



Report on
IUFRO-SPDC Pre-Congress Training Workshop
“Making Science Work for Forest and Landscape Restoration”

Hotel City Lodge, Durban, South Africa,

September 4 to 6, 2015

IUFRO's Special Programme for Development of Capacities (SPDC), in collaboration with the World Resources Institute, held a 3-day training workshop at Hotel City Lodge, Durban, South Africa, from September 4 to 6, 2015, on science-policy interactions for forest and landscape restoration in conjunction with the World Forestry Congress. The agenda of the training workshop is annexed to this report.

The workshop was attended by 14 participants from 11 countries from Africa, Asia and Latin America and by well known experts in the field of Forest Landscape Restoration.

The training workshop was inaugurated by Dr John Parrotta of the US Forest Service. While opening the Workshop, Dr Parrotta recalled the role that forests play in mitigating climate change as also in preparing communities in adapting to the changes that need to be faced now as the global warming intensifies due to the anthropogenic greenhouse gas build-up. He said that while most countries across the globe are taking steps to reduce deforestation and forest degradation and restoring forest landscapes, the current levels of preparedness for the mammoth task are highly inadequate and governments and global organizations need to increase their efforts to undertake capacity building at the individual and institutional levels. He said this training is a small step in that direction.

In his introductory talk Dr Michael Kleine, Deputy Executive Director, IUFRO, Vienna, presented IUFRO as a non-profit, non-governmental scientific organization set up to advance research excellence and knowledge sharing, and foster development of science-based solutions to forest-related challenges for the benefit of forests and people worldwide. IUFRO provides a global structure for science cooperation related to forests and trees within which member scientists from all around the world collaborate on a voluntary basis. The structure allows IUFRO to address research needs and priorities in a flexible manner. It has more than 600 member organizations spread over more than 100 countries with around 15000 scientists working on all ecological, social and economic aspects of forestry. Key research fields are covered by 9 permanent Divisions and cross-cutting key issues addressed by interdisciplinary Task Forces.

As a part of its core activities IUFRO is operating a Special Programme for Development of Capacities (SPDC) with the objective of expanding and fostering forest research capacity in developing countries in Africa, Asia and Latin America. This training workshop is a part of SPDC's activities for enhancing the quality of interaction of the forest science community with the society by bringing concepts and methods to researchers on how to plan, conduct, and organise research activities, so that results can more quickly and easily be transformed into usable information for problem-solving and policy-making. In this workshop, the tools for science-policy interactions were discussed in the

context of forest landscape restoration, aiming at enhancing the understanding of the need and mechanisms to successfully improve landscapes for the benefits of people and nature.

The first session, chaired by Dr Michael Kleine, began with a detailed presentation on the subject of science policy interfacing by outlining aspects of interactions between the science community and policy-makers. Important issues included links between substantive knowledge and political decision-making, as well as the barriers that could weaken the links, policy relevance of research, the duration of the public attention (cycle) on specific issues, and the importance of establishing long-term processes of science-policy interactions. Dr Kleine also gave an overview of the many activities of IUFRO's Task Force on the Science Policy Interface since it was established in 2000. Over a period of 5 years the Task force evaluated over 60 case studies on science-policy interfacing from around the world. Based on these analyses best practices guidelines were developed and have been used in designing this training.

In his presentation on contribution of Forest Landscape Restoration to climate change mitigation and adaptation Dr John Stanturf stated that the FLR addresses climate change mitigation in all its aspects by sequestering carbon in long-term storage and reducing CO₂ released to the atmosphere from burning fossil fuels, biomass burning, or land use change through reduced deforestation, degradation, unsustainable harvesting, increased productivity of biomass, sustainable production of bioenergy for substitution of fossil fuels, production of timber substitutes for high energy consuming building materials like steel, cement, aluminium and plastics. Adaptation, a more localized issue and far more complex, is critical to the permanence of carbon fixed by mitigation. Both natural and social systems are vulnerable to climate change and while social capital determines adaptive capacity of society as a whole, of institutions, groups and communities, the adaptive capacity of natural systems is often described by resistance or resilience to climate change.

Dr Stanturf said that adaptation can be a form of green infrastructure that enhances or maintains core forest functions. FLR strategies relevant to adaptation to climate change can be incremental, anticipatory or transformational. The incremental approaches are essentially 'No-regrets' and seek benefits under the current climate. When relating to native species the incremental approach would often take a 'do nothing' or passive management stance and rely on species or ecosystem persistence, accepting succession as it comes. There is emphasis on ecological restoration with historic fidelity, acceptance of the concept of assisted population migration, but confined to native species within their historic ranges, resistance to creation of novel ecosystems and a preference for conserving natural areas as refugia.

