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META-EVALUATION OF PREVIOUSLY EVALUATED ITTO PROJECTS

**Lessons learned & good practices towards sustainable
management of tropical forests**

THEMATIC SUMMARIES

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Lessons learned & good practices from the ITTO Meta Evaluation towards sustainable management of tropical forests

THEMATIC SUMMARIES OF EX POST EVALUATIONS

(This document constitutes Annex II of the ITTO Meta Evaluation conducted in 2011)

This document summarizes the key common issues, lessons learned and good practices as identified in 92 ex-post evaluation reports of ITTO projects implemented in Africa, Asia and Latin America which were reviewed by the meta-evaluation team.

The purpose is to help project formulators and implementers in designing and executing future ITTO projects.

ITTO's Manual for project formulation, 3rd Edition, 2009 remains the main guidance for how projects should be designed and proposals should be presented. This document provides additional information extracted from previous projects to be as additional reference, as appropriate.

Summaries 1 to 12 are thematic, while summary 13 addresses aspects common to all projects with regard to project design and implementation. Each summary includes the following sections: (i) introduction, (ii) key issues, (iii) lessons learned, and (iv) good practices. The contents of the last two sections should be read in conjunction as sometimes a lesson learned may also be interpreted as a best practice and vice versa.

The thematic summaries are:

- 1. Inventory, mapping, zoning and monitoring of the tropical forest resource**
- 2. Demonstration areas, model forests and permanent sample plots and for sustainable forest management**
- 3. Protected areas and biodiversity conservation**
- 4. Restoration, rehabilitation, reforestation and plantations**
- 5. Community forest management and enterprise**
- 6. Illegal logging and forest certification**
- 7. Criteria and Indicators for sustainable management of tropical forests**
- 8. Forest information systems**
- 9. Reduced impact logging**
- 10. Further processing, industry development and efficiency**
- 11. Non-timber forest products**
- 12. Markets, marketing and trade**
- 13. Project design and implementation**

THEMATIC SUMMARY REPORT No. 1

INVENTORY, MAPPING, ZONING AND MONITORING OF THE TROPICAL FOREST RESOURCE

1. INTRODUCTION

Elaboration of regional and national forest land management plans starts with an overview of all land uses and land use changes, of which forest is one important part. Zoning is made based on mapping of the designated areas to orient economic and conservation activities. Periodic forest resource assessment provides information for monitoring on the extent and characteristics of the forests on national and subnational levels that is necessary for policy design and planning of investments. There is also an increasing need to integrate forest resource information with complementary biophysical and socio-economic data for monitoring and planning purposes.

At the level of forest management unit (FMU), detailed mapping and periodic inventories are necessary for estimating the characteristics of the forest and its production potential of various goods and services. Forest inventory forms the basis of forest management planning, including zoning of the forest area for production, protection and multiple-use purposes. Inventory also provides baseline information for monitoring of changes in the extent and characteristics of the forest cover.

The development objectives of most projects in this area focus on the essential role of forest inventory and monitoring as necessary tools for effective conservation and sustainable management of national forest resources. The information on the resource is also related to data on production and trade in timber and non-timber forest products to monitor that the utilization of the forest resource is sustainable.

2. KEY ISSUES

- While technologies allow improved precision in assessing and monitoring forest resources, the needs for information have increased covering also environmental and social aspects. This is associated with forest management planning becoming more sophisticated, needs to monitor illicit activities in the forest areas, and necessity to have reliable information on the role of forests in climate change mitigation and adaptation, as well as on other environmental forest services.
- Engagement of a broad range of relevant stakeholders in policy development and forest monitoring also brings new challenges for the accuracy, coverage and timeliness of information on forest resources.
- Forest communities, landowners, forest industry and NGOs are major players in the forestry sector, and they are often identified as beneficiaries of the inventory and monitoring projects. However, they are not always meaningfully involved in the project design and implementation.
- The private sector needs information on national and sub-national forest inventories and resource assessments for planning their investments. In addition, enterprises are usually obliged to carry out inventories for forest management planning in areas which they are managing. However, the quality of their inventory work is not always adequate.
- Climate change has become a factor with major implications for SFM, especially issues related to REDD+. Resource assessments and inventories will increasingly have to include quantified information on the existing carbon stocks and their changes for regular monitoring.
- The same holds true with information on biodiversity, water, soil, and other natural resources. Several indicators on these environmental services can be included in forest resource assessments and inventories but others may require specific baseline studies and tailored monitoring approaches.
- Unauthorized activities, illegal logging and mining, and many other factors (often outside forest areas) impact sustainable forest management and may need to be addressed in the project design on resource assessment and monitoring.
- Markets for legal and sustainably produced timber require that the origin of products can be traced to the source where trees were harvested. This represents a new challenge for the accuracy of forest

monitoring systems.

- Lack of information or inconsistent and inaccurate data produced by different information systems is a major problem for policy design and monitoring of progress towards SFM. Inconsistencies are usually due to the lack of integration of various information systems in the country. A related issue is overlapping geographic boundaries of administrative units, tenure arrangements, and ecological zoning which calls for using Geographic Information Systems (GIS) but their establishment may need separate projects.
- Common other issues to address in resource inventory and assessment projects have included
 - insufficient national inter-agency coordination and cooperation in land-use zoning at appropriate institutional levels
 - lack of formal approval of land-use and zoning plans
 - need for tailoring forest inventory in logged over areas, secondary forests and trees outside forests
 - in pilot projects there is a need for provisions for necessary follow-up action to cover the whole country
 - inadequate quality of mapping and zoning has reduced the reliability of forest management planning
 - weak capacity in data elaboration and analysis
 - inadequate reporting on the status of the forest resources although data may exist
 - limited access to data by relevant stakeholders
 - absence of effective strategies for data dissemination and information sharing

3. LESSONS LEARNED

Project design

- If relevant stakeholders are not involved in the planning of resource assessment, the results are unlikely to meet their information requirements reducing project impacts and efficiency.
- Good planning of the inventory design and implementation in pilot areas can lead to a standardized methodology to be applied in the whole country.
- Adequate Logical Framework Matrix is critical for effective project design and implementation in inventory and monitoring projects.

