CIFOR
CENTER FOR INTERNATIONAL FORESTRY RESEARCH

JAPAN

Minutes of Open Session

Review of Forest Rehabilitation Initiatives: Lessons from the Past

Rehabilitation Research Team
Center for International Forestry Research
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Introduction

Intensive exploitation and related disturbances have depleted large areas of forests in the tropics in the last decades, and resulted in large and expanding areas of degraded forest ecosystems. In many tropical countries, government agencies, international agencies, the private sector and civil society have expended much effort and resources in rehabilitation activities in response to deforestation and forest degradation. How have the efforts played out in the different countries given the different biophysical, political, and socio-economic condition? How can we use the lessons to plan and guide future efforts and ensure their sustainability?

To discuss these issues, the Center for International Forestry Research (CIFOR) organised a one-day open session entitled: Review of forest rehabilitation initiatives – Lessons from the past on August 9, 2004 at CIFOR, Bogor. The aim of the open session was to share the interim findings from CIFOR's ongoing research activity synthesizing, reviewing, and deriving lessons from past and ongoing forest rehabilitation projects. The experiences and lessons from six countries – Brazil, China, Indonesia, Peru, Philippines, and Vietnam - were presented by research partners from each country. The presentation were followed by active discussions on similarities and differences in approaches, scope for transferability, key issues to be addressed and steps to move forward. There were 62 participants representing the study partners, Indonesian government agencies, companies, NGOs, bilateral projects, donors and research institutions.

Participants were welcomed by Dr. Markku Kanninen, the Director of the Environmental Services Program of CIFOR. He stressed the growing importance and need for rehabilitation in all continents. Rehabilitation efforts can lead to a more diverse productive environment providing important products, livelihood opportunities and multiple environmental services. These efforts could also lead to fulfilling global objectives with regard to biodiversity conservation, timber certification and climate change. He also stated that rehabilitation was one of the 15 most important research areas of CIFOR. The work was multi-disciplinary and a partnership approach was used, and CIFOR would like to continue with this style of working with various countries and institutions.

The project team leader from CIFOR, Dr. Takeshi Toma then introduced the study "Review of forest rehabilitation initiatives – Lessons from the past". The study was started in 2002 with Vietnam, Indonesia, Philippines, China, Peru and Brazil chosen as pilot countries. The review was carried out by national partners and the CIFOR research team, using a common approach adapted to fit country situations. The aim of the study was to draw strategic lessons from the numerous past rehabilitation efforts to plan and guide future efforts and increase their chances of success and long-term sustainability.

Dr. Toma then described what was considered forest rehabilitation in this review: Deliberate activities (technical, institutional, socio-economic) aimed at artificial planting and/or enhancing natural regeneration of trees on formerly forested grass, brush, shrub or barren lands (degraded land?) for the purpose of enhancing productivity, livelihood and/or environmental benefits. The country research teams first conducted a historical inventory and characterisation of rehabilitation initiatives in each of the selected regions. This was followed by a detailed review of selected case studies on the ground looking at productivity, environmental and livelihood impacts as well as longer term sustainability and adoption.

In response to questions from the audience:

1. The number of countries was limited to six because of restricted resources and capacity. But we would be happy to share our methods with other institutions interested in executing the study in other countries.
2. The same general methodology has been used in all countries but modified to suit the different realities and needs. The CIFOR research team in consultation with numerous experts developed the preliminary methods. The country teams (CIFOR coordinator and country partners) then modified and refined the methods for their specific countries.
3. Yes, there are many institutions working on rehabilitation/ reforestation issues but there is not much overlap in focus. It will be useful to collaborate and share our methods and findings, and feed into each others' initiatives. We began this process at the very start of the review study, consulting with the other institutions and have been sharing our methods and preliminary findings with them.

