



Biodiversity: Science and Governance Bulletin

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HIGHLIGHTS OF THE INTERNATIONAL CONFERENCE "BIODIVERSITY: SCIENCE AND GOVERNANCE": THURSDAY, 27 JANUARY 2005

On Thursday, participants to the International Conference "Biodiversity: Science and Governance" convened in workshops throughout the day to address: governance; agriculture; documentation of biodiversity; challenges in achieving the 2010 target; biodiversity and urban areas; biodiversity and health; microbial biodiversity; challenges for fisheries management; innovation; indicators and the 2010 target; biological and cultural diversity; and management of tropical and subtropical biodiversity – forests and islands.

Editor's note: Coverage of workshops has been limited to those described below, selected according to priorities determined by the Conference organizers.

WORKSHOPS

GOVERNANCE: Multi-level governance of biodiversity:

Anil Gupta, Indian Society for Research and Initiatives for Sustainable Technologies and Institutions, spoke on traditional knowledge for biodiversity conservation. He advocated establishing: a fund to reward and compensate knowledge providers; a disclosure requirement for knowledge sources in patent applications; and an international register of sustainable technological innovations and traditional knowledge.

Chimère Diaw, Center for International Forestry Research, discussed the social construction of biodiversity. He said the challenge lies in creating a framework relying on both large and small institutions and on local and scientific knowledge.

During a panel discussion, Maria Fernanda Espinosa, IUCN, drew attention to the need for: prior informed consent procedures for access to knowledge and resources; benefit sharing; economic evaluation of traditional knowledge; and recognition of rights of users and providers. Charles McNeill, UNDP, presented the Equator Initiative, designed at building communities' capacity to conserve biodiversity and reduce poverty. Grazia Borrini-Feyerabend, Switzerland, noted differences between governance types and governance quality. Bernard Roussel, French National Museum of Natural History (MNHN), said local community representation regarding the protection of traditional knowledge should be based on common concepts. Joseluis Samaniego, UN Economic Commission for Latin America and the Caribbean, noted the need to address gaps and differences regarding biodiversity conservation among governments, as well as synergies among relevant mechanisms. He also said international agreements should set clear timetables and quantitative goals. Renaud Dutreil, French Minister for Civil Service and Administrative Reform, stressed the need for common rules when setting up multi-level biodiversity governance.

Global partnership for biological resources use: Georges Massiot, Pierre Fabre, spoke on the compensation of local people for biodiversity use, stressing that many corporations recognize the issue of benefit sharing and are ready to cooperate with governments.

In a panel discussion, Martha Chouchena-Rojas, IUCN, highlighted the importance of access to and sharing of benefits from genetic resources, and supported the French proposal to establish an international group of experts on biodiversity to review good practices. Nathalie Kosciusko-Morizet, French Parliament,

advocated opening access to genetic material and sharing conservation costs. Alberto Glender, Mexican Embassy in India, stressed the need for partnerships for biodiversity conservation. Brendan Tobin, UN University, said biotechnology is closely linked to a strong access and benefit-sharing regime. Everton Vargas, Brazilian Ministry of Foreign Affairs, said there must be a political will to recognize local rights. Leonard Hirsch, Smithsonian National Museum of Natural History, said governance related to the conservation of genetic resources requires traceability and transparency.

Expertise, information and policy decision making: Speaking on structuring sustainable development strategies, Pierre Valette, EC Directorate-General for Research, said it is important to identify information needs for decision making.

During a panel discussion, Patrick Blandin, MNHN, appealed to scientists to share expertise and practices to facilitate decision making. Peter Bridgewater, Secretary-General of the Ramsar Convention, recommended that scientific bodies of biodiversity-related conventions coordinate their work. Gordon McInnes, European Environment Agency, underscored the need for information connectivity. Monique Barbut, UNEP, said an international group of experts on biodiversity should aim to: enhance the quality of biodiversity policy; integrate biodiversity science into social and economic policies; and better use existing, and conduct new, research on biodiversity. Sybille van den Hove, European Platform for Biodiversity Research Strategy, stressed the need to improve scientific knowledge and its interface with biodiversity. Hamdallah Zedan, Executive Secretary of the Convention on Biological Diversity (CBD), said an international group of experts on biodiversity should help to implement the CBD by identifying priorities and filling gaps.

