



**SUMMARY OF THE INTERNATIONAL EXPERT
MEETING ON FOREST LANDSCAPE
RESTORATION
27-28 FEBRUARY 2002**

The International Expert Meeting on Forest Landscape Restoration (FLR) took place from 27-28 February 2002 in Heredia, Costa Rica. The meeting was hosted by the Governments of Costa Rica and the United Kingdom (UK), in collaboration with IUCN-The World Conservation Union, the World Wide Fund for Nature (WWF-International), the International Tropical Timber Organization (ITTO), the Canadian International Development Agency (CIDA), the Centre for International Forestry Research (CIFOR), and the Northeast Asian Forest Forum (NEAFF). The meeting was attended by approximately 60 participants, representing governments, universities and research institutions, and international and non-governmental organizations.

The purpose of the meeting was to present the FLR approach to a broader audience and engage them in the development and refinement of key concepts related to the implementation of FLR. The specific objectives of the meeting were to: increase understanding of FLR among forest experts and decision makers through an exchange of experiences and lessons learned; initiate a process for working with partners to refine and implement FLR concepts; and generate political commitment to and interest in pursuing FLR in specific countries and/or regions and/or through the appropriate intergovernmental processes.

The meeting was divided into five sessions, on: the definition of FLR; stakeholder engagement at the landscape level; biophysical challenges; an enabling environment; and a framework for implementation. Each session was introduced with the presentation of a technical paper, followed by case study presentations and, in three of the sessions, discussions in break-out groups. The meeting was followed by a two-day field visit to Guanacaste, in northwest Costa Rica, where participants observed several stages of natural regeneration in the area's dry tropical forest and witnessed a controlled burn in the Santa Rosa National Park.

A BRIEF HISTORY OF FOREST LANDSCAPE RESTORATION

In 1996, WWF and IUCN came together to launch a "Joint Forest Strategy," which contained a specific objective on restoring forests, and in 1999, the joint WWF-IUCN "Forests Reborn" project was established.

In July 2000, WWF and IUCN held a workshop on forest restoration in Segovia, Spain. The workshop aimed to forge a framework and process, taking into account regional variations and priorities, for exploring and promoting innovative approaches to socially and ecologically appropriate forest restoration. The workshop coined the definition of FLR as "a planned process that aims to regain ecological integrity and enhance human well-being in deforested or degraded forest landscapes." The meeting drew some broad conclusions, including that: choices should be made on a landscape scale, with overall landscape benefits being more important than choices relating to individual forest stands or sites; restoration should, in general, be aimed at a progression toward higher forest quality from the perspectives of both ecological integrity and human well-being at a landscape scale; and choices about restoration should be made on a case-by-case basis, with responses aimed at specific conditions.

The workshop identified social, environmental and economic justifications for restoration, including: biodiversity conservation, particularly outside protected areas; reversal of ecological simplification in degraded or intensively managed forest ecosystems; provision of a range of human benefits, from watershed management to economic gains; resilience and insurance against human and environmental risks such as global warming; and a proactive approach to forest conservation that encourages new partnerships. Cost-benefit analyses at various levels, enabling socio-political environments, and fragile ecosystems were identified as social, economic and environmental prerequisites for restoration. The workshop also identified immediate research needs, focused on the following areas: collection and analysis of baseline data needed to plan restoration; assessment of perverse incentives that currently encourage bad forest management; identification of management options in degraded forests, new plantations and community-managed forests; analysis of environmental services and how they can be affected by restoration; and basic research into various aspects of the economics of restoration. It was agreed that the WWF-IUCN Forests Reborn programme should actively seek partners within the research and development communities.

REPORT OF THE MEETING

Jeffrey Sayer, WWF, opened the meeting with an introductory statement. Noting that at least 16.1 million hectares of forest are being lost every year and that 600 million hectares of forest are degraded, he

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suggested that conventional approaches to conservation are not working, and stressed the need for new approaches that consider the larger landscape context. He explained that many investments in restoration have not been successful and have resulted in significant environmental and social costs. "Dysfunctional landscapes" are being designed as a result of the application of a sectoral view of land that does not consider the complementarity of the various aspects of a landscape. He emphasized that restoration schemes should be designed with due consideration of this complementarity, and explained that restoration at a landscape scale involves considering landscapes rather than sites, addressing trade-offs, involving all interest groups, and employing a "mosaic approach." He emphasized that achieving the right balance of uses in the landscape will improve the representation of forest types, reflect the needs of local people, and protect ecological processes.

Sayer stressed that the FLR approach represents a major change in how WWF and IUCN work on forest issues, and thus new partners and ways of doing business are needed. He concluded by reminding participants that the objectives of the meeting were to share experiences, develop new partnerships and alliances, and raise the political profile of landscapes and restoration in the UN Forum on Forests (UNFF), the upcoming World Summit on Sustainable Development (WSSD), and other fora.

Ivan Vincenti, Costa Rican Vice-Minister of the Environment, highlighted Costa Rica's 30 years of experience in tackling environmental issues and its success in protecting 25% of its land despite limited financial resources. He said that the socioeconomic conditions of people living inside and outside forests are crucial, and noted that their poverty is the main obstacle to achieving the objective of conservation of natural resources. Recognizing the important role of restoration, he highlighted improving people's livelihoods as the key to achieving sustainable use of natural resources.

