a journal. In this way an internationally acknowledged institution for social scientists in the field of Global Environmental Change shall be institutionalized.

Objectives of the 2004 Berlin Conference

The 2004 Berlin Conference "Greening of Policies – Interlinkages and Policy Integration" focused on the integration of environmental issues into all policy areas and at all levels of policy making. To become successful, such a cross-sectoral and multi-level approach of environmental policies require institutional provisions that allow actors to depart from the traditional model of fragmented bureaucratic decision making and to pursue a coherent approach for environmental protection and global change.

Thirty years of environmental policy-making at the national and international level reveal considerable problems in furthering the case of policy integration. In most countries as well as international organisations, environmental protection has been added as a new, separate branch of government. Consequently, the framework conditions of the environmentally most harmful sectors, such as agriculture, energy or transport, remain largely untouched. The same holds true for the international level, where environmental regimes mostly lack an integrated policy approach.

The 2004 Berlin Conference highlighted the main obstacles to integrated decision-making, discussed successful strategies and paid special attention to interactions between regimes and policies on the international and national level respectively. The main areas of focus were:

Analysis of policy integration in practice.

What kinds of institutions are successful in strengthening policy integration? Which actors, instruments and strategies are the driving forces for a greening of policies? What is the role of law in codifying integration requirements? What are the implications for environmental policy - do we face an over-complexity of decision-making due to extensive integration requirements, leading to a weakening of environmental policy? In how far are integration efforts affected by economic and political globalization, the shift from government to governance or the transition from environmental protection to sustainable development?

Instruments and knowledge base for policy integration.

Which tools are available for policy integration? What methods are available or being developed that allow for an ex-ante evaluation of possible economic, social and environmental effects of planned policies and programs? What indicators do we need for such an evaluation? Which experiences are available in integrating the different domains of knowledge?

Multi-level aspects.

To what extent are international regimes affecting the capacities for a greening of policies at the national level and vice versa? What efforts have been undertaken to ensure a vertical integration among the different levels of policy making? To what extent are consequences of Global Environmental Change taken into account in policy formulation, in particular with respect to developing countries? What mechanisms are successful in ensuring the coherence of different international regimes, notably between trade and environment?

Altogether, 172 abstracts were submitted out of which 111 were accepted for presentation at the conference. From the accepted papers, 99 papers from scientists from 27 different countries were actually presented. The remaining authors could not participate for various reasons. Most of the papers and some of the presentations have been made available through the conference web site www.fuberlin.de/ffu/akumwelt/bc2004. A selection of the most important papers will be published.

Proceeding of the Conference

After a short address of welcome from the Freie Universität Berlin, brought forward through **Helmut Keupp** (Vice President, Freie Universität Berlin), the opening plenary session of the conference focused on the subject of Greening of Policies, emphasizing on the global challenge of climate change. Prof. Keupp introduced to the recent activities in global

change research at the Freie Universität, in particular regarding the development of an interdisciplinary research cluster on earth system science.

With his contribution entitled “Combating Climate Change and the Greening of German Energy Policy”, **Hendrik Vygen** (Head of department, German Federal Ministry of Environment, Nature Conservation and Nuclear Safety) spoke in place of the Federal Minister Jürgen Trittin, who was not able to participate on short notice. Dr. Vygen addressed the German efforts in combating climate change and talked about strategies to support energy saving and to increase energy efficiency in Germany, as well as Germany's successive transformation of its energy base: moving away from oil and nuclear power towards renewable energies. Dr. Vygen mentioned Germany's contribution to the global increase in the use of renewable energies and the necessity of gearing national and global energy policy towards the needs of climate protection. Vygen outlined the next steps following the entry into force of the Kyoto Protocol and explained Germany's efforts such as the national climate protection programme and the government's efforts in persuading customers to apply the most efficient technology. Product labelling, the promotion of the top runner approach at the European level, information campaigns and Germany's ecological tax reform are implemented. Additional steps are the 2002 Energy Saving Ordinance and efforts for the reduction of CO₂ in existing buildings, energy certificates and heat-power cogeneration and the Renewable Energy Sources Act, which provides industry with investment security.

By 2020 Germany is striving for a share of renewables of at least 20% and by 2020 all 19 German nuclear power plants shall be shut down. The energy industry law is currently amended, in order to facilitate more equitable competition among electricity producers.