The anticipatory approaches to adaptation use the same techniques but are more future-climate oriented with increased acceptance of closely related exotic species as functional analogues of native species and a willingness to manage emerging neo-native species assemblages. Emphasis is on functional restoration of ecosystems with historic fidelity where appropriate, and on reducing vulnerability to current and future stressors beyond the softer no-regrets options of incremental adaptation.

The transformational adaptation approaches, on the other hand, are proactive towards the projected future climate conditions using native, exotic or even designer species assemblages with functional equivalencies. Intervention ecology through novel and emergent ecosystems, in which non-native species dominate, and assisted migration by species translocation outside native ranges, and even de-extinction and rewilding through advanced technologies, are acceptable instruments.

Dr Stanturf explained the concept of stoplights for evaluating the rankings of potential mitigation and adaptation opportunities under FLR. Similar stoplights could be created for FLR project communication, project design and project evaluation with the aim to enhance the understanding of forest landscape restoration among stakeholders and decision makers.

Mr Bastiaan Louman, SPDC Regional Coordinator for Latin America and the Caribbean, CATIE, spoke on the topic of "FLR in Latin America: Lessons learned from long-term multi-stakeholder initiatives". He said Costa Rica experienced a forest transition, changing one of the highest deforestation rates in the world before 1986 into an overall net reforestation. Although many attribute the reforestation to government policies aimed at restoration, in particular to the 1996 forest law that prohibited deforestation, and to established payments for ecosystem services (PES), in practice many different conditions contributed to the successful restoration. However, some provinces still have net deforestation with younger secondary forests and small forest patches disappearing. He said forest and landscape restoration is not just about plantation and regeneration, but it seeks good governance, active participation, generous and genuine benefit sharing, quality local leadership and local capacities for informed, joint decision-making. He gave examples of two different localities in Costa Rica. The first one, Hojancha, overcame severe crisis caused by a combination of economic and ecological reasons through strong local leadership, following phases of 1) formation of a vision and strategy; 2) organization to implement the strategy while at the same time learning and making adjustments accordingly; 3) innovate to make use of national and global opportunities on a local scale; and 4) consolidation and integration of forestry into local development priorities. The other case referred to a county (Sarapiquí) that faced less severe crisis and yet had difficulties in resolving its problems. Mr Louman spoke of the necessity of inter-scale and inter-institutional coordination and of innovation and adaptation and said the attempt should be at building on local human, social and political capitals to achieve improvement of natural capital and livelihoods. He mentioned the Regional Ibero-American Model Forest Network as a platform that could enable out-scaling of the Costa Rican experiences.

Dr Lars Laestadius of the WRI, speaking on "Policy Driving Science?: Promotion and assessment of FLR opportunities at national and global levels", introduced the aims and objectives of the WRI, and the modalities of working with governments and people of the countries of the world. With regard to WRI's promotion of FLR, he stated that today's forest vegetation is not the best benchmark of what the forests around the world could be. A better measure for the potential would be the extent and nature of forests if the climate and soils were the only influencing factors. He said restoration implies leaving the landscape in better shape and building on degraded lands the landscapes of the future. He defined forest landscape restoration as a process of regaining ecological integrity and enhancing human well-being in deforested or degraded forest landscapes while ecological restoration is the process of assisting in the repair of ecosystems that are degraded, damaged, or destroyed. He said that while croplands were not included in their estimate of restoration potential, protective restoration may be an opportunity in the agricultural landscapes as trees can help prevent soil erosion, protect waterways, absorb storm water, increase soil fertility, and enhance soil moisture capacity. He said wide scaled up restoration was most likely to occur in areas with less population and consequently less intensive land use while mosaic type of restoration is more likely where population density is higher, land use is mixed and closed forests cannot grow over large continuous extents of lands. Two-third of Earth's landmass would be covered by forests if nature had its course but the reality is that nearly a third of the earth's potential forest cover has already been cleared of its native vegetation. He estimated that more than 2 billion hectares of land, an area twice the size of China, is currently offering opportunities for forest landscape restoration.