Project implementation

- Previous projects might have already had enabled the country to develop a system for collecting, processing and reporting forest resource data, but had not addressed e.g. establishing baselines or setting up a monitoring system. In such cases, new projects should fill the gaps in the existing system.
- There is often a need to link forest inventory data with other biophysical data and socioeconomic information (e.g. for elaboration of national natural resources development strategies, environmental monitoring, or poverty reduction strategies). Many projects have failed or their effectiveness has remained limited due to the lack of integration with other relevant data.
- Climate change needs to be addressed as an integral component of SFM to ensure that the forest sector can have access to the benefits from associated financing schemes. Considering these links at the planning phase has improved project effectiveness and efficiency.
- In the absence of previous adequate information on the forest resource, the inventory results can lead to

revisions of forest policy and legislation. Such potential implications should be considered already in the project design. However, the experience shows that policy change based on the project outcome can only be possible if there is a political will to adopt necessary changes.

- Lack of adequate expertise and specialized human resources in the Executing Agency to implement forest inventory tasks has often hindered the delivery of key outputs.
- If adequate training is not included in the project, sustainability of the inventory and monitoring activity after the project is not ensured. Rotation of trained specialized staff should be carefully considered as it can adversely impact project effectiveness and sustainability.
- Institutionalization of national forest inventories and associated monitoring of forest resources has proved to be necessary for the sustainability of projects in this field.

4. GOOD PRACTICES

Project design

- Forest inventory, mapping and zoning are long-term endeavors to be carried out periodically and they require detailed planning, specialized human resources and adequate financing.
- A detailed schedule is needed for inventory design, data collection, programming of fieldwork activities, as well as data processing, analysis and reporting, allowing effective monitoring of the project implementation.
- Inventory should be stratified to elaborate results for different geographic levels and forest types. The use of satellite images is usually necessary for stratification.
- Including indicators on biodiversity, water and soil, carbon in forest inventories is necessary for planning and implementing of SFM but it requires additional expertise and resources.
- Shortage of professional staff and expertise in key areas can require the use of external specialists. Their tasks should include training of national staff to ensure sustainability of the project. Staff rotation should be minimized during the project implementation period.
- Over reliance on external inventory and assessment consultants can be detrimental for building up national capacities and follow-up action in the long run. Adequate provisions in the project design should therefore be made to develop national capacities. In this regard, close collaboration with universities which have the expertise would be beneficial in training of relevant staff.
- Participation of universities and research institutes can ensure further development of the forest inventory methods and combining the physical forest data with socioeconomic information.
- Strong involvement of the private sector organizations helps obtain information on user needs and disseminate the project results.
- Participation of other relevant stakeholders on national and local levels (i.e. the level on which the data is collected and information is produced) in the project design is useful as they would also be key beneficiaries.

Project implementation

- Institutional strengthening as an explicit element in resource assessment and forest inventory projects can ensure broad impacts. In addition to the Executing Agency, other relevant institutions responsible for mapping, land-use planning and zoning, and environmental management can be strengthened.
- Analysis of inventory results needs to be related to data on timber production and harvesting of NTFPs to assess sustainability of forest utilization.
- Inventory data on non-commercial lesser-used species allows promotion of their utilization and marketing.

- A network of permanent sample plots throughout the country can provide on-going monitoring data on the detailed characteristics of the state (baseline) and change of the forest resource. Permanent plots would also be crucial for continuous development of the inventory methodologies. Re-measurement is periodically needed and the results should be calculated and reported.
- A baseline report on the status of the forest resource should be produced incorporating the data gathered on socio-economic aspects, biodiversity, wildlife, and human impacts on forests, as appropriate.
- Annual budget allocations of the responsible Executing Agency ensure financing of the recurring costs of periodic forest resource assessments, re-measurement of the monitoring plots, as well as data analysis and reporting. Sustaining adequate budgetary resources may have to involve engagement of collaborating agencies and other users of data.
- An end-project workshop can validate the results and prepare for the next step. This is particularly needed in pilot projects to ensure their broader impact and formally incorporate inventory data in SFM planning processes contributing to project effectiveness and sustainability.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 109/90 Rev.4 (I)	ASSISTANCE TO MODERNIZATION, RESTRUCTURING AND DEVELOPMENT OF WOOD-BASED INDUSTRIES IN CÔTE D'IVOIRE
PD008/95 Rev.1 (F)	MULTIPLE RESOURCES STRATIFICATION, MAPPING AND INVENTORY FOR THE FIRST FOREST ZONE IN GABON - PHASE I
PD063/97 Rev.3 (F)	SPECIALIZATION PROGRAM FOR FOREST TECHNICIANS ON SUSTAINABLE TROPICAL FOREST MANAGEMENT IN BOLIVIA
PD049/99 Rev.2 (F)	PILOT PLAN FOR THE SUSTAINABLE MANAGEMENT OF 10,000 HECTARES OF SECONDARY FOREST IN SAN LORENZO, ESMERALDAS
PD014/00 Rev.5 (F)	INTEGRATED PLAN FOR THE CONSOLIDATION OF THE BAGRE HIGHLANDS BIOLOGICAL CORRIDOR, PROVINCE OF DARIEN
PD023/00 Rev.4 (F)	PROMOTION AND TRANSFER OF KNOWLEDGE ON SUSTAINABLE FOREST MANAGEMENT MODELS TO TIMBER PRODUCERS
PD 85/01 Rev.2 (I)	STRATEGIES FOR THE DEVELOPMENT OF SUSTAINABLE WOOD-BASED INDUSTRIES IN INDONESIA
PD002/93 Rev.1 (F)	INTEGRATED PILOT MANAGEMENT OF THE NGUOA II FOREST NORTH - PHASE I: THE PREPARATION OF A MANAGEMENT PLAN
PD195/03 Rev.2 (F)	TO ESTABLISH A NATIONAL MONITORING INFORMATION SYSTEM FOR THE EFFECTIVE CONSERVATION AND SUSTAINABLE MANAGEMENT OF THAILAND'S FOREST RESOURCES

THEMATIC SUMMARY REPORT No. 2

DEMONSTRATION AREAS, MODEL FORESTS AND PERMANENT SAMPLE PLOTS FOR SUSTAINABLE FOREST MANAGEMENT

1. INTRODUCTION

Demonstration areas and model forests are developed to help achieve sustainable forest management (SFM) by providing location specific information and experience that can be shared among stakeholders through lessons learned. Permanent Sample Plots (PSP) often form part of the demonstration areas and model forests but they can also be established independently.