The Bonn conference Renewables 2004 resulted in an International Action Programme aiming at promoting access to renewable energies for one billion people by 2015. Vygen added that the example of China shows the dynamics which can be expected from the global increase in the use of renewables. In Bonn, China committed itself to increasing the share of renewable energies to 10% by the year 2010. Additionally Renewables 2004 succeeded in combining voluntary actions with a multilateral approach: the Commission on Sustainable Development will review the status of renewables expansion and the implementation of the Bonn Action Programme and the global launch of renewable energies thus have a firm multilateral basis.

Vygen added the EUs press for strategies to prevent a global temperature rise by more than 2 degrees compared to pre-industrialised levels. Damage caused by climate change is becoming ever more frequent and devastating. Climate protection, however, is calculable, feasible and affordable and is even economically advantageous, Vygen stated. It is important that the industrialised countries commit themselves to more ambitious reduction targets, as well as the countries of the South which have to take on initial climate protection commitments. Vygen concluded that in order to succeed with the second stage of the Kyoto process it will be necessary to gear energy policy more towards the requirements of climate protection.

Olivia Castillo (President of the Asia Pacific Roundtable for Sustainable Consumption and Production – APRSCP) held a presentation on the role of business and Asian Countries in Climate Change Policies: She stated the Asia Pacific Region's difficulties to undertake a unified program or project because of the areas' great diversity in terms of physical and geographical location, language, culture, religion, and indigenous communities.

Despite these difficulties the Asian Development Bank (ADB) initiated a regional technical assistance project in 2001 wherein experts of five selected developing countries (India, Indo-

nesia, Philippines, Thailand, and Vietnam) made a framework for the National Action Plan and Policy on Cleaner Production. This framework served as a guidepost for decision-makers particularly on strategies and policies on sound environmental practices.

Furthermore Dr. Castillo discussed the fact that industries, being perceived as an engine of growth and development, at the same time seem to be the reason for an increasing environmental degradation through their activities. However in most of the Asian developing countries, industries account for only one third of the environmental degradation.

Richard Odingo (Vice Chairman of the IPCC, Department of Geography, University of Nairobi) contributed his view on African Countries adapting to Climate Change through his presentation called “Opportunities and barriers for climate change policies in the developing countries of Africa and the contribution of the intergovernmental panel on climate change (IPCC)”. After a short introduction into the subject of climate change and the intergovernmental panel on climate change (IPCC), Odingo presented the scientific assessments and Special Reports regularly issued by the IPCC. These reports emphasized Africa’s low contribution but high vulnerability to climate change, the latter because of its widespread poverty, which limits capacity to adapt. Odingo presented IPCC data, showing the current global position and future expectations in terms of global climate change, in the context of verifiable projections on temperature and sea level rise. Thereby the IPCC produces a possibility to predict accompanying actual and potential impacts and to suggest possible mitigation scenarios.

According to the third IPCC assessment, the UNFCCC put forward several questions on the constitution, causes and consequences of anthropogenic interference with the climate system and its regional and global climatic, environmental, and socio-economic and ecological consequences. Furthermore the extent and timing of emission reduction actions and their affect on the rate, impact and magnitude of climate change were questioned, as well as robust findings and key uncertainties, regarding the attribution of climate change and model projections for future emissions and impacts of climate change. IPCC sources state that climate change -, economic- and sustainability policies only work effectively, if consistent with broader societal goals. Regarding Africa, it would be feasible to attract Clean Development Mechanism (CDM) projects provided for under the Kyoto Protocol, rather than trying to mitigate. Emphasis should as well be placed on the transfer of low emission, hence climate-friendly technologies and thus a removal of barriers to their introduction. Unfortunately Africa has little choices according technology because of its poverty in connection with its large and growing population. African countries will need to build capacity and institutions to handle attendant risks and need to build up local communities’ resilience aiming at the reduction of vulnerability to impacts of climate change. Thereby the Kyoto Protocol’s Adaptation fund is posed to play an important role.