Gerardo Bodowski, University of Peace, discussed the development of forest restoration in Latin America. He highlighted restoration of original forest as the main purpose of FLR. He discussed the history of restoration in Central America, citing examples of early restoration efforts, and stated that reforestation by itself is insufficient as a means to restore land. However, he did note some examples of reforestation in Central America in which the planting of exotic species did lead to restoration and enabled many plants and animals to re-establish in the area.

Bodowski noted that incentives are primary drivers in the achievement of sustainable use of forest landscapes, highlighting the promotion of animal husbandry and incentives for land clearing as disincentives to sustainable forest use. Regarding the fate of primary forests and their use for sustainable timber production, he said that primary forests would no longer be primary when exploited, and suggested that forest products should come primarily from secondary forests and plantations. He highlighted ecotourism, carbon sequestration, extraction of medicinal plants and watershed management as important options for adding value to primary forests.

He suggested that FLR should not be carried out in isolation from other measures to safeguard the remnants of original forests, but that it should be combined with other measures, including avoiding new deforestation of primary forests and avoiding the present pattern of destructive forest exploitation. Given that the understanding of the

concepts of biodiversity and sustainable development today are well-anchored in many public sectors, he said that the time is ripe for concerted action.

WHAT IS FOREST LANDSCAPE RESTORATION?

Bill Jackson, IUCN, introduced the concept of FLR. He noted that forests house approximately 50% of the world's biodiversity, and at least 300 million people are dependent on forests' goods and services to sustain their livelihoods. He explained that the current approach to restoration employs a narrow focus on planting a few tree species for a limited range of products, rather than seeking a broader range of forest goods and services. He said site-level forest restoration often fails to consider the needs of all interest groups, such as downstream water users, and does not give adequate attention to landscape-level planning, which reduces the range, quality and volume of goods and services available to local people.

Jackson explained that landscapes provide a proper context for forest restoration, and that FLR is a planned process that aims to regain ecological integrity, restore functionality and enhance human well-being in deforested or degraded forest landscapes by ensuring that a full range of goods and services is available to local people at the landscape level. Specifically, FLR: seeks to advance both ecological integrity and human well-being, particularly to improve rural livelihoods; focuses on goods and services and processes rather than trees or simplistic definitions of forests; links local action to a broader landscape level; recognizes and attempts to balance land-use trade-offs; provides a multi-sectoral approach; and extends the decision-making process to all interest groups.

Jackson emphasized that most landscape-level land-use planning exercises have failed because they have been top-down, expert-driven processes that have not taken all interests into account. He highlighted the potential benefits of FLR, including rural poverty alleviation, increased commercial resilience and viability, improved ecosystem services, opportunities for payments for ecosystem services such as water regulation and carbon sequestration, increased resilience to climate and other environmental changes, greater habitat connectivity, and enhanced biodiversity conservation. He stressed the need to learn from experience in order to: create opportunities for key actors to be fully involved in restoration; enable an adaptive approach to management; encourage implementation of internationally agreed forest commitments and proposals for action; develop and apply viable and equitable financing mechanisms to pay for FLR; use carbon sequestration schemes to benefit human well-being in an ecologically appropriate manner; and link FLR to poverty alleviation and capacity-building mechanisms.

In the ensuing discussion, participants, *inter alia*: stressed the need to understand the local context in which land-use planning takes place; highlighted the development of a national programme for ecological restoration in Colombia; and underscored the importance of educating local communities about FLR. One participant highlighted the use of an integrated approach to forest management in Costa Rica, and emphasized the need to reconcile interests of conservation with those of consumption of forest goods and services. Another participant suggested that discussions on FLR must be brought into the broader development discussion, particularly with regard to energy and the shift from biomass to conventional sources of energy.

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CASE STUDIES: Geoffrey Davison, WWF-Malaysia, presented a case study on rehabilitation and restoration of habitats near the Kinabatangan River in Sabah, Malaysia. He noted the area's importance as a wildlife corridor between the coastal mangroves and the inland forests. He highlighted the conflict between tourism in the area and industrial oil palm plantations, and noted the implications of the river's natural fluctuations for agriculture. He stressed the importance of restoring river functions by ensuring a natural course of the river through recovery of riparian forest habitats.

Davison described the project's mapping of breaks, gaps and bottlenecks in the corridor caused by oil palm plantations, roads and villages as a tool for identifying priority sites for action. He underscored natural regeneration of abandoned areas as the preferred option for restoration of natural habitats along the river, with tree planting as a second option.

Emel Rodríguez, Costa Rican Ministry of Environment and Energy (MINAE), presented the Nicoya Peninsula case as an example of ecological restoration in Costa Rica. He explained that extensive cattle grazing in the area had resulted in significant environmental and socio-economic problems, including extensive deforestation and unemployment. He described Costa Rica's efforts to reorganize the rural sector and diversify agriculture in the area, which has enabled the recovery of up to 68% of forest cover over the past 20 years. Strategies employed in these efforts included strengthening regional forest associations and producer organizations, developing new techniques for restoration, implementing forestry policies and incentives, promoting ecotourism, diversifying products from small producers, and training local leaders in integrated rural planning and economic development.