The concept of demonstration areas in tropical production forests stems from the early 1990s as a tool to develop, share and disseminate good experiences in practical forest management. The idea was that producing member countries would select one or more among the best managed forest areas for timber production to further step up the quality of forest management and to demonstrate the feasibility of SFM in practice. Some of these experiences have been evaluated and compiled in success stories providing a source of ideas for other forest management units (FMU) in the country and elsewhere.

A model forest is a related approach with largely similar objectives. In this case sustainable management is implemented at a designated management area (often predominantly logged over forest) in which a number of concessionaires are, or have been, operating. Some model forests are established for research; monitoring and training purposes rather than serving as demonstration areas. Some projects have been primarily implemented as demonstration areas of integrated land use approach, focusing on conservation and sustainable use of tropical forests for various purposes at various scales and in different site types.

Both demonstration areas and model forests are applicable in forest concessions and community forests in natural and planted forests but they can also include formally protected areas.

Permanent sample plots are established to study forest ecosystems with respect to tree growth and canopy structure, forest health and vitality, non-timber forest resources, biodiversity, soil and water conditions, and forest utilization. Both demonstration areas and model forests can include PSPs for monitoring and research. PSPs are usually also a necessary element in national and FMU level forest inventories.

2. KEY ISSUES

- The formulation of demonstration and model forest projects has often suffered from an inadequately structured logical framework for proper integration of activities and clarification of responsibilities of the parties involved.
- It is not always understood that the establishment of designated areas for demonstration and model forests through a project is only the first step. Adequate project exit strategies, including the parties' commitment to maintain these areas in the medium and long term, have not always been duly considered in the project design stage jeopardizing the sustainability of project achievements.
- A model logging concession can serve as an area for training, research and demonstration increasing its strategic value but this can easily make the project highly complex to implement. Demonstration and dissemination have not always been successful in spite of being part of the original project strategy.
- The accountability of concession holders plays a significant role to reach demonstration goals but it has proved to be difficult to ensure in some projects.
- Lack of provisions for statistical and physical coordination between the various inventory and plot monitoring systems is an issue for many projects of this nature.
- Poor accessibility of demonstration areas and PSPs has proved to be a critical constraint. Ensuring access to sites in the long run is necessary to benefit through learning from the changes in the forest.
- In some cases, re-measurement data from PSPs has not been compiled, analyzed and reported

seriously questioning the justification of investment in re-measurements.

- The mensuration and taxonomic weaknesses of some databases have cast doubts on the credibility of yield projections which are needed to establish future sustainable harvesting levels.
- Ambiguity and inconsistency of the interchanging use of the key terms such as “forest sustainability”, “forest condition” and “forest health” can undermine the project’s strategic value. The objective of data collection, reporting and assessment becomes therefore easily diffused. Different interpretations of key terms and assessment indicators tend to limit possibilities to draw general conclusions based on the measurement results.
- The ultimate positive impact on forest management practices in demonstration areas and model forests remains limited in situations where law enforcement is weak or lacking and the forest sector continues to be dominated by a few powerful timber holdings aiming at short-term profitability rather than long-term sustainability.
- Weak competence of government agencies and confusion about forest use rights can undermine any efforts to improve forest management through demonstration areas and model forest projects.

3. LESSONS LEARNED

Project design

- Four prerequisites need to be fulfilled to achieve the objectives of successful demonstration areas. (i) The forest manager, often a concessionaire, should be committed to further improve forest management. (ii) The forest manager should allow and ensure documentation and analysis of the management measures and their impact. (iii) The interested parties should be allowed to visit the forest management unit and to access information. (iv) A dissemination and extension plan should be developed and implemented.
- Participation by the major stakeholders in demonstration projects needs to be provided starting with the design stage, then speeded up over the project cycle. Some of the timber companies may lack a sense of commitment, responsibility or urgency, while others such as the local forest communities may participate willingly and constructively if awareness of benefits can be created and adequate incentives provided.
- Demonstration projects can increase awareness among the forest authority and the private sector on (a) how to implement SFM in practice, (b) the implications of environmental damage for the concessions, and (c) the need to cooperate with each other. Concession holders and contractors can be made aware of the fact that changes are not only necessary but also beneficiary for them as well.
- The most noticeable effects of the introduction of SFM procedures in the demonstration and model forest areas may include (i) improved water quality in downstream areas, (ii) reduction of timber waste and damage to soil and residual forest growing stock, and (iii) improvements in road and other infrastructure design and construction (e.g., banks in skid trails to prevent run off and lowering of maximum road gradients).
- Reduced impact logging (RIL) experiments in model forests and demonstration areas, using ground equipment, can effectively confirm that harvesting under SFM is technically and economically feasible. Results can demonstrate that residual stands after the second cutting cycle are promising for the third cutting cycle while there has been no convincing evidence which would indicate loss of biodiversity from species to genes.

Project implementation

- Project management and funding agencies should be aware that it takes a long time to reach the stage of a fully operational demonstration area even in sites which may at the first sight look to have a good potential for demonstrating sustainable forest management, including timber production. Planning for

additional phases needs to be considered in the initial project design by including respective activities.