The second plenary session was started by **Klaus Jacob** (Conference Chair, Environmental Policy Research Centre, Freie Universität Berlin) who welcomed the auditory and introduced to the concept of the conference series. Following this introduction Dr. Jacob explored some ideas that lead to the actual conference, explaining that the issue of policy integration, although having a long history, is, however, not outdated. The struggle for coherence and policy integration is now going into its fourth decade: after being introduced already in the early 1970s together with the foundation of modern environmental policies, the integration approach was rediscovered in the late 1980s and the beginning of the 1990s and was later a fundamental principle in the European 5th Environmental Action Programme (EAP) of 1992

by defining priority sectors and major environmental problems. Up to then, policy integration was mainly a task of environmental administrations. However, when the shortcomings became obvious, more decentralised approaches were adopted. The Cardiff Process of the European Union marks a turning point in this respect. Vertical Policy Integration featuring sectoral strategies, decentralised impact assessments became more common. This development peaked in the 2001 adoption of a Sustainability Strategy and the introduction of impact assessment as a standard procedure. Phases of retreats were caused by the economic crisis and followed by a general lack of power of the environmental departments, parallel to incoherence with other policy domains and an overburden for administration. While Environmental Policy Integration is focusing on instruments to stimulate policy learning, this leads to the following questions: (1) is this sufficient to bring the environment into the centre of decision making? (2) Are actors and networks emerging and taking up environmental concerns? (3) Does their position change in the institutional landscape? (4) In how far does the distribution of power change? Therefore the 2004 Berlin Conference should contribute to a stocktaking of efforts for the furthering of a greening of sectoral policies. The conference analyses achievements in the different policy fields, the establishment of different actors in furthering environmental policy integration, the greening of organisations and policy networks and the impediments for such a greening. The major trends at the international level as well as the European Union's development in the direction of sustainable development, effects on national and subnational level of policy making and several others were subject of the upcoming presentations.

After the introductory speech of Klaus Jacob, the first panel on teaching global environmental change started. **Michael Maniates** (Associate Professor of Political Science and Environmental Science at Allegheny College, Meadville, Pennsylvania) gave his presentation "Between Two Stories: Teaching and Learning an Awkward Moment". Prof. Maniates focused on modern environmental education's challenges and mentioned that although the number of different environmental education options increases every year, there seems to be little accord on the basics needed by future environmental scientist or even less agreement on what to teach future employees in environmental administration and the political field. After participating in environmental programs, students often show a decline in faith in citizen-based, as well as expert responses to environmental threats. Their former desire to accomplish positive changes is now overcome by the insight on complexity of the political system and consumer attitudes and this leads to stronger personal anticipation but reduced interest and hope in structural changes. Prof. Maniates therefore proposed some suggestions on how to change environmental education, as for example through questioning old conceptual frameworks and the lecturer's ability to confess to uncertainty and concern, while pointing out possibilities for change and reasons for personal optimism.

Following Michael Maniates, **Nicholas Ashford** (Director, Technology and Law Program, Massachusetts Institute of Technology, Cambridge) gave an overview over environmental research and teaching and its multi- and trans-disciplinary approach, its challenges and needs. His contribution focused Major challenges to education for environmentally-sustainable development. He asked what has to change to make it creative and acceptable to the established disciplines. His main questions focused on the coexistence and interlinkage of multi- and trans-disciplinary research and education, the special requirements of education relevant to sustainable development parallel to traditional curricula and disciplines and the option for courageous educational paths. Furthermore Prof. Ashford tried to draw conclusions from

comparative analysis of universities in different nations and environments and assessed national and EU governments' possible role for the acceleration of necessary changes. Requisites for technological change, such as willingness, opportunities, motivation and capacity can be strongly furthered through successful education on environmental and sustainability issues. According to Ashford sustainability needs (1) co-optimization, which means multi-purpose design of policies, mutually-reinforcing and integrated, not merely coordinated, (2) the avoidance of agenda and pathway capture by interest groups, (3) the governments acting as trustees for new technology and competitiveness, environmental, and employment needs (4) a visionary leadership and (5) inter-departmental and –disciplinary approaches to encompass technical, organizational and social transformations which all can be provided for through a successful educational setup.

The first plenary session on the second day of the conference focused on Governance, Institutions and Interlinkages and was chaired by Frank Biermann.