Dr Promode Kant of the Institute of Green Economy, India, presented four case studies from South Asia that either were aimed at FLR or resulted in it indirectly. He stated that attempts at forest restoration in South Asia have been made for at least half a century, in many cases even longer. Most early organized large scale attempts in India were around watersheds of large hydroelectric dams – Bhakra Nangal Dam in Punjab in early 1950s, in Nilgiri hills in Tamilnadu, Western Ghats in peninsular India. Soil conservation and landslide control on hills were also the reason for similar efforts in Murree Hills in Pakistan, Chittagong in Bangladesh, middle hill forests in Nepal and in Bhutan. Forests were a low priority and large funding was available only when aligned with national priorities like power generation, mountain road protection, or in support of agriculture.

The situation began changing after the Stockholm Conference on Human Environment. The Conference proclaimed that “man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights, the right to life itself”. The Conference called upon Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for posterity.

Specifically the Principles 2, 3 and 12 of the Stockholm Conference have proved helpful in expanding the forest restoration canvas. Principle 2 lays down that the natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate, while Principle 3 reminds the global community that the capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved. Principle 12 has made the critical difference by asking that resources “should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate from their incorporating environmental safeguards into their development planning and the need for making available to them, upon their request, additional international technical and financial assistance for this purpose”. It was financial and technical assistance from the Swedish International Development Agency (SIDA) that brought first major restoration efforts to India by way of social forestry which changed the way forestry was seen in India from a purely governmental effort on government land to the role of the community in creating, maintaining and reaping benefits. Multilateral assistance through the World Bank, Asian Development Bank & bilateral from Japanese International Cooperation Agency (JICA), U.K. Department for International Development (DFID), United States Agency for International Development (USAID), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Danish International Development Agency (DANIDA), etc. followed. This external assistance improved monitoring hugely which slowly got transferred to national programs too and large scale training abroad opened the forestry professionals to new possibilities that had been foreign to them previously.

One of the case studies presented by Dr Kant on community forestry in Nepal initiated with the objective to incentivize communities to use forest resources in their vicinity sustainably for enhanced forest productivity and regeneration, as well as improved biodiversity conservation by encouraging good community governance of natural resources, accountability and transparency, and enhancing equity across genders and ethnic groups. The program began formally in 1978 in middle hills of Nepal and has evolved continuously and spread across the country since then. The target area to be restored has grown continuously and is currently placed at 1.2 million ha. Primary stakeholders are the government and the local communities that manage forests through

Community Forestry User Groups (CFUGs) working under the overall supervision of the Forest Department. The program began with national budget support but its sincerity of attempt, and novel approach, soon attracted large overseas development assistance from several countries around the world.

Community forestry has greatly influenced social, economic, environmental aspects of rural life and development of new institutions in Nepal as communities work together to protect existing forests, create new forests, manage them according to the following scientific principles and harvest them. There are many failures, too, as often the sustainability principle is hard to implement on the very small forest lands. Forestry practiced at such tiny scales faces very serious challenges including a long wait for flow of returns, market uncertainties and high transaction costs. Important forest management activities like fire and disease control and provision of road and other forms of access to forests have high transaction costs when taken up at small scales and are best done collectively by an organization empowered and able to enforce regulations which enhances the effectiveness of these measures.

Dr Ernest Foli of the Forest Research Institute of Ghana and representing the Forestry Research Network of Sub-Saharan Africa (FORNESSA) spoke on "Making Science Work for Forest and Landscape Restoration: Setting Priorities for Reducing Deforestation and Forest Degradation in Ghana". He said that deforestation and forest degradation (DFD) in Africa are driven by a multitude of factors from inside and outside the forest sector. Within the forest sector the factors are directly related to forest governance, and include commercial harvesting of timber; illegal timber harvesting, firewood collection; uncontrolled forest fires, etc.; while outside the forest sector it is driven primarily by poverty, population growth and expansion of agricultural land for food and, to a lesser extent, even for biofuels. Reducing greenhouse gas emissions and global climate change resulting partly from DFD requires that this complex mix of underlying causes is taken into account.

Dr Foli stated that being a people-centred approach, FLR brings people together to identify and put in place a mix of land-use practices that will help restore the functions of forests across a whole landscape. It focuses on restoring forest functionality at a landscape level rather than a site level to achieve the optimal quantity and quality of forest resources necessary for improving and maintaining people's well-being and ecological integrity.