- The more complex a project design, the higher the risk that management cannot cope with it. For example, while certain project sites are confined to one concession area, including the surrounding areas of its influence, others may include many concessions, even straddling the boundaries. This implies an unnecessary large number of actors in the project which tends to dissipate the attention of project management and commitment by actors.
- When the project is large and very ambitious, it easily becomes unnecessarily complex. Such a situation should be avoided. Complexity may also be inherent to an area which has been chosen to implement the project (e.g. due to forest characteristics, illegal logging in the area, or other external impacts on the forest resource). To some extent, complexity can be addressed through a strong project management structure and capacity as well as firm partner commitments.
- When log supply and harvesting volumes are still ruled by diameter limits, harvesting volumes are not based on accurate growth data related to the basal area. Permanent sample plots are needed to provide the basis for establishing sustainable harvesting levels.
- Continuous periodic monitoring of sample plots is necessary for generating information that can be effectively used for achieving sustainable forest management.
- Technical measuring difficulties and logistic obstacles to access plot locations can significantly add to project costs and should be duly considered in the project design phase. Close integration of monitoring activities and simultaneous execution of plot measurements can improve the project's cost efficiency.
- The project must show credible evidence that a growth and yield monitoring system is in place to ensure the dissemination of credible results.
- Sustainability of research forests can be difficult to achieve, hence their role to serve as a demonstration area for sustainable timber production can be limited, especially where accessibility is a major constraint.

4. GOOD PRACTICES

Project design

- Good design of demonstration and model forest projects avoids unnecessary complexity, and is based on firm commitments of parties, with clear exit strategies.
- Good documentation of the project development process helps assessment of the proposal, in particular with respect to involvement of stakeholders and the degree to which ownership of activities and outputs is perceived.
- Careful project design secures integration and spatial linkage of measurements and related activities among all national demonstration projects.
- Full commitment and proactive participation from those actors who should play indispensable roles during the later stages of the project or even after project completion needs to be ensured during the formulation phase and maintained during the implementation phase.

Project implementation

- Technical soundness, a critical factor for the credibility of project outputs, relies on the clarity of terms used, as well as scientific methods in sampling, measurements and data analysis.
- Assessment indicators can be linked with the ITTO Criteria and Indicators for SFM and relevant ITTO Guidelines.
- In PSPs for studying forest dynamics, measurements should go beyond tree height and diameter. The added value of permanent plots is in the study of the spatial and temporal changes in the structure of

the forest as well as species behavior during and after management interventions or disturbances. Monitoring can include phenology, mortality, distribution of tree crowns, volume, stem diameter and age. Permanent plots are also useful for monitoring of changes in biodiversity and soil and water conditions.

- Data collection should continue in the same plots over a time series, and research is needed to refine the methodologies. In PSPs, marking of trees for permanent identification and regular updating of measurements are essential good practices.
- After re-measurement, data analysis and reporting should be ensured.
- The databases constructed should allow modeling the behavior of the forests in different scenarios of forestry and environmental parameters. Analysis and reporting are needed to draw the first lessons on the behavior of natural forests and to guide the next measurements in study plots.
- With proper management, a research forest can serve as a protected area and some plots can be developed as demonstration areas even if they lack the context of a larger forest management unit.
- Maintenance of demonstration plots in private concessions requires clear and firm commitment and sense of responsibility among company shareholders, management and staff, as well as other partners.
- Effective support to local communities in model forests aims at developing practical approaches to improve technology and livelihoods based on forest activities. In such projects due consideration of socio-economic aspects can ensure the applicability of results in local and other similar conditions.
- Careful site selection is crucial for efficient and effective model forest project implementation. Representativeness and accessibility are key criteria for site selection.
- Even parts of the community forests and forests gazetted as Permanent Forest Estate can successfully be developed for demonstration, especially when they are fairly easy to reach.
- Variation in topography and forest characteristics offers excellent opportunities to demonstrate site-adapted silvicultural and logging techniques.
- Cooperation with local communities is essential and the choice of other project partners is crucial for successful development of practical approaches through model forests and demonstration areas.

SOURCES

This thematic summary is based on the ex-post evaluation report of the following project and other relevant documents:

PD053/00 Rev.3 (F)	IMPLEMENTATION OF A PERMANENT NETWORK OF STANDS DYNAMICS MONITORING PLOTS FOR THE GAZETTED FORESTS OF CÔTE D'IVOIRE
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THEMATIC SUMMARY REPORT No. 3

PROTECTED AREAS AND BIODIVERSITY CONSERVATION

1. INTRODUCTION

Protection, conservation and enhancement of forest biodiversity are national and international priorities to ensure the stability and resilience of ecosystems. ITTO's mandate is to foster international cooperation in the achievement of sustainable forest management (SFM), including the maintenance and enhancement of forest biodiversity. ITTO has consistently sought to promote biodiversity conservation both in forests managed for timber production and in protected areas. The Organization has promoted zoning of forests to enhance both production and protection functions. Field level projects have been important in capacity building and designing national policies in biodiversity conservation.

In addition to national level efforts, ITTO's trans-boundary initiatives have been valuable both in improving the status of conservation on the ground and in translating the political commitments of participating governments into practical operational collaboration. These projects have been especially useful in contributing to capacity building through sharing of experience amongst all levels of forest management and conservation organizations from the field to the line ministries. Assumptions that underpin the related forest policy debate have also been tested in practice. The high political profile of trans-boundary conservation projects has ensured that the lessons learned have fed into the policy development and educational programmes.

Trans-boundary initiatives have special significance as many of the world's most important remaining tropical forests are found in remote frontier areas. Conserving and sustainably managing these forests is one of the major global environmental challenges. In addition to government executed projects, ITTO also collaborates with communities and NGOs in trans-boundary projects which have laid down the groundwork for establishing a community-based conservation and development programs that can maintain the long term integrity of national parks and develop effective models for managing trans-boundary protected areas.

