



**SUMMARY REPORT OF THE NORWAY/UN
CONFERENCE ON TECHNOLOGY TRANSFER
AND CAPACITY BUILDING:
23-27 JUNE 2003**

The Norway/UN Conference on Technology Transfer and Capacity Building, hosted by the Norwegian Ministry of Environment in collaboration with the United Nations Environment Programme (UNEP), convened in Trondheim, Norway, from 23-27 June 2003. This meeting was the fourth Trondheim Conference on Biodiversity. The Conference focused on practical and technical follow-up measures for technology transfer and capacity building as called for under the Convention on Biological Diversity (CBD). Approximately 240 participants from 96 countries, representing governments, inter-governmental and non-governmental organizations (NGOs), and scientific and academic institutions, attended the Conference.

Technology transfer and capacity building will be major themes at the ninth meeting of the CBD's Subsidiary Body on Science, Technological and Technical Advice (SBSTTA-9), to be held in November 2003, and at the seventh Conference of the Parties to the CBD (CBD COP-7), which will meet in February 2004. The fourth Trondheim Conference sought to provide input for these two meetings as well as to support UNEP's work in the development and implementation of an intergovernmental strategic plan for technology support and capacity building to developing countries.

The meeting's conclusions and recommendations will be incorporated into a Chair's report and Proceedings of the Conference and will be submitted to SBSTTA-9 as an information document and communicated to other relevant fora. The discussions leading to these conclusions contributed to achieving the Conference's objectives to: enhance the knowledge base on issues related to technology transfer and capacity building; identify more efficient ways and means of building capacity and developing sustainable and useful institutions; present lessons learned and identify success factors regarding technology transfer and capacity building; explore the role of traditional knowledge in capacity building and technology transfer; and provide a forum for cross-sectoral and multi-disciplinary dialogue between

scientists and policy makers on issues related to the implementation of Articles 16-19 of the CBD, dealing with technology transfer, exchange of information, scientific cooperation and biotechnology.

**A BRIEF HISTORY OF THE TRONDHEIM
CONFERENCES**

The Trondheim Conferences on Biodiversity, hosted by the Norwegian Government, focus on the multi-dimensional nature of the implementation of the CBD and seek to enhance cross-sectoral dialogue on biodiversity research and management and provide a basis for policy and management decisions. The first Trondheim Conference, held in May 1993, provided scientific input into the first meeting of the Intergovernmental Committee of signatories to the CBD. The second Conference, held in July 1996, focused on alien invasive species and provided input for SBSTTA-2 and the development of the Global Invasive Species Program. The third Conference, held in September 1999, discussed the ecosystem approach for sustainable use of biodiversity, and provided input to SBSTTA-5 and to the discussions leading to the adoption of the Principles for the Ecosystem Approach, adopted at CBD COP-6 in April 2002.

REPORT OF THE CONFERENCE

The Norway/UN Conference on Technology Transfer and Capacity Building, chaired by Peter Schei, Norwegian Directorate for Nature Management, opened on Monday, 23 June 2003. Following an opening session, participants met over the course of the week in 13 plenary sessions to hear expert scientists and policy makers speak on: technology transfer and the CBD; technological collaboration; technology transfer and capacity building in relation to poverty alleviation; obstacles to technology transfer; sustainable use of technologies and benefit sharing; gene technology and biosafety; biodiversity, medicines and health; bioprospecting; scientific collaboration, including education and research; and the role of the private sector. Three panel sessions also met to further examine the following issues: CBD-relevant technologies within the context of sustainable development; biotechnology; and the role of the private sector in technology

SUSTAINABLE DEVELOPMENTS

transfer and capacity building. A closing session reviewed participant's recommendations and conclusions. This report summarizes the Conference's presentations and discussions.

OPENING SESSION

Børge Brende, Norwegian Minister of the Environment, chaired the meeting's opening session on Monday morning, 23 June. Noting that biodiversity loss occurs not only in poor countries, Brende urged participants to follow up on commitments regarding biodiversity, including the goal of reducing the rate of biodiversity loss by 2010 as called for by the World Summit on Sustainable Development (WSSD). He said that technology transfer and capacity building are prerequisites for achieving this goal and contribute to alleviating poverty and supporting sustainable development. Minister Brende supported the establishment of an intergovernmental strategic plan for technology transfer and capacity building within the UN system.

Liv Sandven, Deputy Mayor of Trondheim, on behalf of Mayor Anne-Katrine Slungård, welcomed participants to Trondheim, highlighting the city's historical, political and economic importance, as well as plans for sustainably managing the forests surrounding the city. She wished participants prosperous discussions.

Shafqat Kakakhel, UNEP Assistant Executive Director, on behalf of UNEP Executive Director Klaus Töpfer, thanked the Norwegian Government and the authorities of Trondheim for organizing the Conference. Noting that the Trondheim Conferences on Biodiversity have become an important forum for policy debate on biodiversity, Kakakhel expressed hope that discussions on technology transfer and capacity building would provide a robust input to the upcoming SBSTTA-9 and CBD COP-7, and to UNEP's work on building a strategy and an intergovernmental structure on capacity building and technology transfer. He highlighted UNEP technology transfer and capacity building activities in the field of biodiversity, including initiatives to facilitate the implementation of the Biosafety Protocol.

Hamdallah Zedan, CBD Executive Secretary, said technology transfer is essential for meeting the CBD's objectives of conservation, sustainable use and fair and equitable benefit sharing. He said constraints to be overcome include the lack of: adequate information on available technologies; appropriate regulatory, financial and institutional frameworks; market access and incentives to invest in technological innovations; and international technological partnerships. He said capacity building requires: institutional stability; a high-level of expertise; improved infrastructures to adapt relevant technologies in developing countries; a global mechanism to collect and disseminate information on available technologies; and appropriate partnerships. He noted that the CBD's Clearinghouse Mechanism could play an important role in overcoming these obstacles.

Frank Pinto, United Nations Development Programme (UNDP), noted the importance of the Trondheim Conferences in shaping the global biodiversity agenda, particularly in generating the concept of the ecosystem approach. He said that UNDP has channeled over a billion

dollars to developing countries in support of their efforts to conserve and sustainably use biodiversity, and to develop capacity within local communities.

TECHNOLOGY TRANSFER AND THE CBD IN A SUSTAINABLE DEVELOPMENT CONTEXT

Chair Schei chaired the first substantive session on Monday morning, 23 June, which heard presentations from three speakers.

Julia Carabias, Chair of the Scientific and Technical Advisory Panel of the Global Environment Facility (GEF), reviewed capacity development to strengthen biodiversity conservation and management. Noting that, out of the CBD's objectives, conservation was lagging behind in terms of implementation, she stressed the lack of quantitative targets and timing and synergy with other conventions, as well as weak commitments from countries. She recommended ten actions for developing capacities:

- adopting, at CBD COP-7, a programme of work on protected areas with specific targets and timetables;
- raising national biodiversity policies at the highest level;
- strengthening biodiversity conservation and management institutional frameworks, including through establishing inter-sectoral coordination mechanisms and strengthening the ability of environmental law enforcement agencies;
- promoting sustainable development regional planning instruments that include a biodiversity dimension and identify priority bio-regions;
- establishing strategies for decentralization that clearly define stakeholders' roles;
- promoting participation processes for stakeholders;
- elaborating communication, education, and public awareness (CEPA) strategies;
- integrating science in decision making and promoting research on emerging issues;
- establishing binding mechanisms and indicators for monitoring the state of biodiversity; and
- strengthening stakeholders' individual capacities through, *inter alia*, permanent training programmes and regional training networks.