Rodríguez explained that 25,000 hectares had been reforested with the participation of more than 3,800 producers, and more than 38,000 hectares of secondary forests have contracts for the payment of environmental services. Other benefits include the reduction of forest fires, the creation of several community nature reserves, and an increase in fauna in the area. He highlighted lessons learned from the Nicoya Peninsula case, including that: ecological restoration must consider broader systems of development; alliances between sectors, actors and institutions are fundamental for successful restoration; forest fires and poaching must be controlled to create natural conditions favorable to restoration; and the support and participation of local leaders and communities is crucial for success.

BREAK-OUT GROUPS: Following the case study presentations, participants divided into "break-out groups" to discuss different issues related to FLR. They then reported back to Plenary on their conclusions.

The first break-out group discussed prerequisites for FLR, and highlighted several core principles, including: building on the natural processes and potential of the landscape, drawing on local knowledge and solutions, improving local livelihoods, and moving toward healthy ecosystem functions. Prerequisites for FLR identified by the group included: recognition and definition of problems and consensus-building around them; a clearly defined vision and goal; baseline understanding of the current situation and background; enduring political will at national and local levels; institutional capacity; grassroots motivation for alternative land use and development; biophysical potential and understanding of limitations and dynamics; and technology and knowledge.

A second break-out group discussed how to define landscapes suitable for FLR. The group highlighted the need to consider social, biophysical, political and economic factors, both individually and

simultaneously, in defining landscapes for FLR. They identified the watershed approach as a good approach for considering FLR, as it includes biophysical units managed at political or economic levels, enables the identification of linkages between ecological services, and is flexible in terms of scale. The group also noted that conservation science-based principles provide a potential starting point for the preliminary objectives of FLR; highlighted flows and conductivities between all landscapes; and stressed the need for flexibility in considering all points of view. They stressed that conservationists, local people, governments and industry should all be involved and have the opportunity to define their landscape. The group emphasized that overall, FLR is a complex process, requires an adaptive management approach, and is a long-term process that requires historical knowledge of the area and long-term commitment.

A third break-out group discussed how to recognize that FLR is in place, and considered criteria for measuring the success of FLR. The group identified conceptual premises for FLR, including the need to: know the original situation of the landscape; develop benchmark indicators from which to measure success or failure; distinguish process indicators from outcome indicators; agree on terminology; define clear goals and objectives; and be simple and realistic. With regard to indicators, group discussions raised several questions, including how to define indicators that are universal in nature and can be used by government agencies, researchers and local populations; how to combine weighted criteria; who should undertake reporting and measurement of the indicators; and who are the final users of the indicators? The group emphasized that it is better to focus on process rather than on outcomes, and to start by defining specific objectives and general criteria before discussing specific indicators. The group identified several considerations when establishing FLR criteria, including: how much research has been conducted and how much information is available on the state of ecosystems; how close to the original state of the forest can be reasonably achieved through forest restoration; is there an integrated planning process in place and does it include all indicators; are all relevant stakeholders involved; are key ecology functions achieved; and is there improved connectivity? They stressed the importance of local and national ownership of the restoration process and the integration of local criteria. The group highlighted the need to factor into the process the role of outsiders, conflicts of interest, market pressures and trade-offs, and stressed that the restoration process should have capacity building and monitoring elements and employ an adaptive management approach. Regarding the institutional and policy framework for FLR, the group identified the need for a multi-stakeholder approach and for consideration of the role of market forces, incentives and disincentives, as well as the role of national policy frameworks in enabling FLR.

STAKEHOLDER ENGAGEMENT AT THE LANDSCAPE LEVEL

Stewart Maginnis, IUCN, gave a presentation on stakeholder engagement at the landscape level, stressing the importance of recognizing different levels of landscape. He said that the landscape relevant to conservationists should be overlaid by cultural or livelihood landscapes as well as political landscapes. Suggesting that successful restoration build on trade-offs through case-by-case negotiation, he stressed the importance of involving all stakeholders in the process, particularly the least empowered stakeholders, as they are often most dependent on the landscape. He contrasted trade-offs between conflicting priorities and aspirations with "elusive win-win solutions," and said that trade-offs are best managed at the landscape level. He said the strongest

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capacity exists at the local level, and success depends on the enthusiasm and commitment of local actors. He stressed the need for FLR to incorporate changes over time.

CASE STUDIES: Edmund Barrow, IUCN, and W.C. Mlenge, Hifadi Ardhi Shinyanga (HASHI), presented work on FLR in the Shinyanga Region of Tanzania. They introduced the “Ngitili” (enclosure) as a traditional land-use system based on individually- and community-owned pieces of land regulated by customary laws. They described the recent degradation of land resources through, *inter alia*: deforestation to eradicate tsetse flies; land conversion to cash-crop production; increasing numbers of livestock; and destruction of traditional land-use mechanisms by “villagization.” They noted the resulting soil erosion and loss of goods and services from natural resources, and explained the subsequent re-establishment and re-definition of the Ngitili, in which local indigenous knowledge played a crucial role. They highlighted a number of positive effects with regard to ecological integrity, biodiversity and human livelihoods due to the re-establishment and expansion of the Ngitili, emphasizing improvement in the well-being of humans and livestock as the main driver. Noting constraints relating to land tenure rights and wildlife conflicts, they identified the need to “scale up” FLR in the region.