The ITTO/IUCN guidelines for the conservation and sustainable use of biodiversity in tropical timber production forests is a useful source of information for the design and implementation of projects related to protected areas and conservation of biodiversity.

Ensuring forest health and vitality in ecosystems is a global conservation priority. Effective strategies are based on an appropriate balance of strictly protected areas and effective biodiversity conservation in other forests but it is difficult to define in practice. ITTO-funded projects are crafted within the framework of sustainable forest management. Typical examples include: (1) field projects in areas where local population is the determining factor for forest biodiversity conservation (buffer zone or inside the protected area); (2) main development alternatives for local population include forest management, restoration/reforestation, harvesting of forest products and their processing, etc. (3) exceptional value of the forest biodiversity is highly endangered, especially when forest genetic resources are valued for the future.

2. KEY ISSUES

- Deforestation and loss of biodiversity take place in situations where there is lack of awareness of the importance of different forest types for biodiversity conservation and sustainable livelihoods among local populations. Market failures drive unsustainable utilization of forest resources, and other factors include weak governance and insufficient scientific information on ecology, silviculture, harvesting and utilization of tropical forests.
- Protected areas often lack management plans or their implementation is ineffective – many protected areas are only “paper parks”. Therefore, projects need to ensure the sustainability of forest ecosystems through the implementation of a management plan for conservation and sustainable use, as appropriate. Planning should be based on adequate studies and research on forest values, including on the resource potential and the needs of local populations. Strengthening of institutional capacities is often also needed.

- The trans-boundary aspects of flora and fauna of the forest reserves are particularly important for the conservation of migratory species. There is also a need to contribute to security in protected areas and building up trust between the collaborating nations. These measures would be necessary also for tapping new revenue for conservation from the tourism potential in the participating countries.
- Communities living adjacent to protected areas need to participate in decision making as usually stipulated in the legislation. However, often communities cannot do so due to lack of awareness, skills, and weak internal organization. In fact, it is often difficult to structure operational relationships between communities and other stakeholders in and around protected areas. Socio-economic studies are only a first step in building up effective partnerships which is a delicate time-consuming process that can easily get bogged down.
- In many national parks, illegal bush meat poaching may continue in spite of enhanced control measures often with external support. Control cannot be effective if culprits are not prosecuted and condemned in the courts. Poaching is an additional security risk for park guards as well. Even if the law may allow subsistence hunting for the inhabitants of the area, control of hunting tends to remain largely ineffective.
- In some conservation areas, many externally funded environmental and social projects are operating without effective coordination which limits their impacts. Cooperation and coordination would be particularly needed for financing of critical activities for social development as resources of individual projects are often insufficient. Development of alternative sustainable economic activities has proved to be difficult and remains a key constraint for engaging local people in conservation.
- Also in trans-boundary projects national authorities' participation may lack operational coordination, although partner governments officially support the project. While some forestry authorities can provide financial support during execution and may express willingness to assume larger responsibilities in the future, others may remain uncommitted. Very few public agencies in participating countries make necessary commitments to implement activities and bear their costs to maintain effective community participation in biodiversity conservation in the buffer zones after the project has been terminated.
- Project proposals may be attractively designed on paper but in practice, they may turn out to be too ambitious considering fund availability, planned time period, working conditions and capacity to control external factors. Project plans may also fail to foresee adequate activities to achieve the identified specific objectives. The design too often requires NGOs as Executing Agencies to carry out actions that are beyond their legal and professional competence such as establishing a protected area system on government or private lands.
- Although the idea behind some projects could be valid given the problem analysis that led to its formulation, there is always a need for participation of beneficiaries and other stakeholders through adequate consultation in the project formulation process. The project rationale is usually based on filling existing gaps in the knowledge on the resources in order to elaborate management plans for the areas under consideration. Success on the long term requires effective implementation arrangements of the plans prepared but such arrangements are not always considered in the project design phase.

3. LESSONS LEARNED

Project design

- Achievement of biodiversity conservation objectives with indigenous people's participation can be more effective than through establishment of strictly protected areas. This, however, greatly depends upon (1) tangible results of sustainable management alternatives generated by the project; (2) population growth and ethnic diversity in the target areas; and (3) fulfillment of the government's responsibilities regarding infrastructure and social services.
- Communication, awareness raising and training are fundamental prerequisites for change in local customs but it takes time to have a true impact due to traditional resistance if the targeted change in behavior is not by obligation.

- Participative community management depends on the socio-cultural environment; the well-being of local people is a precondition for success in conservation and engagement in productive activities. Most conservation projects come with a restrictive initial agenda for communities but their members are seldom entrepreneurial or interested in a change of life style. Externally imposed management of sacred sites and trees is also difficult to accept by communities.
- Understanding ethnic diversity, local traditions and cultural and spiritual values in the protected area is necessary as conservation measures are built on them.
- Development of alternative sustained livelihoods activities within the framework of a forest conservation projects requires a broad range of skills which should be provided through the project team.
- Income generation needs to be addressed as a community or family business enterprise and not only as a forest conservation project activity. Strategic partnerships can be elaborated to devolve local community development activities to NGOs and other actors such as rural banking institutions or extension organizations to ensure continuous support to alternative livelihoods.
- Alternative economic activities can provide tangible impacts, particularly during the transition period toward effective conservation management. There is no blueprint for their development which is a stepwise process through trial and error for which communities need patience. Successful development of activities should also consider differences in gender priorities and participation.
- Adequate resources may have to be invested in community development, even if it may not be the main target of conservation. The results of past projects have shown that it has often been a key element for the success.
- Improvement of local livelihoods usually requires investments in infrastructure and economic activities which can bring along increased risk for the clearance of forest land and illegal activities.
- To address poaching in protected areas, zoning for hunting areas within the conservation areas is helpful for improving control. Rotation can be applied when allocating hunting rights to have sufficient areas for fauna recovery. Special measures are often needed for management of large wildlife in order to avoid animals getting accustomed to feeding on crops. Village committees can be useful for monitoring their threats.
- Buffer zones, with a mosaic of multiple use areas around protected areas can provide sustained protection while helping build up economic resources. However, expectations within a limited time period should be realistic, particularly with regard to changes in community behavior.
- Generating credible information is necessary for raising awareness among the decision-makers on the importance of different types of forests and their biodiversity for the preservation of the environment and the national economy.