Carabias then outlined the Mexican National Commission on Biodiversity's (CONABIO) work on information systems, and noted its success in promoting cooperation between scientists and government officials.

Jeffrey McNeely, IUCN-the World Conservation Union, addressed cultural challenges to technology transfer, focusing on indigenous communities. He explained that culture and biodiversity are closely related, noting that religion, language and traditional knowledge are important in the context of biodiversity conservation and sustainable use. He stressed the need to recognize the importance of traditional conservation technologies, and noted that these technologies may not survive the pressures of globalization. Regarding the transfer of genetically modified organisms (GMOs), he stressed four requirements, including: strong domestic scientific capacity to assess risks and benefits; a better understanding of biotech complexities; policies that

SUSTAINABLE DEVELOPMENTS

encourage advanced research, supported by a strong regulatory framework; and public debate. He said that cultural challenges to technology transfer can be addressed through: developing new technologies that are culturally appropriate; encouraging societies to develop their capacity to assess which technologies are most relevant to them; understanding local cultures and promoting local communities' participation; and ensuring that indigenous peoples have control over how their traditional knowledge is transferred to modern societies.

Brendan Tobin, United Nations University, reviewed user measures, technology transfer and international access and benefit sharing (ABS) governance. He said user measures are voluntary or mandatory legal, administrative and policy measures to promote compliance by users of genetic resources and traditional knowledge with obligations regarding prior informed consent (PIC), mutually agreed terms, and benefit sharing. Tobin noted the need to address, *inter alia*: voluntary certification schemes; import and transport controls; disclosure of origin; access to justice; and an international system for tracing gene flows. Tobin highlighted constraints for negotiating equitable technology transfer, including negotiating capacity and knowledge of the value of resources, and stressed the need to identify adequate technologies. Recalling the controversy regarding whether intellectual property rights (IPR) support or impede technology transfer, Tobin called for demystifying intellectual property and addressing the role of IPR in, *inter alia*, promoting innovation and PIC and protecting traditional knowledge. He outlined major issues regarding technology transfer-related user measures, including: removing legislative and policy impediments and providing Official Development Assistance funding; promoting direct investment, licensing, franchising and sub-contracting; creating incentives; and training in technology management and production methods. Regarding IPR-related user measures, Tobin highlighted: reviewing protection periods; compulsory licensing; preventing abuse of IPR on parallel imports; developing *sui generis* protection for traditional knowledge; and reviewing the compatibility of the Agreement on Trade-Related Intellectual Property Rights (TRIPs) with the CBD and human rights. Tobin said international negotiations on technology transfer should address, *inter alia*: the link between access to genetic resources and access to technologies; biotechnology parks in provider countries; and the compatibility with the World Trade Organization (WTO) regime. Regarding an international ABS regime, he said issues include: the nature of the regime and the instrument; implementing or strengthening the Bonn Guidelines on ABS; compensating or granting rights to control uses; defining the types of benefits; ensuring informed participation and decision making; and identifying provider and user measures.

TECHNOLOGICAL COLLABORATION

On Monday afternoon, 23 June, Morten Svelle, Norwegian Agency for Development Cooperation, chaired a session on technological collaboration. He introduced two speakers who presented on the issue. The session was followed by questions and comments from participants.

Derek Keats, University of the Western Cape, spoke on creating synergies through South-South technological and research capacity partnerships, including between higher education institutions and resource partners, as well as funders and individuals who 'champion' specific projects. He said developing countries have to create their own synergies, and cited several successful South-South alliances, such as the Africa Virtual Open Initiatives and Resources (AVOIR), which was set up by African universities with support from European and American universities, and through a community of open source developers worldwide. Keats stressed people, the process and the right tools, including a technology mediated communication model, as key to the success of such initiatives.

Margaret Kakande, Ministry of Financing, Planning and Economic Development of Uganda, spoke on technological collaboration, with particular focus on including the poor. Defining poverty as the inability to satisfy basic needs stemming from powerlessness, social exclusion and shortage of material resources, she said that technology has a role to play in poverty alleviation by enhancing agricultural productivity. She noted that agricultural sector constraints include: inadequate marketing infrastructure; inadequate technological generation; limited investment and finance; poor land tenure systems; environmental degradation; and the effects of HIV/AIDS. She added that there was no shortage of improved technologies, but rather poor dissemination, inadequate skills to use technology, and lack of resources for poor farmers to procure technology. To improve access to, and use of, appropriate technology, Kakande recommended: public development and provision of technology; participation of the poor in the development of technology by decentralizing research systems; and social accountability.

Following the presentations, one participant noted the need for improved research policies in developing countries. Another stressed the need to address the transfer of know-how. One participant urged discussing the debt issue and its effect on technology transfer. Another noted the lack of human and material resources to develop South-South synergies.

PANEL DEBATE: CAN CBD-RELEVANT TECHNOLOGIES BE A VEHICLE FOR SUSTAINABLE DEVELOPMENT?

Rasmus Hansson, World Wildlife Fund-Norway, moderated Monday's panel debate on whether CBD-relevant technologies can be a vehicle for sustainable development. The panel included the speakers from the day's substantive sessions.

SUSTAINABLE DEVELOPMENTS

Julia Carabias underscored that lack of financial resources cannot be used as an excuse not to take action, and said that national willingness and political commitment have to be addressed. Derek Keats stressed the need to focus on all steps of the value chain, including the resources, technologies, value-adding processes, and capital.

Margaret Kakande highlighted prioritization as the main issue. Jeff McNeely said that linkages and integration with other issues could raise biodiversity's profile. Noting that the way resources are spent is crucial, he stressed the need to address subsidies. Brendan Tobin said that technology transfer regarding biodiversity is an exchange and stressed the need to ensure that the right technologies are transferred.

Commenting on the panelists' remarks, CBD Executive Secretary Zedan noted the challenge of linking biodiversity to social and economic sectors at the national level, and the need to improve monitoring and compliance. One participant emphasized that people are also resources, especially in terms of sustainable livelihood. He also stressed the need for capacity building regarding international negotiations. Another participant underscored the need for regional training centers in developing countries to help personnel implement national legislation. One participant emphasized the importance of education and awareness raising, while another called for better synergies between environmental fora.

Concluding the debate, Keats noted that people are part of the value chain. Kakande stressed the need to identify and publicize the benefits of using the CBD and indigenous knowledge for sustainable development. Noting that biopiracy is not responsible alone for the loss of traditional knowledge, Tobin stressed the need to strengthen work on other CBD articles, including Article 8 (conservation *in situ*). McNeely underscored: conserving language as a crucial element for conserving traditional knowledge; addressing the relation between IPR and local and indigenous knowledge in national legislation; and cooperation between the CBD and other conventions, including the UN Convention to Combat Desertification (UNCCD). Carabias stressed the need for an integrated and balanced approach to achieve the 2010 target, linkages with other issues and processes, and more efforts to develop CEPA strategies.