Thomas Tomich, International Centre for Research in Agroforestry, outlined the case of the Krui people of southwest Sumatra, who have developed a system of cultivating a succession of crops that mimics mature natural forest and delivers both environmental and economic benefits. He noted another case study in Sumatra where the government promoted a settlement that involved the conversion of primary forest with high biodiversity richness to coffee production. He highlighted the contrast between private investment interests and social concerns in relation to forests, and trade-offs between global environmental interests and local peoples’ development opportunities.

Andres Hamilton Joseph, Los Algarraobos, outlined a project being undertaken in eleven provinces in the drylands of Argentina, which involves partnerships between governments, universities, research centers, local communities, businesses, and local sustainable development committees. He emphasized the importance of stakeholder engagement at all levels.

Pascal Girot, University of Costa Rica, described the Campesino and Indigenous Organization for Community Forestry of Central American (CICAFOC), which has provided for a unique process in which national government organizations addressing forests and protected areas have engaged in dialogue and signed agreements on forest management with federations of campesinos and indigenous communities. He noted, however, that there has been little follow-up on these decisions, and stressed the need to translate formal non-binding regional agreements into binding agreements that can implement practical solutions to address problems, such as low coffee and grain prices, which are creating increasing pressure on forests and land-use patterns at the local and national levels.

Alberto Salas, IUCN Mesoamerica, presented the case of the Meso-American Biological Corridor, a biological pathway stretching from southern Mexico to eastern Panama. He noted that many sustainable development activities are underway in the Corridor, ranging from sustainable agriculture to ecotourism. He explained that the Corridor’s unique approach to sustainable development: merges regional integra-

tion, combined land use, “blended objectives,” diverse partnerships, equality, and social justice; and links restoration with poverty alleviation.

Beatrix Richards, WWF-UK, outlined a project to develop a definition of “living working landscape” in southwestern England. She explained that the project involved a variety of parties, including a watershed approach group, a forest management contact, restoration and product development interests, two local councils, a sustainable agriculture group, and wildlife trusts. She highlighted national-level contacts, local knowledge, and the need to be invited and to have something to offer as keys to success in stakeholder engagement.

BREAK-OUT GROUPS: One break-out group identified tools that exist for identifying and engaging relevant stakeholders, as well as those that need to be developed. Participants discussed how to identify stakeholders and keep them involved. On the creation of partnerships, they noted that not all stakeholders are equal partners, and stressed that stakeholders should generally select themselves. In identifying partners, they emphasized the importance of understanding the cultural context, involving local NGOs and partners seeking positive change, and understanding power structures. In forming and maintaining durable partnerships, parameters identified included: sharing knowledge; building capacity; demonstrating commitment and developing trust; and matching local agendas with global agendas.

A second break-out group addressed how to go about negotiating trade-offs between functions in the forest landscape. They stressed that negotiation should be recognized as a complex process involving a wide range of stakeholders. Noting the need for all stakeholders to be identified, they stressed that not all stakeholders are equally important and that those with the highest stake are often those with least power. Stressing the importance of equitable distribution of costs and benefits, they underscored the need to identify short-term benefits in order to enable negotiation of long-term trade-offs. They said that negotiation should proceed over time as restoration occurs, and that the negotiation of trade-offs should keep open future options for better solutions.

A third break-out group discussed how to bring FLR into conventional thinking in either “development” or “forestry” projects. They noted that conventional forestry is characterized by a narrow sectoral approach focused on timber production, with high social and environmental trade-offs and limited participation, and that conventional economic development approaches focus on economic growth, industrialization and imported technological solutions. They said that strategies for meaningful participation should, *inter alia*, remove obstacles, involve joint agreements on benchmarks, and establish mechanisms for participation at different levels. Possible tools identified to implement such strategies included: stakeholder analysis; inclusive and equitable governance structures; joint management agreements; and local monitoring. Regarding strategies to promote a more holistic approach, they advocated cross-sectoral planning, broad-based visions and multiple objectives, and long-term planning initiatives, including land tenure issues. Noting the need to incorporate social principles into forest policies and to respect the rights of local people, they identified, *inter alia*, scenario planning, multiple-use management plans, community concessions, and strategic networks as possible tools in this regard.

Georgy Tinchev, National Forestry Board of Bulgaria, then presented a case study on restoration of the Danube Islands in Bulgaria. Noting the high biological diversity of the Danube Islands, he described the recent conversion of floodplain forests into poplar plantations,

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which resulted in a significant decrease in natural forest stands. Stressing the need to reverse the current trend, he outlined a strategy to preserve and conserve natural floodplain forests through inter-institutional cooperation and integrated management to achieve the goals of biodiversity conservation, socioeconomic development and environmental protection. The goals of the strategy included strengthening of the protected area network, mitigation of losses, and improved techniques for increased production in existing poplar plantations. He presented the development of action plans, revision of local forestry plans, and practical implementation and training in new approaches as important next steps.