Project implementation

- If a biodiversity conservation project is implemented strictly according to its original operational plans within a relatively short period, it may produce visible short-term outputs but there is a risk of compromising long-term impacts.
- An adequate time period is needed for participatory processes to root down and for developing adequate approaches and ownership by the beneficiaries and partners. For this reason a minimum of three-year project duration should be planned.
- By their nature project impacts tend to always evolve slowly and therefore interventions should remain active for several years even after project termination. A follow-up mechanism can ensure that actions can continue.
- In trans-boundary conservation projects there is a risk of accumulated complexities due to the fact that more than one country is involved which calls for early devising of adequate mitigation measures.

- It is very important for project teams to be based in the project area in order to be able to make frequent contacts with communities and other local partners. This would ensure relevance, efficiency and effectiveness of the project activities.
- If the project was initially planned to be implemented by a government agency, but no progress could be seen, project implementation could be improved through subcontracting to a competent NGO while recognizing their limitations to influence policy and change institutions.
- Partnerships have proved to be an excellent concept to build up collaboration among participating actors. However, operational partnerships with communities take time to establish and need a phased process for capacity building.
- Delays during the implementation can occur due to changes in national policy, regulations and institutional framework, which calls for adaptive project management.

4. GOOD PRACTICES

Project design

- Conservation projects need to be designed through a careful consideration of the best available practices. These include: (1) empowerment of local communities' leadership, through organizational assistance, carefully promoting democratic approaches; (2) frequent but precise up to date communication on the project's objectives and implementation; (3) respect for local traditions, especially indigenous people's customary rights and own rules; the latter can incorporate biodiversity conservation elements; (4) facilitating contact between indigenous leadership with national or regional government authorities; (5) recognition that some classical approaches to conserve biodiversity, such as establishment of strictly protected areas, may not be feasible; (6) redefinition of limits of existing protected areas when these include populated areas without biological diversity value; (7) land titling for indigenous people as a pre-condition to set aside protected areas; and (8) selection and training of indigenous or local people as promoters of conservation goals and project results.
- Conservation projects can succeed when they are inclusive and the appropriate target groups are involved and benefit from the outputs. Well selected target groups (e.g. indigenous peoples, forest communities) are the determining factor for successful biodiversity conservation projects. However, all the relevant stakeholders should be consulted, including local and regional authorities, settlers and other forest dwellers, community-based organizations, forest enterprises, contractors, civil society organizations, etc.
- Cooperation and partnerships with communities, forestry companies, protected area agencies, forestry departments, international conservation organizations and local NGOs can be effective if based on commitments of all groups. Establishment of mutual trust and understanding is a pre-condition for project success.
- Project plans could make provisions for action to encourage local authorities, enterprises and communities to include biodiversity conservation activities in their forest management plans. Voluntary groups active in this field can play a significant role in raising awareness on conservation if they can receive professional advisory support, which the Executing Agencies could arrange.

Communities in conservation areas

- Effective conservation and sustainable management of forests requires that communities who live in and around the forests can benefit from the project outcomes. Community stewardship is often a useful strategy in management of conservation areas.
- Involvement of conservation NGOs and other civil society organizations in biodiversity conservation field projects can be highly valuable as they bring new skills and perspectives, and often funds. They can also help ensure that adequate attention is given to local peoples' concerns.

- Measures are often needed to avoid unrealistic expectations on the benefits that relatively small-scale projects can bring rapidly for community livelihoods in remote forest regions and conservation areas.
- The Community Organizer approach has proved to be useful in training of rural promoters recruited among local farmers in integrated national park management and in economic activities. Refinancing of promoters' work could be achieved for example by licensed collection of saleable goods, hence motivating them to regularly visit their clients and pass information and offer training to them.

Zoning

- Park zoning needs an evaluation of biodiversity assets, assessment of traditional land use and clarification of use rights. Re-classification of forestland into a national park allows functional zoning, including limited use areas within the park borders. A good planning process is consultative and its outcome is negotiated with local authorities.
- Declaration of a national park can mobilize national and international funds for its management.
- Earmarking of buffer zones around sensitive areas is an important component of the protected area management plans. Buffer zone management can be successful if plans have been developed with the participation of local institutional, non-governmental and rural stakeholders. For development activities in the buffer zone, collateral financing from non-project sources could be raised to generate income and employment, as well as to supply timber and non-timber forest products for local use and markets.

Trans-boundary conservation areas

- In trans-boundary conservation projects a joint coordinating committee at a sufficiently high-level can ensure that national-level commitments for co-operative action are implemented in practice. These projects may need to develop specific multi-national financing mechanisms for sustaining post-project activities for effective conservation.
- Trans-boundary projects can be successfully crafted within regional initiatives, such as the Congo Basin Forest Partnership, the Heart of Borneo Initiative, the Amazon Cooperation Treaty and others, to promote biodiversity conservation in production forests. However, overly complex implementation arrangements should be avoided.
- While the engagement of local people is important in all field projects, it is especially necessary in trans-boundary projects as they occur in remote forest areas which are often the home of marginalized groups, ethnic minorities and populations that are amongst the world's poorest and most forest dependent.

Research

- Databases, research and studies developed by the project can be designed taking into account the needs for the design of conservation strategies and forest policies.
- Engagement of research and educational institutes is particularly useful for designing and implementing scientific components of the projects, and for validation and dissemination of results and lessons learned.