Country case study presentations:

<u>Indonesia by Dr. Murniati and Mr. Lukas Rumboko</u>

Forest cover declined sharply from 143.97 million ha in 1991 to 109.57 million ha in 2000 as per the Ministry of Forestry and degraded forest areas have increased. Various rehabilitation programs and projects have been implemented since the Dutch colonial period such as *Karang Kitri* Movement, *Inpres* (Presidential Instruction) on reforestation and afforestation, rehabilitation on ex-logging concessions by establishing Industrial Forestry Plantations, and Demonstration unit on Natural Resources Conservation Efforts. However, the rate of rehabilitation has lagged behind the rate of increase in degraded areas.

During the 1950s-1970s, the driving factors for rehabilitation programs were mainly natural disasters as resulted from intensive logging in Java. The impacts of over exploitation from logging in the outer islands also became a problem since the 1980s, and encouraged the government to start the program of Industrial Forestry Plantations. During the reform era started in 1998, widespread forest encroachment and illegal logging pushed the government to shift towards community based forest rehabilitation/ management. Currently rehabilitation programs are driven by concern over forest encroachment, forest fire, and inappropriate land use practices; as well as over and illegal logging.

In the study conducted by CIFOR and FORDA, more than a hundred projects dealing with forest rehabilitation on forestry, mining and catchments areas dating from late 1950s have been identified so far. Target project areas range from 10 to almost 500,000 ha with project durations ranging from 1 to 35 years. Projects have been mostly dependent on state and donor funding, and focused mainly on technical aspects.

Institutional arrangements for effective implementation of the programs on the ground were often inadequately developed and resulted in little adoption of techniques by local people in the targeted areas. Rights, responsibilities and tenure status were unclear and there was a lack of consideration of local cultures and customs. Furthermore, there were no clear institutional arrangements for management of rehabilitation areas after the projects ended. There have been some successful projects mainly distinguished by the active involvement of local people.

An example of a successful rehabilitation initiative from the ten case studies assessed is farm forestry in *Gunung Kidul*, Yogyakarta Province. The local community started rehabilitating the degraded land in the 1970s to restore the water resources for their own needs in this dry and poor region. The project was then implemented jointly by the community and the local forestry service using participatory approaches. The local government provided funding support. Other objectives were to increase forest cover, improve forest and land productivity, and conserve the soil. The dry landscape of 11,072 hectares has been regreened with mainly teak and some *Acacia* spp., and now provides both wood and ecological benefits. There are multipliers effects with a rise in land productivity, increased forest cover and water availability, decreased sedimentation rates and improved micro climate. All of the above have in turn resulted in increased supply of timber, fodder and fuel wood; and improved community income and access to education, health and other services. Ongoing challenges are linked to the current harvesting practices that are based on immediate needs which result in less bargaining power for the community in the sale of the timber. Identified needs are improved community skills on post-harvesting technology and management of household income, and better market information and bargaining strength.

There were some other case studies assessed which succeeded in the technical aspects (nursery and plantation establishment) but the projects were not sustainable. The main reasons were poor long-term plantation planning, poor coordination among the stakeholders and no legal rights over the rehabilitation outputs.

Key lessens learnt for enhancing the success of future rehabilitation initiatives are:

1. Preliminary assessment at the start of the programs to identify the most appropriate and cost effective technical interventions.
2. More effective and well-planned funding mechanism by a) ensuring the incorporation of incentive generation and reinvestment mechanisms as part of the project design, b) integrating centralized and decentralized budget allocation planning and c) promoting a less bureaucratic mechanism for the release of funds.
3. Conducive policy framework through a) consistent and secure policies to ensure desired impacts in the long term, b) integrating centralized and decentralized rehabilitation planning as local government policies often accelerate the success of the project, and c) integrated approach (no integration was a key reason for failures).
4. Institutional arrangements to be continued once the project has ended with an agency made responsible for continued management based on preliminary capacity assessment. Clear responsibilities should be assigned for managing the project during implementation and after completion. There is also a need to address information gaps at various levels, empower existing local institutions, and conduct participative evaluation (should not only focus on physical measures) and monitoring.
5. It would be best if the government focused on non-commercial rehabilitation activities and let other players implement commercial programs.

