



**HIGHLIGHTS FROM THE NORWAY/UN
CONFERENCE ON THE ECOSYSTEM APPROACH
FOR SUSTAINABLE USE OF
BIOLOGICAL DIVERSITY
TUESDAY, 7 SEPTEMBER 1999**

On the second day of the Norway/UN Conference on the Ecosystem Approach for Sustainable Use of Biological Diversity, participants met to hear presentations on the themes of management in dynamic environments and the socio-economy of sustainable resource use. Participants also heard side presentations on the Ecosystem Conservation Group's work on large-scale ecosystem management in the marine environment and on key questions in legalizing the ecosystem approach.

MANAGEMENT IN DYNAMIC ENVIRONMENTS

Chair Odd Terje Sandlund, Norwegian Institute for Nature Research, introduced Kenton Miller, World Resources Institute, who examined the conceptualization and application of the bioregional approach. Miller described a bioregion as a territorial unit of planning and management defined by geographical limits of human communities and ecological systems, which is large enough to maintain the integrity of the region's biological communities, habitats and ecosystems, yet small enough for local residents to consider it home. Bioregional management seeks to establish a political and institutional framework for cooperation among governments, communities and other stakeholders, with a planning process that incorporates cooperation, available information, goal setting, and evaluation and adaptation of management approaches. Within bioregions, Miller stressed the identification and effective management of core protected areas, buffer zones and corridors, and highlighted the range of ecological, economic, socio-cultural, spiritual and educational values, products and services that bioregions provide. He underscored the need to act now, learning and replicating lessons from existing activities, while preparing for environmental change from pressures such as climate change, population growth and invasive species.

During the discussion, participants noted the contribution of other complimentary activities, such as WWF's work on ecoregion-based conservation and UNESCO's Biosphere Reserves. One participant noted that synergies to address interlinked environmental problems are developing among the Rio Conventions, yet more progress is necessary at the national level. Another noted management problems in scale and administrative boundaries, as species have different migrational patterns and habitats that may not intersect with socially defined bioregions.

Rowan Martin, consultant, spoke on adaptive management as a tool for decentralized systems. According to Martin, adaptive management recognizes the inevitability of management interventions in higher order systems and is characterized by inherent uncer-

ainties. He added that adaptive management requires: a statement of provisional objectives for a system; a tentative plan for management interventions; a monitoring plan for data gathering; and, most importantly, a feedback system that permits revision of management activities and objectives. He compared adaptive management to the classical blueprint approach, which assumes that it is possible to determine a set of cause and effect relationships by turning resources, knowledge or technology into desired and sustainable human change. He emphasized that the latter requires considerable study in advance, whereas adaptive management allows for the immediate inception of a project. Although the blueprint approach still dominates mainstream methodologies, Martin said that biodiversity conservation at the ecosystem level cannot be achieved without adaptive management practices. Favoring a bottom-up, cascading institutional approach, he cited setting of quotas for international sport hunting in Zimbabwe's communal lands as a successful example. Martin stressed that management should be decentralized to the lowest appropriate level and emphasized that adaptive management should be seen as an important research method and management tool.

Mike Sinclair, Fisheries and Oceans Canada, addressed adaptive management in Canadian fisheries, using the example of Ocean Management Areas (OMA) around Nova Scotia. Canada's 1997 Oceans Act requires fisheries to be managed within the broader context of integrated ocean management, taking into consideration multiple uses, ecosystem features and the precautionary approach. He noted the challenges of addressing different sectoral priorities (e.g., marine transport, aquaculture, oil and gas, commercial fishing and tourism) and integrating those, along with existing fisheries plans, into an overall ocean management plan. In Sinclair's example, three OMAs were created based on administrative and community boundaries, while recognizing that specific transboundary environmental issues would require decision-making at higher levels. Sinclair discussed the need to define ecosystem objectives, such as maintaining biodiversity and habitat productivity, along with relevant performance measures and reference points. Regarding governance, Sinclair stated that the different fisheries advisory councils and sector boards were asked to identify ecosystem objectives. The information would be provided to an overarching OMA council that could evaluate achievement of ecosystem objectives, ensure cross-sectoral representation and perform periodic assessments. He further stressed the need to build on present management structures, while recognizing that contentious issues, such as allocation and equity, might require top-down decisions from the ministerial level.

In the following discussion, one participant noted that pragmatic social definition of boundaries allows for local political mobilization and empowerment. Another asked about possible governance measures to address transboundary resource conflicts, and a final speaker asked how the CBD could address such disputes. Sinclair

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stressed the need to resolve transboundary problems before solving internal jurisdictional issues, and another speaker stated that CBD Article 5 requires Parties to cooperate on areas beyond national jurisdiction and on other matters of mutual interest.

Ian Cresswell, Australian National Land and Water Resources Audit, presented on understanding ecosystem conditions to maintain productivity and conservation through environmental auditing. He stated that the Australian National Land and Water Resources Audit was established to provide a better understanding of vegetation and broader ecosystem condition to inform management at a landscape scale. He said the key focus of the Audit is to contextualize the status and trends in resource conditions within current management responses and to generate options for remedial action, development and protection. He also emphasized that the Audit's purpose was to build a sector-wide information base to meet natural resource management needs in such areas as: policy assessment and development; natural resource investment decisions; evaluation of program and policy performance; and direct resource management. The Audit addresses such themes as water availability, dryland salinity, vegetation management, rangeland monitoring, agricultural productivity and sustainability, capacity for change and ecosystem health. Regarding the vegetation information system, Cresswell stressed the need to translate existing data, increase the system's flexibility and make it more responsive to user needs. On natural resource information management, he noted the importance of information access, exchange and management, as well as protocols and fundamental data sets. He emphasized that integration of information with a broad range of natural resource data is the key to providing useful tools for management and policy decision-making.