Project implementation and sustainability

- Low levels of support over long periods are often more effective than heavy financial support delivered over short time-frames. The entire cycle of project preparation, negotiation, implementation and evaluation contributes to the progress in biodiversity conservation and sustainable development in project areas.
- Many existing management plans of protected areas need revision by adopting an action oriented approach, including effective cooperation arrangements with local stakeholders (institutional and rural) for co-management, and for ensuring economic and social development.
- Project offices located in the vicinity of remote conservation sites ensures the ease of work and effective supervision, but enough computer facilities are needed to save staff time for field activities.

- Regular monitoring and reporting help smooth implementation of biodiversity projects.
- Adequate funds need to be raised to continue data collection and to monitor changes in the conservation forests after the project completion. Seeking additional financing from donor agencies is often necessary.
- National public works departments can be engaged to maintain the main infrastructure (road/bridges) in the project area for the benefit of adjacent communities.
- Transparency and effective communication among project partners is a key for smooth joint implementation and reducing unnecessary frictions. Clarity on roles and responsibilities is fundamental for successful partnerships in conservation areas. Clear rules for accountability for each partner are usually necessary.
- Conflict resolution committees can be useful in solving possible conflicts. A possibility to organize extraordinary meetings is needed to address emerging problems.
- An NGO member can be a useful partner for witnessing and providing international perspective as well as specialist technical knowledge.
- Biodiversity conservation projects need feasible exit strategies to ensure that project activities can be sustained. Mobilizing funding from new sources and enhancing cooperation with local and international NGOs can be potential elements of such strategies.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD128/91 Rev.2 (F)	MANAGEMENT, CONSERVATION, AND DEVELOPMENT OF MANGROVE FORESTS IN PANAMA
PD026/92 Rev.2 (F,I)	DEVELOPMENT OF METHODS AND STRATEGIES FOR SUSTAINED MANAGEMENT OF MOIST TROPICAL FORESTS IN CAMEROON
PD026/93 Rev.1 (F)	DEVELOPMENT OF BENTUANG KARIMUN NATURE RESERVE AS A NATIONAL PARK - PHASE I
PD014/00 Rev.5 (F)	INTEGRATED PLAN FOR THE CONSOLIDATION OF THE BAGRE HIGHLANDS BIOLOGICAL CORRIDOR, PROVINCE OF DARIEN
PD017/00 Rev.3 (F)	CONSERVATION AND DEVELOPMENT IN THE NATURAL PROTECTED AREAS SYSTEM OF TAMBOPATA (PERU) - MADIDI (BOLIVIA)
PD289/04 Rev.1 (F)	MANAGEMENT OF THE EMERALD TRIANGLE PROTECTED FORESTS COMPLEX TO PROMOTE COOPERATION FOR TRANSBOUNDARY BIODIVERSITY CONSERVATION BETWEEN THAILAND, CAMBODIA AND LAOS (PHASE II)

THEMATIC SUMMARY REPORT No. 4

RESTORATION, REHABILITATION, REFORESTATION, AND PLANTATIONS

1. INTRODUCTION

Restoration, rehabilitation, reforestation and general forest plantations projects are undertaken for a variety of environmental, economic and social objectives. The most common activities are those related to rehabilitation of degraded lands and establishing productive plantations as well as to supply other forest goods and services such as protective and amenity services.

Associated research projects, often with experimental nature, are essential to improve knowledge on technical and economic aspects and ensure establishment of enabling conditions for successful tree plantation programmes (especially for high-value and indigenous species). Such projects can also help establish and train national entities responsible for field activities and monitoring.

All ITTO-funded projects in this domain are intended to contribute to the realization of the ITTO Objective 2000 and the sustainable management of forest resources, taking into account relevant ITTO guidelines. The projects must comply with the International Tropical Timber Agreement, particularly with Objective 1 (j) *“To encourage members to support and develop industrial tropical timber reforestation and forest management activities as well as rehabilitation of degraded forest land, with due regard for the interests of local communities dependent on forest resources.”*

The ITTO Guidelines for the Establishment and Sustainable Management of Planted Tropical Forests provide useful principles and recommended actions to help project formulators and implementers. Another important source of information is the ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Forests which specifically address the challenges of restoration of fragile and impoverished land and degraded forests.

2. KEY ISSUES

- Halting forest degradation which can lead to total loss of forest productivity with serious social, ecological and economic consequences both locally and nationally.
- Replacing unsustainable forest use with sustainable management and utilization of forest resources with long-term social, economic and environmental benefits for local communities and the nation at large. For example, overgrazing leads to land degradation and the clearing of forests for pasture often acts as an incentive for irrational timber exploitation resulting in deforestation. This degradation process usually leaves behind a social legacy of poverty and loss of community rights due to increasing pressure on land.
- Diversification of the tropical timber supply by plantations due to dwindling production from natural forests which is a major concern in most producing countries.
- There is often little clarity about the long-term objectives of programmes and projects beyond planting any kind of trees. Therefore, the choice of species may be inappropriate, reforested areas may not be maintained, and when harvesting of mature trees starts, there may be no markets for products.
- Local participation in the implementation of tree planting projects is often neglected or minimal resulting in conflicts in the rights of the land to be planted and the use of forests. Projects may not meet the expectations of the forest dwellers and adjacent populations and they may not benefit from the activities realized.
- Reforestation projects may be promoted with local participation but without due consideration of the need to ensure the flow of economic benefits for the people who easily lose their interest in maintaining reforested areas if there are no tangible incentives.
- Illegal logging may continue in the area in spite of on-going efforts to restore natural forests and to establish new planted forests. Illicit activities may continue to be practiced because they generate

employment and income for some community members while undermining the economic feasibility of restoration and reforestation efforts.

- Engaging local communities, farmers, the private sector, NGOs and other stakeholders in forest restoration and plantation development and maintenance is often limited in government-led programs.
- Inappropriate choice of suitable species, provenances and sites for reforestation is often due to lack of adequate information.
- Activities and results of projects are frequently inadequately recorded and therefore valuable experiences cannot be disseminated.
- In some afforestation projects the economic feasibility of plantations may be demonstrated, but promotion with the private sector, the main source of expected future financing, is lacking.
- Lack of economic information often makes it difficult to assess and promote restoration and planting activities.
- Projects have rarely pragmatic exit strategies beyond the project completion date and due to termination of external support activities they may collapse.