TECHNOLOGICAL TRANSFER AND CAPACITY BUILDING – CAN IT HELP ALLEVIATE POVERTY?

On Tuesday morning, 24 June, Karin Gerhardt, Swedish Biodiversity Centre, chaired a session on technology transfer and capacity building in the context of poverty alleviation. Three speakers addressed the issue, followed by questions and comments from participants.

Thierry Oliveria, UNEP, presented a UNEP initiative on poverty reduction and ecosystem services, emphasizing the importance of a capability approach that puts people at the center of development. He said the capability approach governs the relationship between poverty and ecosystem services, and includes regulation and enriching cultural value of ecosystems. Oliveria stressed technology as an instrument of change that enhances capabilities by providing social opportunities,

economic facilities, transparency, participative freedom and ecological security. He added that technology development and transfer should be a social process, suited to the poor, and be ecosystem friendly. He also said that: creating partnerships between public and private sectors is essential; a mix of traditional knowledge and new technology should be encouraged to fit social, cultural, political and ecological conditions; a mechanism to protect property rights should be established; capacity-building support at the local level should be provided; and increased awareness is required. Oliveria said policies should not be limited to economic dimensions, and recommended emphasis on distribution and on the autonomy of individuals. Responding to a question about assessing the value of ecosystem services, Oliveria said valuation is different depending on stakeholders. Another participant raised the issue of matching traditional knowledge and practices with technology.

Harnath Jagawat, Sadguru Water and Development Foundation, presented an NGO experience regarding technology transfer in natural resource management and poverty alleviation in western India. He outlined his NGO's programmes to introduce appropriate environmentally friendly technologies for developing land and water resources. Stressing the need for community ownership and the role of women, Jagawat presented the benefits of micro watershed development, lift irrigation schemes, small-scale surface water harvesting structures, innovative approaches to building drinking water wells, joint forest management, and hi-tech drip irrigation systems. He underscored training programmes, the role of village institutions in the success of the programmes, and cooperation with governmental institutions. Responding to a question regarding the criteria used to select the villages and communities to apply technologies, Jagawat noted poverty levels and biodiversity degradation. Jagawat also noted the benefits of international cooperation to develop the programmes.

Peter Aagaard, Zambia National Farmers Union, spoke on stopping environmental degradation in Zambia through conservation farming, particularly among small-scale farms. Aagaard noted that conventional farming is unsustainable in Zambia due to low yields, total crop failure in years of low rainfall, land degradation, migration, poverty and deforestation. He said conservation farming can reverse many of these trends through rainwater harvesting, precise seeding and targeted nutrient application, rotations, permanent planting positions and reduced tillage. He added that 100,000 small-scale farmers in Zambia have adopted basic conservation farming practices and have seen immediate benefits, especially in increased productivity. He noted that such benefits led to maintaining sedentary agriculture and discouraged migration, thereby reducing land clearing and deforestation.

In the subsequent discussion, one participant enquired about mechanisms for success. Aagaard said the program received support from Zambia's cotton industry and farming associations, and from NGOs in disseminating information and training farmers. On a question about the long-term impact on woodlands, he said an increase in productivity of land should have a positive impact on woodlands, since farmers do not have to migrate and clear land elsewhere. Responding to a question

SUSTAINABLE DEVELOPMENTS

about the role of government in conservation farming, Aagaard said Zambia's agriculture extension service was ineffective due to budget constraints, but that the project has high-level political support. Regarding property rights, he said most small-scale farmers do not have title to their land and stressed the need for a protection system in Zambia.

OVERCOMING OBSTACLES TO TECHNOLOGY TRANSFER

On Tuesday morning, 24 June, Gonzalo Castro, GEF, chaired a session on obstacles to technology transfer. He introduced three speakers. The session included questions and comments.

Sue Mainka, IUCN, presented enabling activities to use the IUCN Red List of Threatened Species. Noting that the Red List has been formally recognized by several institutions, including the CBD, she stressed the need for wide availability of the List and a clear and transparent assessment process based on best scientific information. Mainka said challenges regarding regional training workshops include: language barriers; political use of the list to achieve desired outcomes; communicating scientific complexity; and the lack of human and financial resources to face, *inter alia*, an increasing demand for workshops and difficulties for long-term monitoring. She highlighted means to address these challenges, including: developing training strategies and associated tools such as user guidelines; engaging new partners; developing a species information service; and improving communication strategies. Responding to a question regarding the different status of species at global and local levels, Mainka noted the development of regional guidelines. Responding to a question about ways to increase public awareness, Mainka noted the use of Internet-based tools. Regarding the selection of regions for organizing workshops, Mainka explained that priority regions were identified on the basis of a global assessment of species status and expressed needs.

John Mugabe, New Partnership for Africa's Development (NEPAD), spoke on implementing the CBD's technology transfer provisions. He defined technology transfer as a non-linear process that ensures the assimilation of know-how and takes place through social and economic interactions. He said the main modes of technology transfer are: turn-key projects; foreign direct investment; training of scientists and technicians; provision of software components; and purchase and supply of hardware. He also noted the following institutions as effective for technology transfer: knowledge centers, such as universities; private and public innovation hubs; networks and partnerships between universities and businesses; and bilateral science and technology agreements and protocols. He said implementing the CBD programme of work on technology transfer and cooperation requires: arrangements to build confidence and reduce costs; institutional building that includes networks of CBD-specific innovation hubs; integrating CBD considerations in bilateral technical cooperation agreements; and information on CBD-relevant technologies. Addressing a comment from a participant who noted that most state-of-the-art technology is protected by patents and IPR, Mugabe said that innovative

institutions to reduce the costs for acquiring technologies is key. Another participant said that technology transfer needs to be addressed at the local level and not just at the national level.

Marjorie Pyoos, South African Ministry for Science and Technology, reviewed the relation between the CBD, technology transfer, and issues of common but differentiated responsibilities. She recalled the role of science in biodiversity conservation, and sustainable use and sustainable development, and stressed the need for a flow of technologies and leveraging mechanisms. On national perspectives on common but differentiated responsibility, Pyoos highlighted responsibilities for:

- governments, including developing regulations and institutions, engaging in funding activities, and integrating science in decision making;
- industry, including paying a social dividend in terms of conservation, and carrying out impact assessments;
- society, including appreciating the value of biodiversity, and acting as a guardian of biodiversity; and
- researchers, including accepting that technologies fall within the public domain.

Pyoos also reviewed global issues relating to common but differentiated responsibilities, identifying responsibilities for:

- developing countries, including establishing institutional capacity to manage international funding and resources;
- multilateral agencies, including facilitating cooperation and providing funding; and
- developed countries, including providing technical assistance for access to technologies, and recognizing the sovereign rights of developing countries over their natural resources.

SUSTAINABLE USE - TECHNOLOGIES AND BENEFIT SHARING

On Tuesday afternoon, 24 June, Ivar Jørgensen, Norwegian Agricultural University, chaired a session on sustainable use, which included four speakers and subsequent discussions.