THINKING BIG: BIOPHYSICAL CHALLENGES

David Lamb, University of Queensland, introduced a paper entitled "From local changes to landscape changes: How to restore degraded landscapes as well as degraded lands?" He presented a diagram showing that while reclamation, rehabilitation and restoration all increase biomass and production, reclamation results in the least biodiversity compared to rehabilitation or restoration, whereas restoration results in the highest level of biodiversity. He stated that restoration or rehabilitation are preferable to reclamation because they restore ecological integrity and improve human well-being. Regarding restoration, he explained that the choice of method depends on: the extent to which species remain on the site; the distance to sources of colonizers; residual soil fertility; the extent of area needing treatment; and funds and resources available. He highlighted various methods of restoration, including passive restoration, enrichment planting of degraded primary or secondary forest, direct seeding, scattered tree planting, dense plantings of a few species, or dense plantings of many species. He explained that the most appropriate method for a given site depends on the degree of degradation, recovery rates, the extent of biodiversity recovered, the extent of provision of goods and ecological services, and costs.

Lamb stated that the slowness, expense, and lack of immediate financial return to the landowner are disincentives to implementing restoration on a large scale, whereas rehabilitation increases production more rapidly and is thus commercially beneficial and more affordable on a larger scale, and still provides some biodiversity. He outlined various rehabilitation methods, including: management of secondary forests and degraded primary forests; enrichment of secondary forests or degraded primary forests with planting of commercial species; agroforestry; monocultures of indigenous species; mosaics of monocultures across the landscape; mixed species plantations; or management of plantation understories. Advantages of rehabilitation are that: the goods produced have commercial value; some products have a social value; ecological services are produced; and there are beneficiaries both on-site and off-site. Disadvantages of rehabilitation are that silviculture is more difficult, the extent of biodiversity recovery is less than with restoration, the rate of recovery is slower, and trade-offs between diversity and production are necessary.

Lamb said several issues need to be resolved if ecological benefits are to be achieved, including determining how much restoration or rehabilitation is needed to achieve the desired outcomes; where new reforestation should be located; how many species are needed; and whether biodiversity is being sought at the local or landscape scale. He described different scales of diversity: "alpha" diversity (diversity at a particular place); "beta" diversity (turnover in species from one habitat to the next); and "gamma" diversity (diversity across the entire land-

scape). With regard to adding diversity at the landscape level, he explained that functional requirements will mean that certain species are likely to dominate, and even mixtures will have modest levels of diversity. He said this can be compensated for by using a variety of approaches across the landscape, though determining how to achieve the desired overall outcome and benefits poses a significant management dilemma.

CASE STUDIES: Dong Kyun Park, NEAFF, presented a case study on rehabilitation of degraded land in Korea and NEAFF's activities to combat desertification and restore forests. He explained that illegal logging and fuelwood collection were significant causes of deforestation in Korea in the past. He highlighted a national campaign for reforestation and tree planting, which achieved significant social and environmental benefits. He characterized forestry in the 1990s in Korea as building the infrastructure of forest management to improve the competitiveness of Korean forestry, and harmonizing the goals of increasing the economic value of forests and improving public benefits from forests. More recently, forestry in Korea has been characterized by increased public demand for environmental and recreational services from forests, and the Forest Service has developed recreational services and environmental education programmes. He outlined challenges facing Korean forests today, including greater urbanization and market openness, demand for forest lands for other uses, such as residential and recreational uses, and greater public concern for the environment and forests. He highlighted the Forest Movement Cooperation initiative, which involves cooperation between business, NGOs and government on forest issues.

Park explained that NEAFF's mission is to strengthen international networks for planting trees and fighting desertification and forest fires in northeast Asia. It employs several strategies, including: building trust and cooperation with relevant parties; exchanging experience, technology and information; strengthening networks; and training leaders. NEAFF is involved in agricultural rehabilitation and environmental protection efforts, such as a rehabilitation tree nursery in North Korea and tree planting in China. He underscored the importance of international cooperation in forestry, as many countries lack the national capacity to conduct assessments of forest resources and implement rehabilitation and restoration.

Steven Whisenant, Texas A&M University, presented a process-oriented, landscape-scale approach to forest restoration, using examples from China and Niger. Describing the degradation of a tiger bush landscape in Niger due to fuelwood harvesting, he stressed the need for restoration of landscape functions. He explained that the goal was to restore the natural vegetation and restore landscape functions, and highlighted the planting of a fast-growing, non-invasive, exotic species of *Acacia* as a means to restore the micro-climate and facilitate native plant growth to this end.

Whisenant described massive problems with deforestation and degradation of environmental goods and services in the Sichuan Province of China. He outlined current efforts to restore landscapes through, *inter alia*, protection of forests and establishment of timber production forests, orchards and fuelwood plantations. Noting the expensive nature of these activities and the increasing demand for wood, he questioned whether the current protection of forests and payment for farmers' afforestation could be sustained in the long run.

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In the ensuing discussion, participants highlighted, *inter alia*, the need to recognize the benefits of forest fragments; consideration of rehabilitation as a step toward restoration; the importance of trees outside forests in a landscape perspective; criteria for the use of nurse crops in restoration projects, including the use of exotic species; and the effectiveness of logging bans in reducing the risk of floods.