Discussions:

1. In Indonesia, both success and failure of rehabilitation projects are very site specific and the site (topography, soils, species matching, culture) should be thoroughly assessed in the initiation of any project. This issue is ignored in many projects.
2. In forest rehabilitation, there is government attempt aimed to restore the original ecosystems, such as in several National Parks, by planting native species previously growing in the area.

3. Farm forestry in Indonesia is subsided by the government. In Java, farm forestry was originally initiated by the government but now local communities are motivated to grow trees on their own land. The benefits of farm forestry are increased local wood supply, community income, forest cover and improved ecological conditions (micro climate and water resources).

Brazil by Mr. Everaldo Almeida and Dr. Cesar Sabogal

The colonization process in the Brazilian Amazon began after the World War II. In the 1960s and 70s public policies favoured road construction and big development projects. Government incentives for livestock production in the 1980s increased the rate of deforestation in the region. Large natural resource assessment and monitoring programmes also began in this decade along with several unsuccessful reforestation projects funded through public taxes. The 1990s saw a boom in NGO activity and public pressure against deforestation. An environment law was enacted restricting deforestation to up to 20% of all rural properties in the Amazon. The situation today still reflects conflicts between development and conservation agendas. Several promising initiatives are underway to resolve the differences, in many cases as a joint effort between the government and the private sector.

The study focused on the region of the Amazon Basin known as "the deforestation arc" and comprising five states. In this region, several decades of intensive timber extraction, agriculture and cattle ranching resulted in vast degraded areas, making up about 70% of the estimated 64 million hectares of deforested/degraded land in the Brazilian Amazon. In collaboration with several institutions, a database consisting of over 350 different experiences with land rehabilitation in the Amazon was developed. This was the basis for selecting cases for further evaluation. A total of 28 initiatives, most of them involving collective projects or individual experiences of small-scale farmers, were finally evaluated in five States (Pará, Tocantins, Mato Grosso, Rondônia and Acre).

The average size of the rehabilitation efforts was around 4 ha or 5.5% of the average farm size of 67 ha. Most rehabilitation work was taking place on areas previously used for slash-and-burn agriculture. Farmers' motivations to initiate the rehabilitation efforts were the application of what they learned in training courses, to complement family income, the desire to have trees on their property and the need to avoid the use of fire. The main problems they faced were labour constraints, limited knowledge on how to manage different tree species, delays in getting seedlings and quality seeds, poor technical assistance and insecurities regarding product commercialization.

Among the lessons learned from the study for successful implementation of rehabilitation initiatives, the following can be highlighted:

- Farmers with demonstrated interest and commitment to actively participate in the rehabilitation process should be chosen.
- Farmers' groups should be created and strengthened to enhance chances of successful implementation. The need to have a working organization is more evident during the phases of product harvesting, processing and commercialization.
- Need commitment from the executors and the beneficiaries to fulfil their roles and responsibilities in the rehabilitation process.
- Selection of appropriate species to meet livelihood needs and generate additional income for investment in rehabilitation is key to the long-term sustainability of these initiatives since for farmers, rehabilitation means switching from their current land use practices.

- There is a need for effective and timely technical assistance to land users/farmers which calls for partnerships between the government agencies and the civil society.
- There is a need for training courses on various production options (such as agroforestry consortia, pasture management, bee-keeping and pisciculture) to help farmers diversify their traditional management systems.
- It is necessary to add value to products coming out from rehabilitation interventions. This requires ensuring sufficient financial resources from the start of a project for product industrialization and commercialization.

Discussions:

1. Criteria used to select the 28 initiatives for case study analysis: (a) existence of a tree-based component for rehabilitation; (b) at least one year of implementation of the initiative, and (c) an area of at least 0.5 ha under rehabilitation.
2. In Brazil, small-scale farmers are actively engaged in rehabilitation efforts. Government involvement is mainly in the form of providing incentives and schemes for farmers' participation. They do not have a big top-down rehabilitation program.