Burger Oelofsen, Namibian Ministry of Fisheries and Marine Resources, presented on technology transfer, capacity building and the management of marine resources in Namibia. Stressing the need to address conflicts between stakeholders, he said resource management has to be transparent and based on trust. To achieve this, he noted that accurate data are necessary and that data analysis and use should be unbiased. He outlined examples in Namibia – the impact of shallow water diamond mining on rock lobsters, and loss of hake and pilchard biomass – where cooperation between different stakeholders led to consensus on stock management. Oelofsen stressed that fish resources in Namibia belong to the people, and that the fishing industry are agents of the people, with benefits being shared with local communities. He said that fish stock management is based on national action plans, long-term fishery rights and individual quotas. Oelofsen said an ecosystem management approach is required. Responding to a question about the use of litigation to resolve conflicts, Oelofsen noted the difficulty of enforcing court decisions without party cooperation. Regarding mechanisms to ensure that local communities benefit from resources, he said

SUSTAINABLE DEVELOPMENTS

fishing rights are associated with social commitments, including supporting schools and homes for the elderly. On a question regarding the relations between artisanal fisheries and technology transfer, Oelofsen said co-management is the root of success.

Barbara Tavora-Jainchill, UN Forum on Forests (UNFF), presented a perspective from the international forest dialogue on capacity building and technology transfer. She noted that technology transfer is inseparable from capacity building and that both depend on international cooperation and appropriate financial assistance. Tavora-Jainchill explained how UNFF, through its Plan of Action and Multi-year Programme of Work, and the Collaborative Partnership on Forests (CPF), through the IPF/IFF Proposals for Action, address transfer of environmentally sound technologies and capacity building for sustainable forest management. She noted that technology transfer-related IPF/IFF Proposals for Action can be categorized in six clusters: assessing technological requirements; enhancing cooperation and financing; facilitating capacity building within national forest programmes, including supporting indigenous people and local communities; supporting developing countries to increase downstream and community-based processing; promoting dissemination and sharing of technologies to end-users; and strengthening education and training for women in community development programmes. Responding to a question regarding effective technology transfer, Tavora-Jainchill noted that a small-scale subject-oriented approach is most efficient. Regarding a question on synergies between the CPF and the CBD, she explained that the CBD Secretariat is a member of the CPF and works closely with its Secretariat and CPF members.

Eklabya Sharma, International Center for Integrated Mountain Development, gave an overview of sustainable biodiversity management practices in the Hindu Kush-Himalayan region. He explained that the environmental services provided by the region's natural assets are the basis for the physical security of the local people and ensure the sustainability of their production systems. Sharma cited joint forest management in India and community forestry in Nepal as examples of linking biodiversity conservation with improved livelihood strategies. These examples, he said, are strengthened by approaches that involve local communities and partnerships between forest villagers and government agencies. On criteria for successfully addressing transboundary issues, Sharma underlined, *inter alia*, the need to: apply participatory management in protected areas; restore and increase the connectivity between protected areas; focus conservation efforts on focal transboundary species; address issues such as grazing and poaching; and adopt incentives conducive to conservation. On criteria for successful community management, he urged, *inter alia*: adopt appropriate national policies and laws; build on relevant local knowledge systems and customary practices; incorporate strong local leadership; support continuous capacity building of all stakeholders; and undertake constant monitoring and evaluation and develop local indicators. Responding to a question on forest ownership, Sharma said that joint forest management in India was done in state-owned forests,

whereas in Nepal, forests were handed over to communities by the government to be managed. Another participant asked about conflicts between governments and user groups, and Sharma said both parties were working closely together to ensure successful outcomes.

GENE TECHNOLOGY AND BIOSAFETY IN A DEVELOPMENT PERSPECTIVE

On Wednesday morning, 25 June, Chee Yoke Ling, Third World Network, chaired the session on gene technology and biosafety. Three speakers addressed the issue and answered questions following their presentations.

Luke Mumba, University of Zambia, spoke on the precautionary principle in relation to food aid, noting that African scientists need all the technology available to increase agricultural production. Mumba noted that many African countries are unsure about investing in gene technology, importing grain or accepting relief food from countries producing genetically modified (GM) crops. He stressed that few African countries will reject GM food when faced with a food crisis. He said Zambia, however, has rejected such GM food aid despite growing threats of starvation, on the basis of concerns regarding food and feed safety, environmental impact, loss of traditional markets, and lack of biosafety legislation. He noted that the effective application of the precautionary principle in decision-making is likely to be further invoked as a countries' range of technological options widens. He called for: encouraging technology transfer from developed to developing countries; helping build human and infrastructure capacity in biotech; and developing partnerships with locals to allow for genuine benefit sharing and increased acceptance of technology by local communities. Mumba stressed that countries should not ignore technologies that can provide part of the solution to food security crises in Africa, and that the precautionary principle should take into account technological opportunities to address immediate malnutrition and human health problems. In the ensuing discussion, Mumba said the Biosafety Protocol is important for capacity building and ensuring that countries make their own decisions on the GM food issue. One participant stressed the importance of improving education and promoting awareness on the issue within African countries. Asked if there are any measures to prevent the accidental introduction of GM grains, Mumba said Zambia can not be isolated and there are few mechanisms for detecting and monitoring the introduction of GM foods.

Anne Kapuscinski, University of Minnesota, spoke on capacity needs to move from reactive to pro-active biosafety approaches. She described the current reactive approach to biosafety as the approach in which: risk assessment and management is carried out at the late stages of the development of a living modified organism (LMO); field trials often do not include ecological testing; and, if export is envisaged, the effect of an LMO on other ecosystems is seldom tested. She proposed a pro-active approach that prioritizes safety and includes: a safety criteria setting stage; risk reduction planning; bioconfinement; safety tests at the breeding programme stage; ecological tests at the field trial stage;

SUSTAINABLE DEVELOPMENTS

and follow up monitoring. She suggested that biosafety science and human capacity be strengthened through: country and region specific biosafety information, including support tools for decision; on the ground biosafety research programmes by scientists from developed and developing countries; biosafety training, including professional training programmes; and confinement and monitoring methods. Kapuscinski explained that the pro-active approach needs to be incorporated in capacity building and training, and recommended developing, *inter alia*: certification programmes for professionals; preventative safety design for LMOs; better safety testing methods; and standards for safety criteria. In an ensuing discussion, one participant highlighted that risk is based on perception and social and cultural considerations. Another participant stressed the need for safety testing prior to exporting LMOs. Responding to a question regarding the feasibility of international safety standards, Kapuscinski said international standards that could be adapted to local conditions would be welcome. Regarding the participation of scientists from developing countries in developed countries' research, Kapuscinski noted the need for an international funding programme.

Jan Husby, Norwegian Directorate for Nature Research, gave an overview of Norway's Gene Technology Act, which aims to ensure that production and use of genetically modified organisms (GMOs) take place in an ethical and socially justifiable way, in accordance with sustainable development and without detrimental effects on health and the environment. He said the Act includes environmental and health risk assessments and incorporates the precautionary principle. Husby said international cooperation is necessary to detect, identify and control the import and export of GMOs. On technology transfer and capacity building he underlined: the importance of UNEP/GEF projects; implementation of, and training in, the use and exchange of information under the Biosafety Clearinghouse Mechanism; and training in data and information processing.