The first presentation was given by **Guy B. Peters** (Maurice Falk Professor of American Government, Michigan State University, Pittsburgh) and was titled "Horizontal Policy Management: Necessary but Difficult". Prof. Peters highlighted the search for coordination and coherence in public policy. Administrative change during the past decades had a number of different trajectories and a variety of different foundations, but one dominant pattern has been to move political and administrative control away from the political center of government, empowering a range of other actors in public and private sectors. Most of these changes have been justified in terms of ideas of "New Public Management" or managerialism, where governments set broad guidelines while implementation is left over to other actors. Privatization and outsourcing of governmental service functions would lead to better service through competition and autonomous organizations as well as empowering so far under-utilized lower echelons of government and clients of public organizations. It was thereby assumed that self-organizing networks of public and private actors would be capable of controlling policy areas more effectively than inflexible and unresponsive public organizations. But, as Peters pointed out, economic globalization and Europeanization is a major impediment of conventional government. Against this background the trend of decentralization might have considerable drawbacks: Government programs may be competitive against each other or leave important lacunae in needed services. Decentralization might pose significant problems of accountability and autonomy on the lower hierarchical levels.

He pointed out four possible levels of coordination: (1) negative coordination which names organizations and programs merely getting out of each others way, (2) positive coordination with cooperation around the delivery of services and (3) policy integration which names the coordination of goals being pursued by public organizations and (4) the development of strategies for the government. This level of coordination requires strategies that will not only cut across the usual organizational lines in government, and requires substantial agreement on general goals among public organizations, but also a clear vision for the future of policy and government is needed regarding the policy areas involved. Peters highlighted that meaningful coordination can only be achieved through developing a common mental frame among the participants in the process, who seem to gain something for themselves under way.

The lately trend toward central controls in government is often indicated by a strengthening of offices of presidents and prime ministers. This development is justified and guided through ideas on the need of horizontal manners of management, while the center begins to reassert its primary role in governing and in providing coherent direction to the society. Pe-

ters calls the process of recentering of governance in the continuing context of decentralization and deconcentration of service delivery for “strategic governance”. Peters concluded his talks by focusing on strong ideas’ crucial role for strategic governing and for building a framework for all governmental services.

Frans Berkhout (Chair, IHDP-IT Scientific Committee, Director, Institute for Environmental Studies, Vrije Universiteit, Amsterdam) contributed with his views on “Environmental Policy Integration and Ecological Modernization”, discussing the following main questions: (1) Can EPI be seen as a process of innovation? (2) What lessons can EPI learn from the integration of environment into business management? (3) Does EPI lead to (greater or different) innovation?

According to Prof. Berkhout EPI has several elements (agenda-setting, coordination and appraisal) which all have to be aligned and are at best reinforcing each other. A number of organisational innovations can be identified that aim at stimulating learning processes. Ideally, search and adaptation of routines produces responses to novel or problematic situations for which existing routines are inappropriate. Learning processes can be possibly enhanced by EPI procedure, such as CBA, MCA, SEA, IA but there is the risk of an superabundance of assessments.

As for integration of environment into business management, environment or sustainability typically remains a specialist function (often a coordinating function) while steady development of capacity and procedure (EMS) as well as many examples of win-win solutions can be found, but the perceptions that environmental protection is expensive and producing extra costs is still remaining. It is promised in ‘stages models’ that integration and alignment leads finally to sustainability in business, but little evidence of business strategy actually aligned to sustainability can be found, only a lot of symbolic action instead.

Environmental regulation as a possible stimulus, still rarely leads to disruptive innovation, but economic regulation can do so. Concluding, the most important lessons for EPI are that (1) integration happens when expectations of win-wins are broadly shared, (2) the debate about policy instruments remains crucial and (3) system innovation against tough sustainability criteria is an important object of EPI.

History has shown that system innovations are usually seen as unplanned processes to which policy systems adapt, while ‘purposive transitions’ are rare; usually users and the market define whether innovations come to have pervasive effects. But system innovation requires major shifts in resources (knowledge, capital, networks) available to compete with socio-technical regimes.

As overall conclusion, Berkhout stated that while EPI can be seen as an innovation process, integration is typically partial and problematic and EPI only contributes to system innovation if it leads to a deep shift of resources to alternative socio-technical regimes.

Oran Young (Chair, IDGEC Scientific Steering Committee, Bren School of Environmental Science and Management, University of California, Santa Barbara) focused in his talk on “Institutional Interplay: Achievements”. According to Prof. Young, institutional interplay is a social artifact. The usual assumption is that growing numbers of issue-specific regimes leading to exponential growth of opportunities for interaction with no built-in coordination mechanisms. Against this background, the focus on problem solving is a possibility which treats interplay as an intervening variable. In this framework researchers ask whether inter-

play will help or hinder efforts to solve specific problems (e.g. climate change, loss of biological diversity).