THE SOCIO-ECONOMY OF SUSTAINABLE RESOURCE USE

Chair Monica Hammer, University of Stockholm, introduced Charles Perrings, University of York, who spoke on the economy of fluctuating resources and how economic theory can assist ecosystem policy-making. He stated that ecosystems can be envisioned as complex dynamic systems with properties such as path dependence, sensitivity to initial conditions, non-linearities, and discontinuous change around threshold values. He stressed that evaluation of environmental projects should entail a cost-benefit approach accounting for spatial and temporal externalities, as well as the need to improve valuation techniques. In assessing human impacts and ecosystem sustainability, Perrings presented a model noting two points of equilibrium for a given resource, such as fish stock. One point represents a condition prior to collapse, and the other reflects maximum sustainable yield. He said that the latter is more preferable as it can withstand greater ecosystem stresses and shocks, and that sustainability is maintaining a system's resilience within such bounds. Finally, he stated that scientists should get more out of existing and unconventional data.

In the ensuing discussion, one participant suggested that examples of economic data and traditional knowledge can provide long-term data useful for analyzing ecosystems. Another participant asked about the positive and negative aspects of property rights for meeting ecosystem objectives. Perrings stated that the scale of property rights (e.g., individual versus collective) needs to be appropriate for the problem, while cautioning that private property can be a solution or problem to environmental issues.

Daniel Janzen, University of Pennsylvania, spoke on biodiversity and ecosystem development as the primary tool for the survival of tropical wildlands. Janzen described the "gardenification" of nature, whereby humans cultivate and utilize natural ecosystems for products and services. He added that sustainable biodiversity development needs to combine the traditional park conservation approach (save it), scientific and academic approach (know it) and the commercial approach (use it). Using the Guanacaste Conservation Area in Costa Rica as an example, Janzen asserted that a complex system of tropical wildland biodiversity can be managed as a multi-crop, multi-use and multi-

tasked area. He also added that such ecosystems can be managed similarly to other socio-economic sectors through planning, investment, compensation, reinvestment, custodianship and technical upgrading. He cited orange peel decomposition in the conservation area as one example of an economic service that benefits the area's biodiversity and the people who use it. He further stressed the need for two sets of regulations in biodiversity conservation: one for the agricultural landscape and one for wildland areas. Overall, he advocated a "planning by doing" strategy and emphasized the need for a self-sustaining and decentralized wildland management process.

Regarding a question on the significance of the orange peel example, Janzen said that it exemplifies how one can establish a contract outside the norms of conservation management. Another participant asked a question on determining and maintaining the price of wildlife commodities. Janzen responded that to get a fair price one should negotiate as any commercial business would to sell a product.

Mary Shetto, Tanzanian Ministry of Agriculture and Cooperatives, presented on the institutional requirements for community-based management of land resources (CBMLR) in Tanzania. She showed a video on human pressures leading to environmental degradation and desertification in Tanzania's dryland ecosystems, and community-based efforts to combat them. She noted that past conservation efforts focused mostly on soil and water, ignoring social issues of food security and gender discrimination. She then reviewed the history of traditional groups and collective production from pre-colonial times to current efforts and policies. Shetto outlined the different stakeholders (e.g., rural households, village communities, urban dwellers/commercial sector, government and public institutions, international community) in land-use, along with their specific demands on and contributions to the management of terrestrial resources according to three land-use classifications (reserved, village and general use). However, she noted that the land-use demands of local communities and rural households are directly linked to their livelihoods, whereas other stakeholders can find alternatives. After addressing the major constraints and conflicts in CBMLR, Shetto outlined the range of village and district level institutions necessary to promote effective management, including traditional institutions, village councils, farmers' groups, women's and youth groups, primary schools, religious groups and larger political bodies able to communicate local concerns to the national level.

During the discussion one participant noted the diversity of "communities" even at the same level. Regarding questions on tenurial security, Shetto responded that tenure is a key community need along with sources of alternative livelihoods, clear economic benefits and fair markets.

SIDE PRESENTATIONS

Bai-Mass Taal, Ecosystem Conservation Group (ECG), introduced a discussion paper on large-scale ecosystem management with special reference to the marine and coastal environment. The ECG, composed of several international institutions, including UNEP, CBD, IUCN, UNDP, the World Bank and others, advocates coordination of the ecosystem approach at the global level. Regarding ecosystem-based management of the marine environment, Taal outlined five main activities in which the ECG is involved, including integrated coastal area management, marine protected areas, marine pollution, sustainable fisheries management and stakeholder participation.

Laszlo Miklos, Slovakian Environment Minister, briefly outlined a number of key questions for operationalizing the ecosystem approach in national policy and law. Specifically, he raised the issues of where and what kind of legal and policy tools are necessary? What are the subjects, whether sectoral or spatial, of legal interventions? And, how can policy-makers effectively intervene in the landscape and interact with resource users?