BIODIVERSITY, MEDICINES AND HEALTH

On Wednesday, 25 June, Bente Herstad, Oslo University, chaired the session on biodiversity, medicines and health, which included two speakers and a discussion.

Frants Staugård, Ipelegeng Foundation, introduced the role of traditional health practitioners in preventing and controlling HIV/AIDS. Highlighting the lack of financial resources and adequate health infrastructure in some countries for a successful synergistic approach based on vaccine development, equal access to treatment and primary prevention, Staugård outlined the results of a study that showed that cross-sectoral prevention, including ethno-botanical research, is more cost-effective than the development of highly active anti-retroviral treatments (HAART) alone. He said herbal remedies were proven to play a significant role in treating 'opportunistic' infections, and stressed the need for action-oriented research including: access to traditional technologies and knowledge; assessment of the role of traditional health practitioners; the quality of home-based and bush hospital care; and the

clinical effectiveness of herbal remedies. Concluding that indigenous knowledge and herbal remedies are a feasible alternative, Staugård underscored the need to protect and promote traditional knowledge, conserve biodiversity of medicinal plants, and promote ethno-botanical and phyto-chemical studies. Responding to a question regarding preventing the transmission of HIV through placenta, Staugård explained that HAART can only stop the progress of the disease if drugs are taken regularly, but is not a cure.

Stefan Padulosi, International Plant Genetic Resources Institute (IPGRI), presented on realizing the benefits in neglected and underutilized plant species through technology transfer and human resources development. He noted that common features of neglected and underutilized species include: poor documentation; non-existent or poorly organized marketing; non-existent or fragile seed supply systems; and cultivation and use based on indigenous knowledge. To enhance the contribution of these species to food security, Padulosi said IPGRI focuses on: gathering and sharing information; promoting production, use and marketing; maintaining the genetic resource base and biodiversity; strengthening partnerships and capacities; and improving public awareness. Regarding technology transfer he noted the importance of forging partnerships among stakeholders, and said the transfer of innovation is a dynamic process that requires time. He also noted that a critical aspect is empowering local communities through simple and inexpensive technologies that allow for more effective cultivation and improved post-harvest methods, marketing, commercialization and use strategies.

BIOPROSPECTING

On Wednesday, 25 June, Birthe Ivars, Norwegian Ministry of Environment, chaired an afternoon session on bioprospecting. Two speakers addressed the issue and responded to comments.

Eric Mathur, Diversa Corporation, spoke on biodiversity, bioprospecting and biodiscovery. He presented Diversa's bioprospecting activities, noting that bioprospecting should result in biodiversity protection and bolster economic and conservation goals. He outlined the requirements for bioprospecting, including: legal rights to access genetic resources; PIC of landowners; rights to patent and commercialize; absence of competition with partners; protection from transfer of sensitive technologies; absence of exclusivity requirements; and no use of indigenous knowledge. He stressed minimal impacts on the environment, noting a one-time sampling strategy, the absence of exploitation of natural resources, and reproduction in laboratories. Mathur highlighted an equitable benefit sharing through monetary and non-monetary benefits, including annual access fees, royalties, technology transfer and capacity building. He said capacity building includes in-country field and laboratory training and research support. In ensuing discussions, one participant enquired about ways to ensure that indigenous knowledge is not used. Mathur said bioprospectors are asked not to use this knowledge.

SUSTAINABLE DEVELOPMENTS

Morten Walløe Tvedt, the Fridtjof Nansen Institute, spoke on IPR law in the context of bioprospecting and genetic resources from the perspective of international patent law. He noted amendments to Norwegian patent law to include requirements regarding the country of origin or disclosure of the providing country in patent applications. Tvedt said pre-conditions for patents often prevent patents from being granted, used as a legal basis for challenging patents, and used as tools by developing countries that have well-functioning access legislation to ensure compliance. He said, however, that pre-conditions for patents might require: a re-opening of TRIPs; access legislation in all developing countries; and an international survey authority. He also said documentation of fair and equitable benefit sharing is a pre-condition for granting patents.

PANEL DEBATE: BIOTECHNOLOGY – RIGHTS AND POSSIBILITIES

Kristin Rosendal, Fridtjof Nansen Institute, moderated Wednesday's panel debate on rights and possibilities related to biotechnology. Panelists included speakers from the day's sessions.

Luke Mumba and Anne Kapuscinski stressed that biosafety model laws and standards should be flexible and allow for locally adapted measures. Kapuscinski highlighted structural problems with the way biosafety is currently being dealt with, and stressed the need for high quality science, transparent and participatory processes and benefit assessment. Jan Husby underscored the difficulty of standardizing risk assessment methods regarding various species and ecosystems. Tormod Burkey, Det Norske Veritas, said that risk assessment should include cost-benefit analysis.

Moderator Rosendal then introduced a second panel to address bioprospecting and access regulations. Frants Staugård said legislation and control mechanisms are insufficient in many developing countries and stressed the need for resource-poor countries to protect their resources. Stefano Padulosi called for creating a mechanism for local communities to document their indigenous knowledge, using their own traditional means. Eric Mathur noted the lack of industrial and end user participation in biodiversity-related international meetings and stressed the need to involve them.

One participant queried as to how much technology used in bioprospecting is transferred to countries whose biodiversity resources are being used. Mathur responded that technology transfer happens over time as relationships with developing country partners mature. Another participant raised the issue of patenting micro-organisms, saying that since they are discoveries and public goods, not inventions, genes should not be patented.

SCIENTIFIC COLLABORATION – EDUCATION AND AWARENESS RAISING

On Thursday morning, 26 June, David Brackett, Environment Canada, chaired a session on education and awareness raising in the context of scientific collaboration. He introduced three speakers, whose presentations were followed by questions and comments.

Elias Shanyengana, AquaQuest Solutions Ltd., gave an overview of biodiversity conservation in Namibia, emphasizing incentives for sustainable use of natural resources and biotechnology. He stressed the need for a more people-centered approach to managing biodiversity conservation, noting the importance of building local capacity and establishing fair and equitable access and benefit sharing. Shanyengana addressed Namibia's colonial legacy and how it forced many local people out of their fertile traditional lands, leading to: a loss of biodiversity and land ownership; increased pressure on already limited natural resources; disrupted drought-coping mechanisms; and overall land degradation. He highlighted current policies aimed at re-instating community ownership, introducing community-based natural resources management, and developing environmental education and awareness-raising programmes. On the role of biotechnology, Shanyengana said traditional knowledge and natural resource-based industries can supplement rural incomes but require identifying marketable local resources and knowledge, supporting international marketing of local genetic resources, and adopting local legal instruments to ensure fair and equitable benefit sharing. Responding to a question on sustainable use programmes for wildlife, Shanyengana said a number of community initiatives to manage wildlife have led to recovery of populations. Regarding traditional knowledge protection, he said few mechanisms ensure that collected knowledge is protected.