BRINGING IT ALL TOGETHER: ENABLING ENVIRONMENT

David Kaimowitz, CIFOR, presented a paper entitled "Beyond traditional projects: A broad approach to landscape restoration." Using the El Salvador experience as an example, he highlighted key issues needed for successful landscape restoration. He noted that traditional projects work at the household or site level, whereas the landscape level is more difficult to address. He emphasized that broad social, economic and political trends typically influence restoration more than projects. Underscoring the importance of land tenure issues, he stated that changes in land tenure often greatly affect land use. He suggested that FLR should focus on forest functions rather than on classic definitions of forests. He noted that experts tend to consider El Salvador as almost completely deforested, whereas in reality, tree cover is quite extensive, and shade coffee provides fuelwood, protects the soil and conserves biodiversity. He explained that getting farmers to plant eucalyptus in El Salvador has been difficult and expensive, whereas secondary regrowth and shade coffee maintenance could have been encouraged for significantly less money.

Kaimowitz underscored that landscape restoration requires the active involvement of local people, and suggested that people will be motivated to get involved if they are inspired. He cited the success of a local "march against burning" in El Salvador, as it provided local government officials, religious leaders, teachers and students with a fun way to get involved, and suggested that movements are often more successful than projects and give meaning to people's lives. He stated that FLR requires: looking beyond project targets; focusing on the desired functions to be encouraged in the landscape; thinking about least-cost ways to promote those functions; addressing land tenure issues; building on positive trends and farmer experimentation; involving many types of people on their own terms; collecting real data and re-thinking assumptions; and making landscape restoration fun.

In the ensuing discussion, several participants reiterated the importance of addressing land tenure. It was noted that the environmental services that land provides are becoming increasingly important in the agricultural policy agenda. One participant suggested that FLR requires not only looking beyond projects, but also looking beyond forests and trees. Another participant suggested that the El Salvador case was more about managing a landscape to produce products than about forests or restoration, and questioned the definition of a shaded coffee system as a forest. Participants debated whether the definition of "forest" encompasses only natural forests or also forests managed for people's needs, with one speaker suggesting that the distinction between them is often difficult. The importance of considering local circumstances, trade-offs, and the need to bring ecological services back was underscored.

CASE STUDIES: John Kellenberg, World Bank, and Edgar Ortiz, Fondo Nacional de Financiamiento Forestal (FONAFIFO), gave a presentation on forest restoration in Costa Rica, focusing on how valuation of forest goods and services has been considered in Costa Rica. Ortiz presented a system, in which private landowners are paid to

provide environmental services through specific land uses that aim to prevent, mitigate and reverse environmental degradation. He said that restoration of priority areas and corridors were promoted through payment for forest protection, reforestation and natural forest management. Regarding estimation of payment for environmental services, he noted the need to ensure economic incentives for local people to change land-use practices. Highlighting the evolving nature of the payment system, he noted a number of weaknesses, including: lack of recognition of environmental values; the need for improved monitoring through field control; ongoing arguments over how to spend the funds most efficiently; and the demanding nature of the contractual system.

In the following discussion, one participant questioned the value of paying people to protect forests, characterizing this as a "gift for not doing anything." Ortiz emphasized that the focus was on the provision of environmental services, and underscored the importance of targeting priority areas.

Gordon Patterson, UK Forestry Commission, made a presentation on the evolution of FLR in the UK during the last 80 years. Noting the significant historical loss of forest in the UK, he said that early restoration initiatives focused on building a timber reserve and creating a rural timber industry, which led to monocultures of fast-growing exotic tree species. He noted environmental and economic problems relating to these monocultures and said that pressure and criticism in recent decades had led to a shift toward more multiple function forestry. Citing examples of diversified forest management, he underscored the increasing functionality of the landscape with regard to stable timber production, recreation, biodiversity, and environmental protection. He highlighted the need to scale-up restoration activities, maintain momentum, increase monitoring, and continue to balance the objectives of activities as future challenges.

BREAK-OUT GROUPS: One break-out group then discussed how to maximize landscape-level diversity, or "gamma-diversity." They stressed that species diversity is not the only goal of restoration, emphasizing landscape functionality as well. They underscored the need to consider the surrounding land uses in working to maintain and enhance landscape-level diversity, and to consider remnants of original vegetation as sources of biodiversity and plantations as sinks. Regarding the size of restoration areas, they noted the importance of connectivity and emphasized the need to recognize biophysical differences between landscapes. Noting the importance of landscape heterogeneity for biodiversity, they stressed that industrial plantations should be biodiversity-friendly.

A second break-out group considered advocacy for FLR, and outlined a number of core messages regarding FLR, including that: FLR is not a replacement for protection of primary forests; FLR can contribute to sustainable livelihoods, poverty eradication and thus the repositioning of forests on the international agenda; FLR is linked to other issues such as combating deforestation and forest degradation; positive examples of FLR exist, but so do obstacles to its progress; and FLR should be integrated into national planning processes. The group identified a number of key elements for FLR that need to be communicated, including: restoration of forest functionality on degraded lands; a focus on the landscape level; equitable sharing of costs and benefits; and collaboration between different sectors and actors. They identified important next steps in advocacy for FLR, including reaching out to new partners, identifying a research agenda, producing case studies,

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undertaking work to overcome barriers to progress, and recommending FLR to governing councils of members of the Collaborative Partnership on Forests (CPF).