China by Ms. Zhou Zaizhi

The China study focuses on Guangdong province in southern China, where 61% of the total 17.8 million ha is official forest land, with 92% of it managed by collectives. Heavy logging, war, major political events (Great leap forward and Cultural revolution) and forest fire led to serious forest destruction and degradation. In 1949, forest cover was 3.72 million ha and degraded forest land was 7.11 million ha. Since then with primarily government-led large-scale rehabilitation efforts, forest cover has risen to a stable 10 million ha roughly and degraded forest land was reduced to about 1 million ha. The efforts were meant to stabilize the degraded ecological environment accompanying rapid economic development; and reduce poverty and improve livelihoods of forest dependent people and farmers in mountain and coastal areas. People were mobilized to carry out the efforts. Aerial seeding was a favoured method for remote hilly and mountain areas along with closing off mountains to promote natural regeneration. There was also the development of high-yielding plantations and establishment of forest farms on degraded forest lands for timber production.

Since the 1990s, diversified reforestation systems and institutional arrangements appeared among stakeholders. These included joint management, stock-sharing, lease and contract management. There has been a shift in forestry focus from reforesting barren forestland to consolidating greening achievements, protecting and enhancing the resources to meet the demands of the rapidly growing forest industry. New policies encourage foreign and civil enterprises and individuals to develop commercial forests, with a range of management options and institutional arrangements. Currently, it is difficult to find degraded forestland for lease for commercial forestry in preferred planting districts with good site conditions. At the same time, there is interest in building high-quality forests for environmental purposes in the classified ecological zones by adjusting tree species and forest structure and type.

The review study based on 3 samples in each of the 8 major project categories in Guangdong, reports considerable success in terms of increased forest cover and stocking volume in the earlier programs which can be assessed now. The study in Guangdong does not include case study analysis for environmental and livelihood impacts, and these remain unclear. Key lessons learnt include the need for:

1. A wide range of funding sources and institutional arrangements for different project types
2. Removal of high timber tax, transportation and sale constraints
3. Favorable policy incentives and socialization
4. Livelihood options and alternative fuel sources to reduce pressures on the regrowing forests. Forest rehabilitation to be part of local socio-economic sustainable development
5. Good dissemination and demonstration of successful experiences
6. Targeted management, responsibility and incentive systems for program leaders
7. Technical training and services to implementers
8. Species-site matching and scientific planning using available research findings to avoid poor growth, mortality, pests and disease, and forest fire problems
9. More attention to management of already planted areas

Discussions:

1. A question was raised regarding community participation in rehabilitation in China, since they were the real actors in the field and their participation was critical for the long-term sustainability of rehabilitation programs. There were policy incentives (institutional arrangements, etc.) in different programs to encourage community involvement and ensure long-term sustainability. Guangdong is increasingly applying more of such incentives, trying to find better mechanisms and iron out the problems. The review study in China does not involve assessment of livelihood impacts of the projects.
2. Different tenure systems and institutional arrangements – which approaches are more successful? Recent developments: reforestation task bidding systems for city landscape rehabilitation, private investments to develop commercial forests on degraded forestland, and joint management and stock sharing options on forest farms show much promise.
3. Yes, there are rewards for environmental services as part of reforestation programs. For forests established mainly for environmental purposes, the government provides economic compensation to landowners. Only rich provinces can use this method of compensation.
4. Aerial seeding has 65% success in China based on forest growth on the ground. Species used are mainly fast growing, exotics such as Acacia and Eucalyptus, along with native pine trees which are suited for the region.

<u>Vietnam by Dr. Do Dinh Sam and Mr. Pham Ngoc Mau</u>

From 14 M ha of natural forest in 1943, Vietnam had only 9.8 M ha of natural forest left and less than 2 M ha of plantation forest as of 2001. The decline in natural forest cover results from overexploitation, shifting cultivation, war damage, toxic chemical defoliants, land claims, fires, and poor forestry policies and management. The decline in forest cover is accompanied by a corresponding increase in degraded forest land. Forests need to be rehabilitated to meet the rising demand for timber, NTFPs and bamboo, as well as for their important environmental functions related to watersheds, drought alleviation, carbon absorption, soil protection, landslide prevention, sand dune fixation, coastal protection and biodiversity conservation.