Valmik Thapar, Ranthambhore Foundation, gave a slide presentation highlighting India's mega-biodiversity. He said threats to biodiversity include illegal poaching and logging, and mining. He stressed the role and importance of traditional beliefs and cultures, and of involving local communities in conservation initiatives through field training. Thapar further underscored the role that the Indian judiciary and public litigation played in protecting wildlife. Noting that unlike buildings, the natural world cannot be recreated, he urged countries to share their experience on biodiversity protection. Responding to a question on the impact of globalization on Indian traditional beliefs and lifestyles, Thapar lamented its impact on India's wildlife. Responding to a question on ways to combat poachers and minimize biodiversity loss, Thapar explained that the government was exploring ways to strengthen forest staff, and stressed the need for a strong NGO movement.

John Herity, Environment Canada, spoke briefly on the importance of local community involvement, noting that successful biodiversity conservation depends on local communities' control over their resources, as well as the need for strong local and transparent leadership. He presented the work of the Equator Initiative, designed to reduce poverty through the conservation and sustainable use of biodiversity in the equatorial belt by fostering, supporting and strengthening community partnerships. He encouraged participants to apply to the Equator Initiative's Equator Prize 2004, which recognizes outstanding communities from developing countries in the tropics that demonstrate how efforts to conserve biodiversity can reduce poverty.

SUSTAINABLE DEVELOPMENTS

SCIENTIFIC COLLABORATION - RESEARCH

On Thursday morning, 26 June, Augustin Chikuni, Malawi National Herbarium and Botanic Gardens, chaired a session on research in the context of scientific collaboration. Three speakers addressed the issue and answered questions.

Devra Jarvis, IPGRI, spoke on knowledge development and use to support the conservation and use of crop genetic diversity in agroecosystems. She stressed the need to: identify the amount and distribution of genetic diversity maintained by farmers; assess and evaluate useful on-farm traits; introduce adaptive crop management and seed systems; build national capacity through institutional linkages and partnerships; and integrate projects and programmes in national plans. She emphasized that technology transfer and capacity building give farmers more options to adapt to change. She explained that steps to overcome limiting agroecosystem factors to production include: support for informal seed supply systems; integration of locally adapted crop cultivars and information on their management in extension packages; literacy training for better access and use of information; and market and non-market value of diversity for policy recommendations.

Mark Collins, UNEP-World Conservation Monitoring Centre (WCMC), reviewed information technology and capacity needs for implementing the CBD. Highlighting the need for reliable information to assess the impact of changes on biodiversity and elaborate development and management strategies, Collins stressed the need for: remote sensing technologies; computer systems; coherent and far-reaching networks of scientists and experts; targets, timetables and indicators; and conceptual frameworks, including datasets, standards, reporting procedures and policy analysis. Outlining UNEP-WCMC's activities regarding technology transfer and capacity building, Collins noted the importance of indicators and the development of information architectures. In the ensuing discussion, Collins stressed the need to present the WSSD 2010 target as achievable and communicate the benefits of actions undertaken. One participant highlighted the reliance of national institutions on indicators. Responding to a question on the relationship between indicators and technology transfer, Collins said indicators reflecting biological parameters and human needs were needed, and stressed the need to enhance the understanding of ecosystems values and functions, and link spatial datasets with social and financial data. Regarding the relationship between UNEP-WCMC and the Global Biodiversity Information Forum (GBIF), Collins noted that WCMC is UNEP's node for the GBIF.

Brian Huntley, South African National Botanical Institute, presented on overcoming taxonomic impediments, drawing on experience from the Southern African Botanical Diversity Network (SABONET). Taking into consideration the CBD's requirement to develop national strategies and maintain data derived from identification and monitoring programmes, Huntley said SABONET was created to address the lack of adequate human and institutional capacity in identifying and monitoring national biodiversity resources. Describing SABONET as a regional South-South technology transfer and capacity building exer-

cise involving ten southern African countries, he said the main objective of the project is to build capacity in biodiversity science. This, he said, was achieved through effective communication, synergistic partnerships, institutional strengthening and seed funding. He said SABONET activities and products include: establishing a regional botanical network; building institutions; developing professional capacity; supporting plant collecting expeditions; and creating electronic databases, red data lists and a threatened plants programme. Responding to a question on how the project will continue when GEF funding comes to an end, Huntley said there has been support from governments to incorporate the work within national programmes.

THE ROLE OF THE PRIVATE SECTOR IN TECHNOLOGY TRANSFER AND CAPACITY BUILDING

On Thursday afternoon, 26 June, Peter Holmgren, UN Food and Agriculture Organization (FAO), chaired a session on the role of the private sector. He introduced three speakers whose presentations were followed by discussions.

Meryl Williams, WorldFish Center, reviewed the role of the private sector in technology transfer and capacity building in aquaculture. Noting over exploitation of fish stocks, she stressed the need to develop aquaculture to respond to the demand for fish and, in doing so, farm appropriate species and use adequate technologies. Williams noted the increased involvement of the private sector in aquaculture and its interest in, *inter alia*, higher-value species, new biotechnologies, and small scale farm technologies. She highlighted four roles for the private sector: research and development; extension services, including training and marketing assistance; human, organizational and communication and information access capacity building; and promotion of innovation and rural entrepreneurship. She said incentives for greater private sector involvement include: better positive media coverage; IPR; tax breaks; and removal of market distortions. Responding to a question regarding the consequences of genetic improvement of some species, Williams explained that policies were in place regarding transfer of such species to other countries.

Ana Maria Majano, Latin American Center for Competitiveness and Sustainable Development (INCAE), presented the role of the private sector in capacity building for environment and biodiversity management in Central America. She noted that private sector investments to develop capacities for environmental management were motivated by: the need to adapt their traditional economic activities to environmental regulations or certification requirements; a sense of corporate social responsibility; and the need for new business opportunities arising from an increase in sustainable use of natural resources. Majano cited exploitation of natural indigo in El Salvador and ecotourism in Costa Rica as cases in which the private sector is taking advantage of sustainable use of biodiversity, through the production and trade of environmental goods and services. Noting several obstacles to capacity building, such as insufficient linkages between environmental and other policies, and limited technical support to promote sustainability and competitiveness,

SUSTAINABLE DEVELOPMENTS

Majano recommended: improving society's awareness of the social and economic value of biodiversity; integrating environmental and economic policies; increasing dialogue and collaboration among stakeholders; and changing financial institutions' policies and practices.

Jan Fehse, EcoSecurities Ltd., reviewed market mechanisms as drivers of capacity building and technology transfer, focusing on synergies between climate change and biodiversity. He said market mechanisms could trigger capacity building if biodiversity is made more economically attractive. Fehse noted the absence of a market regarding biodiversity, highlighting difficulties to define and value biodiversity, and property rights issues. He explained market developments in the climate change regime, including the clean development mechanism (CDM), and said overlaps with biodiversity include afforestation and reforestation, sustainable forest management and forest conservation. He suggested, *inter alia*: linking capacity building for biodiversity to capacity building for climate change; attaching a biodiversity value to climate change products, through creating carbon-plus credits; developing criteria and standards to identify carbon-plus credits with biodiversity benefits; creating legal instruments acknowledging the biodiversity benefits of climate change mitigation activities; establishing international and national legal and financial incentives to purchase carbon-plus credits; and targeting capacity building and technology transfer towards biodiversity-friendly climate change mitigation activities. In the ensuing discussion, Fehse clarified that the current biodiversity market is still fragmented and needs streamlining. Noting that the CDM is controversial within the climate change framework, one participant cautioned against using market mechanisms regarding biodiversity.