FLR shifts the emphasis away from simply maximizing tree cover on individual forest sites to optimising the supply of forest benefits within the broader landscape. Since conditions differ at different sites, solutions to reducing emissions from deforestation and forest degradation need to be site-specific, taking into consideration social, environmental, economic and other factors. However, many countries lack adequate site-specific scientific information both for policy formulation and for management. The problem is worsened by insufficient public investment in reforestation and slow institutional reform to cope with challenges such as climate change, energy use and biodiversity conservation.

Dr. Foli's presentation included an example of how local level actors were engaged in the analysis of the drivers of DFD in a pilot area in Ghana and the steps taken in the setting of priority strategies for addressing these by involving all stakeholders, including policy-makers. He outlined the processes of the development of the strategies leading to consensus in the setting of the priorities for relevant REDDES activities and stakeholder responsibilities during implementation. He concluded by pointing out that the communities' and stakeholders' enthusiasm in engaging with policy-makers to identify and solve problems that affect their well-being highlights the importance of grass-root decision-

making. Since FLR is people-centred, such engagement is necessary for successful implementation of such activities on the ground.

Group Work

On the second day of the workshop the participants were divided in three continent groups. The task of each group was to analyse a particular forest landscape, identify the restoration needs and – depending on the given local situation – prepare a tool (e.g. workshop, policy brief etc.) to promote and initiate successful landscape restoration in the area.

The **Latin American Group** undertook a critical examination of the riparian forest restoration for erosion control in Yacyreta Binational hydroelectric dam shared between Argentina and Paraguay located in the large scale agricultural production region known especially for soy bean cultivation. Erosion is a serious problem which is likely to affect the dam's expected life time. The Group concluded that the adoption of an eco-friendly method could stabilize farmer's production and benefit Yacyreta Dam and made specific recommendations for closing the communication gap between the government authorities and the local communities.

The **African Group** worked on Landscape Restoration in Coal Mining Area in Tete province of Mozambique which is regarded geologically as the largest unexploited coking coal reserve in the world and it is estimated that the Province could be producing 25% of the world's coking coal by 2025. Landscape degradation due to mining is a serious problem which could worsen in the coming years unless preventive steps are taken well in time. The Group concluded that the success of "Tete FLR initiative" depends on the willingness of stakeholder groups to cooperate with one another and all the stakeholders need to be involved in decisions regarding the goods, services and processes of the landscape that are to be restored.

The **Asian Group** examined the case of Community Forestry and Forest Landscape Restoration in Sarlahi District of Nepal. Forest deforestation and degradation started in the district sometime in early 1960s and by 1990s the forests were completely degraded leading to frequent floods. There was a system of open grazing and mass scale illegal cutting of forest trees for railway construction in bordering India in place. The Group prepared a policy brief with the key message for government departments that forest landscape restoration requires integrated interventions. For local people the key message is that increase in agricultural productivity is possible only with stabilization of river systems. And for indigenous people the message is that better landscape management creates better income opportunities in the long run.

Knowledge Café

On the last day of the workshop a group exercise in the Knowledge Café format was undertaken. These groups had mixed participants unlike the continental groups of the preceding day. Group 1 and Group 2 examined the issues that need to be addressed for successful FLR implementation by local communities and governmental organisations at the local, national and sub-national levels, respectively, while Group 3 looked at the issues that need to be addressed for assisting in FLR implementation at the global level. Their recommendations are noted below.

Group 1 (Local)

1. Local leadership is important, communities should elect a small committee of capable and committed people and choose a Co-ordinator/leader among them
2. Identify incentives for different sections of local community

3. Where incentives are already available - access them
4. Where incentives not available do advocacy for incentives with the government
5. Planting fruit trees can also motivate people as it gives early and substantial incomes without causing harm to the trees and environment
6. Land tenure needs settlement for which government support should be sought
7. Large landowners should be persuaded by local communities to initiate agro-forestry over a small part of their lands
8. School children can motivate the community to undertake landscape restoration

Group 2 (National)

1. The national government should make FLR a priority in national policy
2. Capacity building (human and financial)
3. Revise and update existing policy and legislation
4. There should be strong monitoring and transparency at national levels
5. Awareness creation
6. Establishment of coordination with integrated approach among different working units and departments, agriculture and livestock departments etc

Group 3 (Global)