Vietnam wishes to increase its forest cover to 16 or 19 M ha. Past reforestation efforts include three national programs: six forestry projects under the United Nations World Food (PAM) program, the 327 program, and the latest 5 million hectare reforestation program (5MHRP). In addition, Vietnam had a scattered tree planting initiative launched by Ho Chi Minh in 1959. The 327 program towards the end started focusing largely on protection and special use forests. The 5MHRP aims to conserve biodiversity, improve the environment and livelihoods of people living on or near forest land. The program intends to restore forest cover back to 43% by protecting the remaining forests, and establishing 3 million ha of new production forest and 2 million ha of new protection and special-use forests through planting and natural regeneration.

The PAM projects managed to restore some 450,000 ha of production forest and scattered tree plantations and fruit orchards. Program 327 has managed to protect 1.6 M ha of forests largely through contracting, restore 1.5 M ha of forest through natural regeneration and industrial and fruit plantations, and create 500,000 jobs. Existing forest protected has increased to 2.4 M ha and forest restored has increased to 1.7 M ha under the 5MHRP.

The forestry and restoration-enabling environment includes the following. The land law of 1993 reviewed and amended in 1998-2003 allows households, individuals, and organizations land for long-term use. This includes 5 rights: exchange, transfer, rent, inheritance and mortgage. The law on forest protection and development from 1991 decrees that plantation and forest land are to be managed by the government. Households, individuals and organizations can be allocated land for plantation for long-term use and can be contracted forests for protection. Forest is divided into 3 management categories: Production, protection and special-use forests.

Some major lessons from the Vietnam experiences are:

- Have national programs with clear objectives and a good package of policies
- Implement an integrated mix of activities including protection, planting, promoting natural regeneration, extension and training support, and improving necessary infrastructure (nurseries, roads, housing…)
- Implement rehabilitation projects in parallel with other socio-economic projects
- Need for research and technology that supports rehabilitation
- Ensure investment fund
- Increase investment per ha for plantation of protection and special use forest
- Improve credit policies
- Provide better incentives for forest rehabilitation
- Evaluate better the environmental value of forests (protection function, carbon absorption…)
- Exchange experience between countries

Discussions:

1. The five million ha program aims to establish 3 million ha of new plantations and 2 million ha of naturally regenerated forest in 10 years by 2010. It will help improve national timber reserves and serve as a model for carbon sequestration projects.
2. It is very difficult to rehabilitate the forest areas contaminated by toxic chemicals.
3. There is not much private sector involvement in forestry in Vietnam and there are not many incentives to encourage the same. The benefits from forests take years to realize; too long a period of time for the private sector to borrow and repay bank loans.

4. How do you manage to incorporate the large population (20 to 24 million people living near the forest) into the rehabilitation projects? People receive seedlings and will be able to harvest the timber in the future.

Peru by Mr. Abel Meza and Dr. Cesar Sabogal

Approximately 9.6 million hectares have been deforested or degraded in the Peruvian Amazon (2.5 million ha alone by coca cultivation). Still, over 70% of that area is under secondary regrowth. There is a direct link between the patterns of immigration and expansion of agricultural activities with forest degradation (40% of degraded land is located on protected areas). The government policy since the 1940s has been the promotion of direct colonization in the region, much of it spontaneous and on marginal areas (steep slopes, poor soils). Government incentives for agriculture and livestock production accelerated deforestation in the 1970s, when around 0.5 million ha were covered with agricultural crops. The next two decades saw several internationally-funded government "special" projects re-launching programs supporting agriculture and livestock production, and an increase in illegal crop cultivation and social violence. In the last decade or so a number of international cooperation programs have focused on land rehabilitation and alternatives for illegal crops. There are also pioneer rehabilitation initiatives involving forest companies, NGOs and local associations (e.g. outgrower schemes).