Alternatively, interplay itself can be treated as the dependent variable and it can be focused on the emergence and growth of interplay and the forces leading to changes in the nature or significance of interplay.

Young presented a methodological divide between the reductionist (German) school and the integrative (American) school and questioned the possibility of using both approaches as well as the proper balance between them.

A promising direction to go beyond taxonomies Young proposed to focus on constitutive interplay vs. operational interplay. There are fundamental differences in the responses on conflicts between different domains of law: On the domestic level new legislation and litigation are standard responses to interplay issues. But these mechanisms don't work on the international level due to a lack of overarching and unbiased mechanisms. As alternatives negotiation and institutional bargaining can be found and there are signs that this is developing in the trade/environment realm. Young called for a focusing of research on the identification and the analysis of few critical issues rather than going on with scoping exercises and the development of taxonomies.

During the last plenary presentation, chaired by Miranda Schreurs, **Martin Jänicke** (Director, Environmental Policy Research Centre Berlin) emphasized in his presentation titled "Greening of Government and the Environmental State", how the concept of an *environmental state* can provide a possible formula for the integration of environmental considerations into different policy sectors. The Meta function of an *environmental state* affects almost all policies.

Prof. Jänicke summarized the so far most important barriers restricting an adequate implementation of such an ambitious governance concept that are the structural weakness of government regarding powerful target groups ("government failure"), the complexity of the "persistent" environmental problems and economic and political globalization.

Political and economic globalization does offer new opportunities at the same time, at least for technology-based policies of ecological modernization. Its challenges have, to a certain degree, been motors of policy innovations within the last 15 years. The "Rio process" and its model of multi-level, multisectoral environmental governance might be the most prominent example. The new environmental governance, however, has created complexities which necessitate stronger co-ordination, higher capacities and the definition of final responsibilities.

William Lafferty (Director, Program for Research and Documentation for a Sustainable Society, ProSus, Oslo) talked on "Governmental initiatives for environmental policy integration: A further specification of benchmarks and normative standards". In his presentation Prof. Lafferty defined "Political Discourse" and "Academic Discourse" as the two major approaches to sustainable development. As considerable conflict between the two discourses, Lafferty found the question on desirability and legitimacy of the political discourse, as well as the question on "correctness" of the Brundtland understanding of SD inherent in the political discourse. While decoupling is an essential task for achieving sustainable development Environmental Policy Integration (EPI) is a crucial instrument for its achievement and has implications in both discourses.

After presenting the EPI research to date Lafferty illustrated two EPI models: the DPSIR model and the analytical model and then used Norway as an example for a possible institutional/procedural assessment of vertical (responsibility of ministries) and horizontal (respon-

sibility of governments) policy integration. SD policy integration implies trade-offs between principles and criteria for policies designed to satisfy every human's essential needs at present and for future generations while achieving a stable economic performance and a preservation of the long-term functionality of nature and its life-support systems on all scales. The application of EPI as "regulatory principle" on the other hand, implies an alternative "canon for practical judgement" for resolving SD trade-offs: ecological premises for SD as constitutional –legal priority need to be strengthened, nature's tolerance levels need to be clarified and applied as well as normative standards for human essential needs and the precautionary principle needs to be implemented consequently.

Andrew J. Jordan (School of Environmental Sciences, UEA, Norwich) presented his sight on "The Coordination of European Governance: The Administrative Challenge of EPI". He introduced the subject of environment policy in the vanguard of attempts to move from 'hierarchy' to more 'networked' forms of coordination (i.e. the Cardiff process etc.) and questioned the necessary administrative implications of such a shift i.e. the needs for networks in support of EPI.

As a case of complex interdependence, the EU (Commission, Parliament, Council) and three Member States (Germany, The Netherlands and The UK) were explored by the research team of Jordan, Schout and Unfried. Different coordination tasks, were identified, such as the setting of long term priorities and targets and that were the need to be connected to 'daily politics' and policy making. These targets were found useful to assess (and re-steer) the impacts of new policy proposals. Additionally a focus on EPI throughout the policy cycle should be maintained and it was found important to identify and resolve conflicts beforehand and to share information and workloads.