A third break-out group addressed opportunities for financing of FLR. Regarding public funding, the group stressed that FLR should provide economic benefits to people and countries, and on market-based mechanisms, they suggested that environmental services be linked to sources of funding. In relation to attracting donor interest, they stressed that FLR must contribute to poverty reduction and demonstrate its economic benefits for people. They also identified areas promoting FLR that do not require financing, such as land tenure and policy reform, certification and eco-markets, and exploitation of opportunities and developments in other sectors such as agriculture and tourism.

FRAMEWORK FOR IMPLEMENTATION: POLICY AND PRACTICE

Eva Mueller, ITTO, outlined ITTO's guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests, which have been developed in collaboration with the UN Food and Agriculture Organization (FAO), IUCN and CIFOR. She explained the process of developing the guidelines, noting that a draft version was discussed in the preceding week by an international panel of experts and that the final version would be presented to the International Tropical Timber Council in May 2002. She outlined the purposes of guidelines, which include, *inter alia*: providing a knowledge base of key ecological, silvicultural, socioeconomic, political, legal and institutional aspects; and helping planners to integrate restoration, conservation and management of degraded and secondary forests at local and landscape levels. The guidelines are aimed primarily at land-use planners, decision makers, government agencies dealing with rural landscapes, and development agencies.

The guidelines include management strategies for: restoration of degraded forests, which are geared toward regaining ecological integrity; management of secondary forests, which are geared toward sustainable management of goods and services; and rehabilitation of degraded forest land, which are geared toward regaining site productivity and increasing human well-being.

CASE STUDY: Valerie Kapos, UNEP-World Conservation Monitoring Centre, delivered a presentation on spatial analysis as a decision support tool for FLR. She explained that spatial data and analysis can be used to help in planning FLR by identifying priorities, identifying and quantifying pressures and vulnerability, and helping to define and monitor progress toward ecological integrity. She explained that identification of priorities can be undertaken at any scale, but the key issue is the selection of appropriate criteria, such as loss or degradation of potential forest cover, the importance for forest goods and services, and feasibility. Regarding pressures and vulnerability, she noted that a case study is being conducted in south central Chile, in which an assessment procedure is being developed to determine the vulnerability of forest areas to loss or conversion based on historical patterns of change. On defining and monitoring progress toward ecological integrity, Kapos explained that: forest fragmentation is a major factor affecting forests' value as habitat; spatial integrity is a measure that captures area effects, edge and shape effects and isolation effects; and restoration can address spatial integrity as a means of enhancing forest functions. She concluded that spatial data and analyses can usefully support planning, implementation and monitoring of FLR, stressed that the approach

needs to be extended to address provision of goods and services that are important to local communities, and stated that further development of these approaches depends on collaboration with FLR initiatives to apply and refine them.

CONCLUSIONS AND RECOMMENDATIONS

Carole Saint-Laurent, WWF-IUCN, discussed the role of FLR in supporting implementation of international agreements. She noted that there has been increasing attention to restoration of forest landscapes and ecosystems in the political arena. She highlighted relevant work under the Convention on Biological Diversity (CBD), including its Work Programme for Forest Biological Diversity adopted at the fourth Conference of Parties (COP-4), which calls on Parties to rehabilitate degraded and deforested ecosystems, and noted that a revised Work Programme will be adopted at COP-6 in April 2002. The CBD's Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) recommended that the revised Work Programme aim to restore forest biodiversity in degraded secondary forests and in forests established on former forest lands and other landscapes, including plantations, and also recommended, *inter alia*, activities to promote implementation of systems and practices for restoration in accordance with the ecosystem approach, and development and application of forest ecosystem restoration techniques to address biodiversity loss at the ecosystem level.

Saint-Laurent highlighted emerging opportunities under the UN Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol, which is developing guidance on implementation activities related to afforestation and reforestation that may allow for FLR. The UN Convention to Combat Desertification (UNCCD) is also reviewing implementation and developing recommendations for improved implementation of rehabilitation, conservation and sustainable management of land and water resources, and may recommend that land degradation, primarily desertification and deforestation, be designated as a new focal area for the Global Environment Facility (GEF).

She highlighted conclusions and proposals for action related to FLR from the Intergovernmental Panel on Forests (IPF) and the Intergovernmental Forum on Forests (IFF), as well as the review of progress in implementation of IPF/IFF proposals for action related to rehabilitation and restoration of degraded lands being undertaken by the upcoming second session of the United Nations Forum on Forests (UNFF-2) in March 2002. The World Summit on Sustainable Development (WSSD) will also be considering forests in the context of several cross-cutting issues in August/September 2002, and the second preparatory meeting for the WSSD recommended intensified efforts for the management, conservation and sustainable development of all types of forests, in particular rehabilitation and restoration of degraded forests and lands, by 2005.

Saint-Laurent concluded that the foundation for action exists in several relevant commitments and proposals for action, and the issue is firmly on the international agenda for 2002 and 2003, but if these opportunities not captured, prospects for FLR may be undermined. She urged participants to join IUCN and WWF in seeking an international effort and leadership for implementation of FLR to promote sustainable livelihoods and secure ecosystem integrity, including through, *inter alia*: announcement of specific partnership initiatives at WSSD; inclusion of FLR in the definitions of afforestation and reforestation under

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the Kyoto Protocol's Clean Development Mechanism; and designation of land degradation, primarily desertification and deforestation, as a new GEF focal area.