The new forestry law of 2000 identified general strategic guidelines to carry out activities to restore, manage and rehabilitate degraded forests and lands, but no specific policies have been defined yet to promote them. On the other hand, past and ongoing land rehabilitation initiatives are barely known and poorly documented. There is therefore a need to learn from these experiences and use them for guiding future projects and public policy formulation. This study focused on the most common land degradation scenarios identified in the Peruvian Amazon. From an initial inventory of 40 rehabilitation initiatives, 14 were selected` for further evaluation in the departments of Ucayali, San Martin, Cajamarca, Huanuco and Pasco.

According to the farmers and other land users, the main objectives of the rehabilitation initiatives were to restore soil properties and vegetation cover. Other objectives included creating environmental awareness and improving the quality of life. For project executers the overriding purpose was to restore forest cover. Agroforestry based on cash crops and reforestation with native tree species (mainly fast-growing timber species as well as multiple-use and soil-improvement species) were the main options promoted. Other technologies promoted included the management of residual and secondary forests, enrichment planting, tree hedgerows and bee keeping.

Among the main lessons learned from this study, the following can be highlighted:

- Rehabilitation projects need to pay more attention to involving, working with and strengthening local organizations from project conceptualization to evaluation stages.
- Need to design and implement strategies for technology transfer that stimulate active participation of the key actors, taking into account local knowledge and practices
- Credibility, moral values and social engagement should be used as key criteria for selecting project staff, in addition to relevant technical knowledge and skills
- Technologies to be promoted should match the reality and capacity of the producers
- Production systems (e.g. agroforestry, tree plantations) that incorporate tree species with a shorter harvesting cycle and good market prospects tend to be more adoptable

- Rehabilitation projects should give more attention to processing and commercialization of products to generate value-added
- Incorporate the market variable in the design and promotion of rehabilitation technologies
- Projects need to be designed with a much longer life-span and appropriate funding
- Avoid overestimating the benefits a project could deliver to the individual or community
- Any direct economic benefits aimed at beneficiaries could be gainfully used to stimulate key activities that contribute to the success of rehabilitation efforts
- Rehabilitation projects should incorporate a system to monitor the initiatives over time

Discussion:

1. The forestry sector is important in Peru, but in terms of direct revenues it contributes only to 1% of the GDP, i.e. excluding the value of the environmental services. The amount of forest cover, population pressures and the relative role of the forestry sector in different countries probably greatly influence the importance and nature of rehabilitation efforts and are good criteria for comparison across countries.

Philippines by Dr. Antonio Carandang, Dr. Juan Pulhin and Ms. Rose Jane Peras

The Philippines had roughly 5–6 million ha of forest and 3.7 million ha of grass, brush and barren lands as of year 2000. Population pressures on the remaining forests are high. The country has had a long history of rehabilitation starting from 1910. The efforts up to the mid-1980s were mostly government-driven with some compulsory reforestation by companies and citizens. In 1988, the launching of the contract reforestation scheme saw rehabilitation efforts by various sectors of society including local government units, NGOs, communities, companies and households. Since 1995, community-based forestry management has been the primary strategy for forest rehabilitation. Peaks in planting efforts over the century have been driven by political changes and new policies and infusion of money. Since the 1990s, much of the rehabilitation efforts have been funded by foreign banks and donors. How much remains on the ground of all this planting effort is unclear.

As part of the rehabilitation review study in the Philippines, 48 projects implemented by different groups (government forestry sector, local government units, other government agencies, NGOs, communities and private sector) across Central Luzon, Central Visayas and Southern Mindanao were surveyed in detail for site conditions and project activities and outcomes. A selected twelve of these projects were assessed for outcomes and impacts on the ground through field surveys. Targeted beneficiaries of the rehabilitation projects have been mostly local communities, the general public for environmental benefits, and private individuals or farmers. Primary objectives have been watershed management and regreening barren land and providing employment or livelihoods, followed by biodiversity conservation and timber production. Primary outcomes have been enhanced income and livelihoods; increased forest cover and wildlife; improved soils and increased environmental awareness.