PANEL DEBATE: THE ROLE OF GLOBAL AND LOCAL BUSINESSES

The panel debate moderated by Geir Høiby, Confederation of Norwegian Business and Industry, convened on Thursday to address the role of the private sector in technology transfer and capacity building. Panelists included speakers for the day's sessions.

Ana Maria Majano noted that more companies are taking advantage of the Clean Development Mechanism (CDM), but have to identify the market for production certificates. Jan Fehse noted the high costs associated with CDM validation and certification, and Meryl Williams added that there is a lack of appropriate management for implementing market mechanisms. Addressing a comment on excluding forestry from the EU's emissions trading scheme, Fehse said that forestry credits would be eligible for meeting emission targets. Majano agreed with one participant's comment highlighting the importance of linkages between the CBD and the UNFCCC, noting that discussions should focus on optimizing the use of limited resources. Another participant asked how private companies can help transfer technologies to developing countries to reduce global warming and enhance biodiversity conservation, and how they can help leverage finance for technology development. Majano responded that there was a lack of understanding in the finan-

cial sector regarding sustainable activities. Fehse stressed the opportunity arising from environmental services, such as carbon sequestration, on the international market. Moderator Høiby then asked panelists to consider how large companies could learn from NGOs to start small projects to diversify crops. Williams noted that financing of projects to improve the public perception of companies can result in positive biodiversity outcomes. Majano stressed the need for capacity building regarding negotiation, policy making and implementation.

CRITERIA OF SUCCESS FOR TECHNOLOGICAL TRANSFER AND CAPACITY BUILDING

On Friday morning, 27 June, Ragnhild Lund, Trondheim University, chaired a session on criteria for successful technology transfer and capacity building. Four speakers spoke on the issue, following which they answered questions.

Dennis Garrity, World Agroforestry Centre (ICRAF), spoke on building institutional capacity for innovation in biodiversity conservation. He stressed the need to build capacity and institutions to cope with changes in the biodiversity agenda, which he said embraces: new concepts such as eco-regions, landscapes, biological corridors and living landscapes; major private funding for large-scale initiatives; democratization of biodiversity planning through multi-stakeholder processes; ecosystem rehabilitation initiatives; and direct compensation to local people based on positive conservation outcomes. Garrity highlighted ICRAF's focus on institutional capacity building in agroforestry. He said activities include: developing educational institutions; agricultural research institutes; and network and knowledge management that bring together all stakeholders. He cited several examples where ICRAF has played a significant role in institutional capacity building: the African Network for Agroforestry Education (ANAFE), a network to assist universities in their efforts to incorporate multi-disciplinary approaches to land use in education; and the RUPES Network which applies methods to reward the upland poor for environmental services they provide society in south and southeast Asia. Garrity concluded by saying that experience shows that capacity building can be accomplished at the institutional level, and is useful for building international networks with the support of national institutions. Responding to a question about his organization's work at the community level, Garrity said ICRAF works with community organizations through projects that address not only agroforestry, but also agricultural and livestock systems. Responding to a question on incorporating the UN Millennium Development Goals, he said the agroforestry institutional agenda focuses on areas that contribute to realizing some of these goals, including poverty alleviation.

Rodrigo Gámez, Instituto Nacional de Biodiversidad (INBio), spoke on INBio's experience in developing scientific and technological capacities for biodiversity management in Costa Rica. Noting that INBio was created in 1989 to promote awareness of the value of biodiversity and achieve its conservation and sustainable use, he stressed its contribution to the formulation of national biodiversity laws. He highlighted key

SUSTAINABLE DEVELOPMENTS

elements of success, including: collaboration with the national system of conservation areas; individuals with basic skills in major thematic areas; international advisors and financial support; individual fund-raising capacities; the national political and institutional context; and a learning-by-doing capacity building process at field level. Gámez outlined INBio's activities regarding inventory and monitoring, conservation, information and education, and bioprospecting. He concluded that the INBio case can be replicated with strategic planning, according to national interests and contexts. In ensuing discussions, participants enquired about the financial sustainability of INBio. Gámez explained that INBio developed income-generating activities, including specific products and services. Responding to a question regarding staffing needs for identifying collected materials, Gámez stressed taxonomic impediments and the need for international expertise. One participant enquired about the relationship between INBio and public institutions and universities undertaking similar work, and Gámez noted the development of partnerships and strong collaboration.

Charles Gbedemah, UNEP/GEF, reviewed capacity building to support the Cartagena Biosafety Protocol. Recalling that the Protocol will come into force on 11 September 2003, Gbedemah outlined the GEF's project to assist countries to prepare national biosafety frameworks (NBFs). He noted that GEF is currently assisting over 100 countries and has 12 demonstration pilot projects for preparing NBFs. He said GEF provides information and support through: the Internet, toolkits and documentation; regional and sub-regional workshops; assistance at the national level to develop policy on biosafety and adopt legal and regulatory systems; an administrative system to handle requests for permits; and mechanisms for monitoring and inspections. Responding to a question on NBF evaluation, Gbedemah said national committees ensure that targets are met and that mid-term and end of project evaluations are in place. On a question on identifying the need for 'hard' technology transfer to developing countries, he said that, at the development phase, awareness is stressed, but the issue is addressed at the implementation phase.

Wendy Goldstein, IUCN, reviewed capacity development in biodiversity communication and education. Noting the need to improve communication strategies regarding biodiversity, she said success depends on: better connection to and involvement of relevant stakeholders and decision makers; addressing conflicting interests; strengthening leaders' capacities; interactive processes; and indicators, including surveys. Presenting the outcomes of regional surveys on the perception of biodiversity, including lack of understanding of the term, low priority, lack of institutional integration with other issues, and limited human and financial capacity, she outlined IUCN communication programmes regarding biodiversity conservation. She highlighted strategic communication, adult learning, regional practical training courses, tailor-made tools, help desk back-up, internal institutional communication, and stimulation of exchange as a working culture. In the ensuing discussion, one participant stressed the need for advice regarding appropriate indicators. Responding to a question regarding

the exclusion of schools from some IUCN capacity development activities, Goldstein explained that the choice was strategically made to focus on people that can have more impact under a certain set of circumstances.

TOWARDS GLOBAL PARTNERSHIPS FOR TECHNOLOGY TRANSFER AND CAPACITY BUILDING

On Friday afternoon, 27 June, Chair Schei introduced three speakers to address global partnerships. The experts responded to questions and comments following their presentations.