As part of the project coordination networks and their capacities were analyzed regarding their mode of operation, e.g. hierarchical and bureaucratic procedures, training efforts, development of mission statements, specification of output and horizontal mechanisms such as bureaucratic politics, liaison roles, teams, taskforces etc. Necessary new coordination capacities were identified (1) at the network level, e.g. cross sectoral networks which are not necessarily self-organising; (2) at the actor level, e.g. bureaucratic procedures as 'e-testing' and more active forms of information flow and (3) stronger (national) parliamentary scrutiny, stronger (national) political leadership, and the connection of national and EU IA procedures in addition to an advancement of national environmental coordinating bodies. Jordan concluded that the EU is attempting to move from hierarchical steering but market based approaches are limited and networks are not sufficiently 'self organising' and greater network management is needed.

Panel Discussions

The plenary lectures provided a framework for in-depth discussion on a broad range of issues in the panel sessions, which were organised around nine themes:

1. Integration & Innovation (panel section A);
2. National & Regional (B);
3. Indicators & Assessments (C);
4. Agriculture, Biodiversity & Water (D);
5. Resources & Waste (E);

6. Energy & Climate Change (F);
7. Interplay (G);
8. Teaching (H);
9. Transatlantic Relations (I).

In **panel section A** participants were invited to reflect upon the role of environmental policy integration to achieve a greening of innovation systems. Several papers described and analysed the scope of Environmental Policy Integration, ranging from multi-disciplinary reviews (Meijers and Stead), Strategic Public Management (Steurer) research and policy challenges in integration practice (Huby et al.), to policy integration for complex policy problems (Briassoulis) and integrative policy-frameworks for governance and transition (Loorbach). The role of learning and its institutionalization was discussed by Vergrat and Brown regarding bounded socio-technical experiments and by Butter and Montalvo regarding the identification of niches in green innovation policies.

Policies to fostering a greening of innovation systems were addressed by Andersen. Foxon et al. as well as Saint-Jean et al. discussed the prerequisites for sustainable innovation policies. Innovation policies and the integration of environmental concerns in different countries and for different sectors were analysed by Kivimaa and Mickwitz (Finland), Lafferty et al. (Norway), Humbeeck et al. (Belgium) and Nel et al. (South Africa). Triebswetter and Wackerbauer focused in their contribution on environmental innovation in the German automotive industry.

The Contributors in **panel section B** analysed the potentials and challenges for the greening of policies on national and regional level. Policy integration in the European Union was addressed with focus on the experience to date (Sprenger), retrospect and preview (Coffey and Dom) and multi-level integration (Bourblanc).

A comparison of policy integration and capacity-building in regional sustainable development based on experiences in Europe was presented by Berger and Pohoryles, while coordination challenges and innovations in national sustainable development strategies based on a 19-country analysis was illustrated by Volkery et al.

The aspect of national policy integration was highlighted through presentations from India (Sharma) focusing on development plans, Bangladesh (Sultana), (Turkey (Orhan) addressing regulation, local stakeholder involvement and key policy actors) and Hungary (Antypas et al.) with an overview over current status and challenges.

Ball assessed the cultural and organizational issues influencing sustainable development in local authorities, while development and transition of economic efforts to achieve policy integration was discussed by Luken and Hesp.

Panel C featured indicators and assessments for a greening of policies and policy integration. Different assessment procedures were discussed, including the British and Dutch approach of an environmental test and its role in environmental policy integration (Russel), environmental impact assessment (EIA) in Belgium (Frendo and Zaccai), strategic environmental assessment (SEA) and early UK experiences with the EU SEA Directive (Scrase and Sheate) and Assessment through foresight, addressing general requirements of reflexive governance (Voss). Jacob et al. contributed with their experience with ex-ante sustainability appraisal of national-level policies, through presenting a comparative study of assessment practices in seven countries.

Opuko and Jordan discussed EU's impact assessment conducted for EU action on non-European territory, thereby focusing on policy coordination and sustainable development. While Carina and Keskito assessed institutional learning in IA, with an in-depth analysis of the communicative process, Bleischwitz and Latsch, focused on its general criteria for the conduct of such procedures.

Institutional provisions for environmental policy integration were presented through Lafferty at al., with their analysis of the "Environmental Profile of the State Budget" and the "National Environmental Monitoring System" in Norway. Rave gave his presentation on the greening of subsidies in Germany, while Meijers and Stead presented their findings on policy integration in practice, comparing experiences of integrating transport, land-use planning and environmental policies in local government in Denmark, UK and Germany.