Major lessons learned for enhancing the sustainability of rehabilitation efforts are the need for community involvement and awareness building from project initiation onwards, sharing of experiences by farmers, sound and transparent financial management, community organising well before reforestation activities, livelihood projects as part of the overall plan, protection and maintenance for long-term sustainability, and the commitment of implementing agencies. Besides the government should create a long-term enabling and stable policy environment as well as appropriate incentives to encourage participation of the various sectors in forest rehabilitation. For private groups, they should be allowed and assisted to plant other high value tree crops in their area, given liberal credit windows for their business, and provided incentives for planting various indigenous species for biodiversity enhancement.

Discussions:

1. Projects had many different objectives – how are these objectives balanced and the trade-offs dealt with? It is not really an issue of trade-offs. A project can have many different objectives based on the needs of the community. Basically the government's policy focus has changed over time in relation to rehabilitation programs – from pure degraded land regreening in the early 1900s to more incorporation of social aspects particularly in the 80s.
2. The top objective across cases was water management but the top outcome was employment creation because substantial employment was created in the course of rehabilitation efforts for water management.

Country synthesis presentation (Dr. Wil de Jong):

This six country study should try to answer the following key questions:

What are the similarities/ differences in approaches?
What have the results been? Do they depend on approaches or conditions?
What can be transferred between countries?
What are the key issues that need to be addressed?
What are the steps forward?

Countries seem to vary in how long they have engaged in forest rehabilitation. Presentations at this event suggest that Philippines started to take the issue seriously as early as 1910, while in Peru rehabilitation efforts are more recent. All the countries but Peru had an important boost in rehabilitation efforts since the 1980s or 1990s. In all the six countries policies on forest rehabilitation efforts have experienced profound changes through the years.

Some clear results can be reported from all the countries. For examples, Indonesia has managed to convert *Imperata* grasslands into forests, and rehabilitation efforts have contributed to strengthening communal organization. Other outcomes are less encouraging, like the simultaneous increase in grasslands elsewhere. Similar examples of significant achievements, but also challenges, can be given from the Philippines, Guangdong (China), Vietnam, Brazil and Peru.

There are quite a few lessons learned that can be reported from each country, and some of them are relevant for other countries too or more generally applicable.

Discussions:

1. Rehabilitation, reforestation, agroforestry – shouldn't we be careful about mixing very different issues and comparing apples to oranges?
   We decided in this study that the name per se does not matter, the focus is on putting trees back on formerly forested (now degraded) land. Countries and communities have chosen a variety of approaches and incentives to rehabilitate degraded land driven by many different considerations. Differences and similarities in approaches used, their driving forces and outcomes can be compared and contrasted across countries to derive useful lessons on appropriate approaches for sustainable rehabilitation under different conditions. The types of approaches used and project

objectives have also altered over time in each country in response to changing socio-economic and political forces.

2. We should be careful while comparing changes in natural forest cover and degraded land across countries – we do not know what is included in these categories. Agroforestry may be placed under agriculture in one country's statistics and under forestry in another country's.

3. Why rehabilitate, whose land to rehabilitate?
   Such questions are being asked in the review study – whose land is being rehabilitated for what and for whom, and how does this affect outcomes.

   Rehabilitation should be demand-driven, not supply or donor-driven. Large reforestation debts were incurred in the past in some Asian countries.

4. What do we mean by lessons learnt and for whom (target audience) and for what?
   Lessons on promising rehabilitation approaches and processes across socio-economic, institutional, technical, and policy aspects for different objectives and scenarios. We first plan to find out what the main lessons/ messages are and then prepare targeted outputs to the relevant people to promote change in policies or practices. The target audience groups could include policy makers, donors, communities, NGOS, companies, and private individuals.

5. Vietnam and Guangdong experienced recent increases in forest cover. We can learn lessons on increasing and maintaining forest cover from their experiences.

6. What is success and how to measure success?

   How can we compare success between different countries with different government structure, culture, geography, etc.?