Jan Bojö, World Bank, gave the Bank's perspective on biodiversity, technology transfer and capacity building. Highlighting the Bank's US\$2.6 billion, 226 project biodiversity project portfolio, he said the key to their success is based on partnerships with multiple stakeholders, including governments, the private sector and NGOs. He noted several major partnerships with: the Consultative Group on International Agricultural Research (CGIAR) regarding crops' genetic diversity; the Millennium Ecosystem Assessment regarding the world's ecosystems; and the Critical Ecosystems Partnership Fund (CEPF) on biodiversity hotspots. Bojö said future opportunities include new markets for environmental services, such as the Bank's Payment for Ecological Services (PES) program where landowners are paid for ecological services, and a new agricultural and rural development strategy that focuses on biosafety programs. On a question about the Bank's biosafety strategy, Bojö stressed the Bank's safeguards regarding social and environmental conditions. Regarding a question on poverty reduction strategies, he said that the Bank has developed a rating system to look at each of the 17 aspects outlined in the Poverty Reduction Strategy Papers (PRSPs).

Nick Remple, UNDP, presented UNDP experiences in capacity development. Noting that UNDP has primary responsibility for developing capacity within the UN system, he said UNDP is working in over 120 countries at national and local levels. He highlighted small grants to local communities, the Biodiversity Planning Support Programme and the Equator Initiative to exchange learning experience and for the self-assessment of capacity needs to meet CBD obligations. He said capacity development is a dynamic, endogenous, strategic, participatory and locally owned and driven process, and stressed the need for a holistic, integrated and 'reflection-action' approach. He noted that work is required at the societal, institutional and individual levels.

In the ensuing discussion, one participant called for better cooperation between UN agencies. Another participant highlighted the need to address consumption patterns in the industrialized world.

Vandana Shiva, the Indian Research Foundation for Science, Technology and Ecology, spoke on the South's perspective on technology transfer and capacity building. She expressed a strong opposition to GM crops, noting the need to assess and compare alternatives. She highlighted the problem of bio-privacy and attempts to patent traditional knowledge, citing the case of US companies that patented traditional knowledge associated with India's Neem tree and Basmati rice. Shiva said the TRIPs Agreement can prevent illegal technology transfer, but

SUSTAINABLE DEVELOPMENTS

the agreement needs to be reviewed to take into consideration CBD obligations. She stressed the need for further independent studies and assessments on biotechnology. Responding to a question on South-South partnerships, Shiva stressed the need for stronger networks and global partnerships. On South-North transfer, she said there needs to be real benefit sharing, not benefit taking.

CLOSING REMARKS

In the final session on Friday afternoon, 27 June, Chair Schei presented preliminary conclusions of the meeting. He highlighted: the broad spectrum of technologies to be transferred; the need for adaptation to socio-economic, cultural and religious circumstances; and the need for reciprocity and to abandon the donor-receiver model. He said strategic recommendations from the meeting include: developing and integrating technologies with relevant sectors; involving all stakeholders; promoting horizontal cooperation; and addressing technologies related to information, data management, education, public awareness raising, biotechnology and biosafety, access and benefit sharing, and new products and value-adding processes. He said operational aspects requiring further work relate to: assessing technology and capacity building needs, including training in international negotiations and understanding trade-related issues; and the enabling environment.

Alfred Oteng Yeboah, SBSTTA-9 Chair, stressed technology transfer and capacity building as crucial for implementing the CBD. Highlighting how technology transfer and capacity building are integrated in the CBD, its various thematic programmes of work and cross-cutting issues, he stressed the importance of the Conference's outcomes as an input to the SBSTTA-9 and COP-7 discussions.

Chair Schei closed the Conference at 4:00 pm.

THINGS TO LOOK FOR

7TH INTERNATIONAL CONFERENCE ON PUBLIC GOODS AND PUBLIC POLICY FOR AGRICULTURAL BIOTECHNOLOGY: The seventh International Conference of the International Consortium on Agricultural Biotechnology Research will convene from 29 June-3 July 2003, in Ravello, Italy. It will focus on, *inter alia*, the impact of agricultural biotechnology, public acceptance, intellectual property rights, and governance issues. For more information, contact: Vittorio Santaniello; tel: +39-06-7259-5843; fax: +39-06-7259-5721; e-mail: abr@economia.uniroma2.it; Internet: <http://www.economia.uniroma2.it/conferenze/icabr2003/>

13TH MEETING OF THE CITES PLANTS COMMITTEE: The CITES Plants Committee will meet from 12-15 August 2003, in Geneva, Switzerland. For more information, contact: CITES Secretariat; tel: +41-22-917-8139; fax: +41-22-797-3417; e-mail: cites@unep.ch; Internet: <http://www.cites.org>

19TH MEETING OF THE CITES ANIMALS COMMITTEE:

The CITES Animals Committee will meet from 18-21 August 2003, in Geneva, Switzerland. For more information, contact: CITES Secretariat; tel: +41-22-917-8139; fax: +41-22-797-3417; e-mail: cites@unep.ch; Internet: <http://www.cites.org>

18TH SESSION OF THE GLOBAL BIODIVERSITY FORUM: BIODIVERSITY, TRADE AND SUSTAINABLE DEVELOPMENT:

This session, organized by IUCN- The World Conservation Union, will be held from 5-7 September 2003, in Cancun, Mexico. For more information, contact: Caroline Martinet, IUCN; tel: +41-22-999-02-16; fax: +41-22-999-00-25; e-mail: caroline.martinet@iucn.org; Internet: <http://www.gbfc.org>

FIFTH WORLD PARKS CONGRESS - BENEFITS BEYOND BOUNDARIES:

This meeting will convene from 8-17 September 2003, in Durban, South Africa. The Congress occurs once every decade and is sponsored by IUCN. For more information, contact: Peter Shadie, IUCN Programme on Protected Areas; tel: +41-22-999-0159; fax: +41-22-999-0025; e-mail: pds@iucn.org; Internet: <http://www.iucn.org/themes/wcpa/wpc2003/index.htm>

NINTH MEETING OF THE CBD SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE:

CBD SBSTTA-9 will convene from 10-14 November 2003, in Montreal, Canada. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@biodiv.org; Internet: <http://www.biodiv.org>

SECOND MEETING OF CBD AD-HOC OPEN-ENDED WORKING GROUP ON ACCESS AND BENEFIT-SHARING:

CBD ABS-2 will meet from 1-5 December 2003, in Montreal, Canada. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@biodiv.org; Internet: <http://www.biodiv.org>

CBD AD-HOC WORKING GROUP ON ARTICLE 8(J): The meeting on the CBD's Article 8(j) will convene from 8-12 December 2003, in Montreal, Canada. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@biodiv.org; Internet: <http://www.biodiv.org>

SEVENTH MEETING OF THE CONFERENCE OF THE PARTIES TO THE CBD: CBD COP-7 will be held from 9-20 February 2004, in Kuala Lumpur, Malaysia. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@biodiv.org; Internet: <http://www.biodiv.org>

FIRST MEETING OF THE PARTIES TO THE CARTAGENA PROTOCOL ON BIOSAFETY: This meeting will convene from 23-27 February 2004, in Kuala Lumpur, Malaysia. For more information, contact: CBD Secretariat; tel: +1-514-288-2220; fax: +1-514-288-6588; e-mail: secretariat@biodiv.org; Internet: <http://www.biodiv.org>