Serge Lepeltier, French Minister for Ecology and Sustainable Development, highlighted the need to solve conflicts of interests regarding biodiversity and integrate access to and sharing of benefits from genetic resources into national legislation.

AGRICULTURE: Participants heard presentations on case studies regarding: local agricultural systems in Indonesia; diversified agro-forestry in Indonesia; cultural eutrophication in the Northern Gulf of Mexico; pastoral practices and dynamics of woody vegetation in the Sahel; and a recovery scheme for farmland birds in the UK.

The workshop's facilitators then introduced the general debate. Henri Buller, University of Exeter, highlighted the need to determine the type of biodiversity to be derived from agriculture and reconceptualize biodiversity as an integral part of agriculture rather than as an externality. Emile Frison, Director of the International Plant Genetic Resources Institute, stressed that biodiversity can be a driver for intensification of agriculture in marginal areas. Jacques Baudry, French National Institute for Agricultural Research (INRA), underscored the need for local empowerment. Bernard Hubert, INRA, suggested further studying the relation between market globalization and locally produced goods, and stressed the need for a mindset change regarding farmers' rights and responsibilities. Sara Scherr, Consultative Group on International Agricultural Research, said farmers are stakeholders in biodiversity, and noted the need to consider the Millennium Development Goals on food security from an ecosystem perspective. Workshop Chair Harison Randriamanana, Minister of Agriculture, Livestock and Fisheries of Madagascar, said strong political determination and a paradigm shift are



necessary. Dominique Bussereau, French Minister for Agriculture, Food, Fisheries and Rural Affairs, highlighted the interdependence between agriculture and biodiversity, and stressed the need for partnerships, research development and awareness raising.

CHALLENGES IN ACHIEVING THE 2010 TARGET:

Following a discussion on main issues regarding conservation-oriented research and whether current conservation research is satisfactory, Roundtable Moderator Jean-Pierre Revéret, University of Quebec, opened discussions on proposals to improve research and its funding. Natarajan Ishwaran, UNESCO, explained that more money is injected into education than into the environment. Jean-Yves Grosclaude, French Agency for Development, stressed developing countries' needs in capacity building, noting difficulties in convincing finance ministries of the benefits of conservation programmes. John Robinson, Vice-President of the World Conservation Society, stressed the need for an organizational framework for collecting and analyzing data, monitoring, and making decisions. Thomas Lovejoy, President of the Heinz Centre, stressed the need to organize information and knowledge. Pierre Mathy, EC Directorate-General for the Environment, said a human and infrastructural effort is needed for better research, and explained how the EU 7th framework programme integrates biodiversity-related issues.

In the ensuing discussion, participants agreed that the Conference should provide concrete proposals, and suggested targeting the CBD Subsidiary Body on Scientific, Technical and Technological Advice or building on DIVERSITAS, among others.

Workshop Chair Watson proposed draft conclusions, including that: capacity building is required for the scientific and policy communities; funding is inadequate, particularly in developing countries; and finance and other ministers need to be involved. Participants also agreed that there is a need to: integrate natural and social sciences; establish multi- and interdisciplinary teams; evaluate progress through baseline data; and develop a framework for research, monitoring and policy formulation. They agreed to support a consultative assessment process post Millennium Ecosystem Assessment.

BIODIVERSITY AND HEALTH: Global health concerns:

Workshop Chair Eric Cornut, President of Novartis-France, stressed that diseases do not respect boundaries between rich and poor countries.

Paul Epstein, Harvard Medical School, discussed the consequences of climate instability on health, biodiversity and the global economy. He explained how new, resurgent and redistributing diseases have become forces of global change, including biodiversity loss.

Jonathan Patz, University of Wisconsin, presented on global change and disease emergence, highlighting the importance of social, political and economic factors in outbreaks of infectious diseases (ID). He explained how deforestation can lead to higher occurrence of malaria as a result of altered mosquito ecology.

Richard Ostfeld, Millbrook Institute of Ecosystem Studies, presented on biodiversity and disease risk, focusing on Lyme disease. He stressed that, in addition to pathogens, wildlife reservoirs and vectors, species interaction can cause disease transmission from animals to humans. He concluded that high vertebrate diversity reduces human risk of exposure to Lyme disease and the West Nile virus.