Bill Jackson, IUCN, then facilitated a Plenary discussion to identify important next steps relating to research needs, future case studies, engaging in developing and testing FLR, and feeding the outcome of the meeting into relevant processes.

Regarding research needs, participants suggested numerous new areas of research, including: tools for identifying and negotiating with stakeholders at the landscape level; criteria, indicators and approaches for monitoring and evaluating FLR; mechanisms for valuing forest goods and services in FLR; analysis of innovative funding options for FLR; poverty issues and links to rural development; and the relationship between environmental services and the impacts on wetland functions. A number of potential case studies were identified, the importance of broad geographical coverage stressed, and the need for recognition of limitations to specific case studies highlighted.

Several options for engaging in developing and testing FLR were identified, including: involving indigenous peoples' organizations and other grassroots organizations; bringing FLR into universities and other training institutions; and using the Central American Biological Corridor as a laboratory to observe the impacts of FLR. Participants then identified opportunities for feeding the outcome of this meeting into the international policy arena at both global and regional levels, including at UNFF-2 and CBD COP-6.

Participants supported convening another expert meeting on FLR in 2003 or 2004 to report on progress in local-level initiatives, lessons learned, national dialogues, and integration of FLR into international and regional fora.

Jackson then delivered some closing remarks. He highlighted the important outcomes of the meeting and stated that it had moved the concept of FLR forward. He noted that FLR is already happening and that many good examples of FLR in existence have been unplanned, and stressed the importance of learning from these examples.

He reiterated that forests provide goods and services needed to sustain human livelihoods and biodiversity, and stressed that FLR should focus on the functionality of forests. Noting that rural communities are usually those most affected by the loss of forest goods and services, he said FLR should focus on landscape-level biodiversity and thus should accept low diversity in some sites.

Jackson outlined a number of prerequisites for FLR, including motivation, existing practices and institutions, long-term commitment, decentralization and devolution, and the presence of fragments of natural forests facilitating FLR. In characterizing the FLR approach, he underscored, *inter alia*, the need to avoid a top-down approach, the need for new forms of planning and negotiations, development of a civil society platform for debate to negotiate trade-offs in an equitable manner, and the use of decision support tools to facilitate FLR.

In closing, Jackson emphasized that FLR is only likely to succeed if the stakeholders most dependent on forests are actively involved in decision making and if the costs and benefits are shared equitably. He urged participants to inform policy processes of practical experience with FLR and, noting the importance of adaptive management, he

called for broad implementation of FLR. He thanked participants, presenters, hosts, sponsors and partners for their hard work and the successful outcome, and drew the meeting to a close.

THINGS TO LOOK FOR

SECOND SESSION OF THE UN FORUM ON FORESTS:

UNFF-2 will take place from 4-15 March 2002 at UN Headquarters in New York. A high-level ministerial segment will take place from 13-14 March, which will include a dialogue session with heads of member organizations of the CPF. For more information contact: Mia Soderlund, UNFF Secretariat; tel: +1-212-963-3262; fax: +1-212-963 4260; e-mail: unff@un.org; Internet: <http://www.un.org/esa/sustdev/forests.htm>

WSSD PREPCOM III: This meeting will take place at UN Headquarters in New York from 25 March-5 April 2002. Negotiations will be based on the Chairman's Paper distributed at the end of PrepCom II. For more information contact: Andrey Vasilyev, DESA; tel: +1-212-963-5949; fax: +1-212-963-4260; e-mail: vasilyev@un.org; Major groups contact: Zehra Aydin-Sipos, DESA; tel: +1-212-963-8811; fax: +1-212-963-1267; e-mail: aydin@un.org; Internet: <http://www.johannesburg-summit.org/>

SIXTH CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIODIVERSITY: CBD COP-6 will take place in The Hague, the Netherlands, from 7-19 April 2002. The COP is expected to receive reports from its subsidiary bodies, the Executive Secretary and the GEF, review the implementation of the programme of work, and focus on the following issues: forest biological diversity; invasive alien species that threaten ecosystems, habitats or species; access and benefit-sharing as related to genetic resources; and the strategic plan, national reporting and operations of the Convention. Parties are also expected to adopt a budget for the next biennium. 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/meetings/cop-06.asp>

32ND SESSION OF THE INTERNATIONAL TROPICAL TIMBER COUNCIL: The 32nd session of the ITTC will take place from 13-18 May 2002 in Bali, Indonesia. For more information contact: ITTO; tel: +81-45-223-1110; fax: +81-45-223-1111; e-mail: itto@itto.or.jp; Internet: <http://www.itto.or.jp>

WSSD PREPCOM IV: This meeting will take place from 27 May-7 June 2002 in Jakarta, Indonesia. It will include ministerial and multi-stakeholder dialogue segments, and is expected to result in elements for a concise political document to be submitted to WSSD. For more information contact: Andrey Vasilyev, DESA; and Zehra Aydin-Sipos for Major Groups (see above).

16TH SESSION OF THE UNFCCC SUBSIDIARY BODIES: SB-16 will take place in Bonn, Germany, from 3-14 June 2002. For more information contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.de; Internet: <http://www.unfccc.de>

2002 WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT: The WSSD will take place in Johannesburg, South Africa, from 26 August-4 September 2002. For more information, contact: Andrey Vasilyev, DESA; and Zehra Aydin-Sipos for Major Groups (see above).