   - It is hard to measure absolute success, but we can compartmentalize success into different aspects (social, biophysical, economic). Can use indicator processes (planning, implementation, monitoring and evaluation activities), indicator outputs (technical/ecological, socio-cultural, economic and institutional aspects) and other criteria to evaluate.

   - Success/ failure cannot be generalized: depends on stakeholders' perspectives. Different groups have different criteria and by comparing across groups, we can see what are the shared components of success/ failure and where there are differences.

   - Dangerous to rely solely on stakeholders' perceptions. Respondents might be driven by personal economic motives (example of gold miners using mercury) and there may be long-term negative outcomes. Have to look at many indicators and the long-term outcome.

   - Time of evaluation is another issue to consider: When to evaluate? Right after the project? Or a year after the completion of the project? Outcomes may be different over time.

   - Project objectives should be key criteria for project evaluation. A plan for commercial planting may not be supported by the community. A social forestry program may be accepted by the community but then the company may not be happy. We can assess biodiversity, etc., but its relevance will change depending on the objectives of the project. Also in Vietnam, it was difficult to know how to analyze success because project objectives had changed over time.

- Environmental indicators such as water and biodiversity are difficult to measure. Results on water quality improvement based solely on perceptions of respondents are unreliable. How to measure these in projects?
- Could develop and promote use of specific criteria and indicators for evaluating different project types among the donors and project initiating agencies. May be useful if donors could have a standard database for rehabilitation projects and then the data could be accessed by different groups for project assessment and comparison.

7. Wide gap between policies and ground realities. Policy may sound good, but the reality is different. Stakeholders may be overlooked during the forest policy making process. How to transfer and implement policies to sustain projects in the long-term is the key.

8. The government appears to play an important role in rehabilitation efforts, particularly in China, Vietnam and Indonesia. Small scale management appears important in many places such as Brazil and Peru.

Closing remarks:

Dr. Takeshi Toma stated that information on past rehabilitation activities were not recorded properly and people were often biased by their own selected experiences. Through the study "Review of Rehabilitation Initiatives - Lessons from the Past", CIFOR and partners are carrying out a larger assessment of a wide range of rehabilitation projects across countries to learn key lessons from this vast storehouse of experiences. The research aims to provide not just a long-list of constraints to forest rehabilitation, but to come up with sound options for sustainable rehabilitation of degraded forest lands with positive impacts on local livelihoods and the environment. Participants of this open session would be kept informed about the results of the study as it progressed and all outputs would be made available on the website (http://www.cifor.cgiar.org/rehab). Dr. Toma expected and appreciated the continued active participation and valuable inputs to the review research from all present.

Appendix 1. List of participants

Name of Participant	Institution
Dr. Markku Kanninen	CIFOR
Dr. Patricia Shanley	CIFOR
Dr. Byoung Il Yoo	CIFOR
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Ms. Yumi Kitamura	Center for Southeast Asian Studies
Ms. Labueni Siboro	Wetlands International - Indonesia
Dr. Irsyal Yasman	INHUTANI I
Mr. Ukas Suharfaputra	Dinas Kehutanan Kuningan
Mr. Bunbun Budhyarsa	Sumber Daya Alam dan Lingkungan, Dinas Kehutanan Kuningan
Mr. Lukmansah Hardigaluh	Switszerland Embassy
Mr. Pierre Hagmann	Switszerland Embassy
Mr. Kanenori Miura	JICA - MoF - Halimun - Salak Project
Mr. Timothy Nolan	Forest Liaison Bureau
Mr. Tri Nugroho	DFID/MSF - Facilitator for Forest-related policy initiatives and processes
Ms. Jenie Pareira	Birdlife Indonesia
Mr. Takeo Toyota	JICA - Halimun Salak
Ms. Triana	JICA - Halimun Salak
Mr. Asep Umar Jaya	LATIN
Ms. Kasmalia Sari	International Cooperation & Investment, Minstry of Forestry
Ms. Sri Mulyati	International Cooperation & Investment, Minstry of Forestry
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