Moutchnik focused on the role of environmental management standards in the interaction and interdependency of business and politics and Bauler reflected on the policy relevance of indicators for sustainable development while Ziegler contributed with a methodological study of sustainability indicators. Blazejczak presented a balanced scorecard approach to integrating sustainability policies, which goes beyond a system of indicators as it supports the development of a strategy as well as the consistent integration a variety of measures with respect to that strategy.

In **Panel section D**, called Agriculture, Biodiversity & Water, papers covered an analysis of the greening European agricultural policy and multi-level strategies between trade, budget, agricultural and environmental policy (Feindt), an analysis of the institutional setting in the organic farming and food sector in the German regions of Berlin and Brandenburg (Nölting) as well as a focus on policy integration in the shaping of an organic food strategy in the danish food sector, with special emphasis on environmental concerns (Jørgensen).

Aksoy reviewed policies for genetic resource conservatio and the linkages between local, national, and international levels, while Axelrod analysed international cooperation regarding the constraining of new institutions with old institutional rules. Jungcurt and Meyer asked for reasons of ambiguity and contradictions in international agreements drawing from the example of the conventions on biological diversity and on the protection of intellectual property rights.

In a session with water at its focal point Kallis and Briassoulis reviewed the integration of EU water and development policies while for the regional level Thiel and Lane captured environmental policy integration and the multi-level and multi-sectoral aspects of water use development (algarve, portugal). Complex adaptive systems and transition management were dicussed along a case study on integrated water management in the Netherlands (Van der Brugge). Gazit analysed the checks and balances in the Israeli institutions for water management. Another focus on the preservation of water resources was set through Fishhendler et al., this time introducing the short- and long-term ramifications of linkages involving natural resources in the u.s.-mexico transboundary water case, which could finally be compared with Adelegan's review of environmental policy and pollution of water sources in Nigeria and his preview on the latter issue.

In the **Resources & Waste panel (E)** Zingerli et al. reflected on intersectoral coordination in international and national forest policy and the challenges of policy integration, while Späth et al. introduced to the case of biorefineries in Austria and the lessons thereby to be learned for policy coordination for supporting a transition to sustainable production systems. Laakso and Keskitalo added their experiences with the multi-level governance in renewable

resource industries in Norway and Finland. The discussion was furthered even more through Brand's presentation on the networks in renewable energy policies in Germany and France and Bechberger and Reiche contributed with their overview on the spread of renewable energy feed-in tariffs (refits) in the EU-25.

Wind power policy's uncertain future in Australia (Bunting) was later on discussed in addition to Wind power discourse coalitions and policy integration (Szarka).

Maritime challenges were addressed according to two presentations titled "A new model for the solution of resource use conflicts in coral reef areas. From integrated coastal management to integrated coastal governance in palawan, philippines" (Schuchmann) and "Sustainability in the life-cycle of renewable primary products- case report: governing the maritime transport of liquids" (Höfer and Mez) as well as Campe's closer look on the international maritime organization's efforts to integrate shipping safety and fighting marine pollution. The objective of sustainable waste policies was investigated by Watson et al. who introduced their study on vertical and horizontal integration in the governance of UK municipal waste policy as well as by Schiller, featuring interlinkages between the vertical integration of waste policy and its horizontal progression.

Whitelegg and Ömer-Rieder questioned if policy niches can work better than co-ordinated strategies and compared horizontal policy making in Austrian environmental, transport and innovation policy, while Bongardt focused on environmental policy integration through diagonal policy-processes. His case study was prepared on the European dimension of the greening of German transport policy.

The **panel F**, which was titled Energy & Climate Change was introduced by Schroeder and her study on the vertical interplay in the case of California's climate change policy addressing the case of an implementation without ratification while Kotov analysed the advantages and risks of an informal agreements on the basis of the EU-Russia "Kyoto deal" as a case of policy integration and Ochs and Sprinz gave their presentation on transatlantic climate policy relations.

Policy integration in the energy sector was captured by Bauknecht featuring the role of market regulators and Djourdjina and Yotova focussing on the importance of social capital and the need of partnerships (Bulgaria), as well as Nilsson with his example on the case of Swedish energy policy. Market design, entrepreneurial discovery and political legitimacy were investigated by Midttun in his study on green electricity markets.