Christian Lannou and Marie-Laure Desprez-Loustau, INRA, presented on ecosystemic epidemiology for sustainable management in forestry and agriculture. Lannou warned that climate change might trigger outbreaks of disease and insect infestation, and cited examples of crops that can no longer be produced in large-scale monocultures due to their lower genetic diversity.

Modern tools, methods and new ways of thinking: Pejman Rohani, University of Georgia, presented on the mechanisms underlying ID dynamics. He provided explanations of incongruities between pathological outbreak models and data.

Jean-François Guégan, French Research Institute for Co-operative Development (IRD), presented on the macro-ecology of population dynamics of ID. He described the macro-ecology of whooping cough and cholera. Noting increasing exchanges between ID reservoirs, he urged for global vaccination programmes for effective ID eradication and an international programme to predict future biodiversity-related health risks.

Jean-Paul Gonzalez, IRD, discussed the fundamentals and areas of disease emergence. He called for changing farming practices to minimize ID outbreaks, including increasing the genetic diversity of farm animals.

In the ensuing discussion, participants highlighted the need for increased: transdisciplinary research on ID, particularly in urban ecology; sharing of benefits of pharmaceutical discoveries; recognition of the climate-biosphere interdependence; and diversification of food production systems.

MICROBIAL DIVERSITY AND SOCIETY: Workshop Chair Kenneth Timmis, German Research Centre for Biotechnology, gave an overview of the phylogenetic and functional diversity of microorganisms. He described microbial versatility, and noted a substantial lack of knowledge on diversity, life processes and value potential of microorganisms.

Erko Stackebrandt, German Collection of Microorganisms and Cell Cultures, elaborated further on microbial diversity and abundance, and said culturing and conservation of even a fraction of existing microbes is prohibitively costly.

Michail Yakimov, Italian Institute for Coastal Marine Environment, presented on exploring and exploiting the diversity of pollutant-degrading microbes, highlighting experiments in which added nutrients and emulsifiers accelerated microbial breakdown of petroleum.

Willem de Vos, Wageningen Centre for Food Sciences, gave examples of how microbial diversity and functionality in foods and in the human body contribute to health, and how knowledge of this can act to humans' advantage.

Jacques Balandreau, French National Centre for Scientific Research, explained how human activities affect microbial diversity in soils and in our bodies, and said the current increase in emerging environmental pathogens stems from our past ignorance of microbiology.

Angeli Kodjo, National Veterinary School of Lyon, said animals' fate with regard to microbes is linked to ours, since humans acquire both microbes and resistance through contact with domesticated animals, and *vice versa*.

Victor de Lorenzo, Autonomous University of Madrid, described biodegradation as a battle between pollutants and bacteria, and said the catalytic ability of the bacterial landscape is higher than that of microbes' added individual activity.

INNOVATION: Innovation for and from biodiversity: Workshop Chair Bana Bihari Jana, University of Kalyani, India, introduced the session, highlighting the issue of genetically modified organisms (GMOs).

Pierre-Henry Gouyon, Paris-Sud University, said the GMO debate should focus on economics and ecology rather than food safety. Stressing the precautionary principle, he noted serious environmental concerns regarding GMOs, and said GMOs should be rejected as long as patenting has not been streamlined at the global level.

Describing the regulatory framework related to biosafety in his country, Roger Zangré, National Agency for Valuation of Research of Burkina Faso, argued that alleviating poverty requires innovation, and suggested generating facts rather than letting fear and presumption prevail.

Marc Dufumier, French National Institute of Agronomy, highlighted successes accomplished through innovation based on tradition rather than technology. He expressed doubts about genetics as a limiting factor in agriculture.

David Heyd, Hebrew University, distinguished between human-oriented value and value *per se* and, noting that bioethics is usually associated with human health, stated that human and ecosystem health may conflict.

Roundtable: Grégoire Berthe, French National Interprofessional Association for Seeds and Plants, called for more research on long-distance exchange of genetic material, including pollination. Dominique Lecourt, Université Denis Diderot, questioned the applicability of science to technical questions.

Participants noted that since science builds on previous discoveries and transferred genes already exist in nature, GMOs are not an invention and thus should not be patented. They also discussed using biotechnology to improve food quality, incorporating bioethics in scientific training, and better understanding agro-ecosystems.