1. Policy changes
 - Donor agencies financial support to Bonn Challenge commitments
 - Alternative financing models (crowd financing)
 - Require monitoring and assessment (valuation)
2. Capacity Building
 - Support graduate studies
 - Support research institutions
3. Knowledge development
 - Funds to develop for effective lower cost landscape restoration techniques
4. Knowledge sharing
 - Free or low cost landscape data
 - Intuitive user interface to manipulate and analyse data
 - Short term technical assistance
 - Learning network, pilot research and demonstration sites+ knowledge sharing platform
 - Promotional material + technical guides in local languages

Concluding words

The training workshop came to a close on Sunday, the 6th September, 2015, with a closing talk by Dr Michael Kleine on the importance of applying the takeaways from the workshop to their own field conditions. Dr Kleine requested the trainees to provide feedback to him on both positive aspects and shortcomings that they face during implementation. Certificates of successful completion of the training workshop were distributed to the participating trainees and a farewell lunch was hosted by IUFRO-SPDC.

ANNEX 1: Workshop agenda

Science-Policy Interactions “Making Science work for Forest and Landscape Restoration”

Workshop Programme

Date	Time	Subject (Description)	Responsible
Friday 4 September	08:30 - 09:00	Registration	Workshop Organisers
	09:00 - 09:15	<u>Welcome address</u> and opening of the workshop	IUFRO Vice President John Parrotta
	09:15 – 09:30	<u>Introductions</u> <ul style="list-style-type: none"> Objectives and program of the workshop Individual introductions by participants and expectations 	Michael Kleine
	09:30 – 11:00	<u>Presentation</u> What is the Science-policy Interface? <ul style="list-style-type: none"> Science-Society Interaction Concepts and Definitions 	Michael Kleine
	11:00 – 11:15	Tea/Coffee Break	
	11:15 – 11:45	<u>Presentation</u> Science contributions by IUFRO to global policy processes	Michael Kleine
	11:45 – 12:30	<u>Interactive Session:</u> Science contributions to forest policy and management : participants’ experiences	Moderation: Bastiaan Louman, resource persons
	12:30 – 14:00	Lunch	
	14:00 – 15:00	<u>Presentation</u> Introduction to Forest Landscape Restoration and its potential role in current global policy processes (UNFCCC, CBD, UNCCD)	John Stanturf
	15:00 – 15:30	<u>Interactive Session</u> Discussions on FLR and participants’ experiences	Moderation: Bastiaan Louman, John Stanturf
	15:30 – 15:45	Tea/Coffee Break	
	15:45 – 17:00	<u>Presentation& Discussion</u> Contribution of FLR to Climate Change Mitigation and Adaptation	John Stanturf
	17:00 – 18:00	<u>Presentation</u> FLR Cases Studies from South Asia: Addressing the drivers of land degradation	Promode Kant
	19:00	Dinner	

Table continued

Date	Time	Subject (Description)	Responsible
Saturday 5 September	09:00 – 10:00	<u>Presentation</u> Reducing Deforestation and Forest Degradation in Ghana: Setting of priorities	Ernest Foli
	10:00 – 11:00	<u>Presentation</u> FLR in Latin America: Lessons learned from long-term multi-stakeholder initiatives	Bastiaan Louman
	11:00 – 11:15	Tea/Coffee Break	
	11:15 – 12:30	<u>Presentation</u> Policy driving science? Promotion and assessment of FLR opportunities at national and global levels.	Lars Laestadius
	12:30 – 14:00	Lunch	
	14:00 – 15:30	<u>Group Work</u> "Developing information packages to promote FLR in global policy processes (UNFCCC, CBD, UNCCD, UNFF, etc.)" • Tasks and expected results	Moderation: all resource persons
	15:30 – 15:45	Tea/Coffee Break	
	15:45 – 18:00	<u>Group Work continues</u> • Choosing a group topic/case • Discussing the FLR case and results • Selecting the main messages and target groups • Drafting the information product	Moderation: all resource persons
	19:00	Dinner	

Table continued

Date	Time	Subject (Description)	Responsible
Sunday 6 September	09:00 – 10:00	Presentation of group work results	Participants
	10:00 – 12:00	<u>Knowledge Café:</u> “Implementing FLR on the ground: What needs to change?” Potential topics: FLR as means of <ul style="list-style-type: none"> • meeting a country’s commitment on climate change (e.g. INDC) • contributing to biodiversity enhancement/conservation • improving local income and social wellbeing, and • broadening the scope for long-term business opportunities 	Participants and all resource persons
	12:00 – 12:30	Closing of Workshop	Michael Kleine
	12:30 – 14:00	Farewell Lunch	