Addressing climate change Yotova and Djourdjina presented an analytical review on the implementation of the UNFCCC in Bulgaria, whereas Odingo stated the importance of adaptation studies and adaptation policies in responding to climate variability and climate change in East Africa. Jinnah discussed in how far the implementation of the Kyoto protocol might have potentials for conflicts in the trade regime. Finally, Gupta presented his development of a participatory integrated assessment on the dangers of climate change as a transdisciplinary methodological tool for evaluating.

Interplay, the title of **panel section G** featured Bauer and Biermann with their paper on United Nations agencies as partners or competitors, Lehtonen focused on the case of the OECD environmental performance reviews as a tool promoting policy integration. Luken and Grof gave an insight on the Montreal Protocol's Multilateral Fund and Sustainable Development. The effectiveness of the World Bank as an international environmental organization (Behrle and Marschinski) was discussed as well as its gaps between mandate and performance, highlighted through agency theory and the case of World Bank environmental

reform (Gutner) and Görlach et al. reflected on participation and transparency in export credit agencies' cover decisions.

The challenges of integration of governance in national law with international environmental law and trade regimes (Ashford) was discussed, as well as international regime conflicts on environmental issues (Zelli). Through a case study from India (footwear industry), the subject of market friendly means of promoting sustainable exports and the success of ecolabels in promoting sustainable exports from developing countries to developed countries (Kulkarni) was presented for discussion, while Fritz featured the subject of negotiation of environmental issues in free trade agreements (New Zealand).

Co-operative approaches to environmental governance (Scholtz), as well as legal mechanisms for cooperative governance, presented on the case of South Africa by du Plessis were opposed to the limitations of law in promoting synergy between environment and development policies in developing countries, which was presented through a case study of the petroleum industry in Nigeria (Emeseh).

In the panel on **Teaching Global Environmental Change (H)** the development of multidisciplinary bachelor and master's programmes and the inter-linkage between research and teaching was addressed by Dieperink and Driessen as well as Jörgensen, who presented the Interdisciplinary Environmental Studies at the Freie Universität of Berlin. Laumann and Schroeder introduced their successful trial on global perspectives for the education of environmental managers, which they implemented through interdisciplinary teaching on global environmental change research. Further interdisciplinary approaches were presented by Klein on environmental studies and Zingerli and Zimmermann who added their experience on teaching models for education in environmental policy for engineers and natural scientists.

The subject of practitioner integration in environmental studies was addressed by all presenters but especially by Huby et al. with the presentation titled "Integration in practice: challenges for research and policy" and Domask "Engaging Practitioners in the Education Process".

Panel section I focused on Transatlantic Relations. The panel was a side event in the conference, assembling the authors of a book project by Miranda Schreurs and Stacy van Deveer on Environmental Politics in the US and an Enlarged EU. Starting on Saturday morning, potentials for mutual trans-atlantic policy-learning at sub-state level in the area of governance for ecological sustainability in US States and German Bundesländer (Jörgensen), were compared to federal and sub-federal initiatives in multi-level systems in climate change policy in the European Union and the United States (Kern). Keilbach's presentation on genetic engineering food introduced the auditory to the challenge to define Menu, Rules and Choices in Transatlantic Food Fights in an Era of Globalization. Schaper focused on a similar theme with his presentation titled "Export Promotion, Trade, and the Environment: Negotiating Environmental Standards for Export Credit Agencies across the Atlantic". Schreurs focused on the implications of an Enlarged European Union for EU-US Relations, with a special focus on the environment, as did van Deveer in his presentation.

Outlook

The 2004 Berlin Conference on the Human Dimension of Global Environmental Change with its focus on the integration of environmental concerns in non-environmental policy

sectors and the interplay between different domains of policy sectors on the various levels of policy making from international to local levels gathered an impressive stock of knowledge on experiences with strategies for EPI from around the world, at many different levels of policy making (local, national, European and international), and for a large number of sectors. However, the limitations and impediments of policy integration were highlighted as well. A realistic analysis of the capacities of actors for an ambitious cross-sectoral and multi-level strategy is needed. Hence, the upcoming 2005 Berlin Conference will focus on the role of international organisations. It will be analysed which capacities are available for actors at the international level to identify, analyse, manage and evaluate the pressing problems of global environmental change. The conference chair for the upcoming conference will be Frank Biermann, Institute for Environmental Studies at Vrije Universiteit Amsterdam; and Global Governance Project. An open call for paper will be published in spring 2005 to invite for the conference that will take place on 2-3 December 2005.