3. LESSONS LEARNED

Project design

- The objectives of reforestation projects are often too ambitious, their duration is too short, and involving local communities based on a participatory approach suffers from a lack of experience. Proposed outputs are in many cases excessive in relation to proposed inputs. Multiple objectives and projecting unattainable results should be avoided;
- There is a tendency to make over-optimistic assessment of risks which can have negative effects particularly on projects divided into successive phases. Project planners need to carefully assess what is achievable.
- The concept of community development is a fundamental element of restoration and reforestation projects in all the tropical regions even in cases where the population density is low.
- Integration of agroforestry activities can be a decisive element for the generation of benefits to farmers particularly, during the first years of the project.
- Failure to achieve some objectives can be due to inappropriate, even erroneous identification and involvement of partners and beneficiaries.
- In addition to community groups, small-scale nursery operators and private tree farmers can be a very important component of the project strategy.
- Projects implemented close to communities that do not benefit directly from project activities may suffer from unforeseen risks due to pressure from other land uses.
- If prevalent, illegal logging needs to be addressed to ensure economic sustainability of forest restoration and plantation projects.
- Project results tend to mostly depend on the ability to capture the interest of partners and ensure their proactive cooperation. This is in turn dependent on their participation during project formulation.
- When population density increases, tenure in planted forests becomes a real issue and needs to be specifically addressed. However, this may fall outside the project scope and contingency plans to address this risk need to be considered from the outset.

Project implementation

- Geographically extensive projects can be faced with diverse demands by a large number of stakeholders. Lack of active commitment on the part of some of them may become a major pitfall, leading to delays in the implementation of activities, a rapid turnover of unmotivated teams and delays in dissemination and reporting. In regional projects of this kind, all the interests need to be incorporated in a balanced way.
- If a project was initially planned to be implemented by a government agency, but no progress could be seen, implementation may be assigned through subcontracting to a competent NGO with track record on successful field-level activities.
- The success of a project depends on the high level of commitment and professional skills of the project teams and the participating government forest administration staff. Necessary skills include both technical and social aspects.
- Training on the ground is usually highly needed. It should be mainly practical and training materials broadly available. Study trips abroad, particularly to neighboring countries, can be valuable eye openers.
- Project coordinator may spend a lot of her/his time managing the overall communication, logistical, financial and administrative aspects of the project at the expense of its qualitative monitoring.
- Monitoring and evaluation of project implementation, through self-evaluation workshops and stakeholder meetings, contribute to smooth project execution.
- Several projects have not created any dissemination mechanisms which limit project impacts. The dissemination and exchange of experiences and results is a necessary activity in all restoration and reforestation projects. However, the effectiveness of dissemination is jeopardized if the results were not published or communicated to stakeholders.
- Delays during the implementation could happen due to political changes in the country and other factors such as security concerns and tenure issues.
- Some forest restoration projects are implemented assuming a second phase would follow immediately. Consequently, some intended activities may not be implemented. The project plan should have provisions for a situation in which the subsequent phase of support is delayed or may not come forward.
- Mixed co-management between the local NGO's in charge of organization and dissemination and the government forest agency for technical assistance has been an excellent arrangement in many cases but the experience shows that it requires clarification of partner roles and commitment to meeting deadlines.
- Training of community level trainers can be another success element in the project strategy. Training at the basic level is the key. Collaboration between government agencies and NGOs in organizing training improves impacts and efficiency.
- Because subsequent funding is sometimes not obtained, actions initiated by some projects may have to be halted half-way through, to the disappointment of rural beneficiaries who were the most adversely affected by forest degradation. This can lead to loss of credibility and lack of continuing motivation among all the actors involved.
- Delaying the distribution of the planted forest management plan among stakeholders restricts its use and impact.

Participation and partnerships

- A forest planting project is often a good way to start a process of local participation, to make community members aware of the sustainable forest management concepts and the importance of restoration and reforestation. Specific action is needed thereafter to convert this awareness into action.

- Sustainable timber production can be viable and realistic for local stakeholders only after necessary steps have been taken for community development involving services, education, health care and other developments.
- It has proved to be an extremely difficult task to find suitable livelihood alternatives in degraded areas and make them adopted by people within a short project period.
- A successful planning process at community level can include (i) a well-conducted consultation process, (ii) technical and economic viability of different production options; (iii) preparation of the forest management plan and its swift approval by the authorities, and (iv) building up of stakeholders' commitment to implement the plan.
- Before starting on project activities, a preparatory stage may be needed for observation and evaluation of the on-going practices and initiatives by the population which can be suitable for adaptation and integration, rather than bringing something entirely new from outside which may not work in practice.
- Identification of beneficiaries and partners is essential and preliminary workshops and meetings are useful for this purpose. However, geographical characteristics, language barrier and communication difficulties have often led to partial understanding of the problems and possible solutions thereby reducing full achievements of the targeted results. Building up an effective participatory process may often require more time than the duration of the project
- The high cost/benefit efficiency of restoration and plantation projects is essential for success for local community participation. The economic and social impacts of tree planting projects are usually positive but need to be practically demonstrated to local people.
- Decentralization and democratization can both pave the way for people's own initiative in sustainable development including forest restoration and plantation development.
- Population has often difficulties to see the benefit link between degradation and reforestation. This is particularly the case when unsustainable wood harvesting continues for basic livelihood while replanting is being promoted. People should consider replanting more an economic than environmental activity to get truly motivated.
- Distributing seedlings free may lead to negligence in the handling and planting. However, sometimes local people are so poor that even a token price for seedlings could not be afforded.
- Local communities should understand the need to set up a local committee for forest protection and reforestation; this often greatly contributes to ensuring effective community participation in the achievement of the project outputs;
- Women's participation is particularly important in nursery operations, fuelwood collection, NTFP-related activities and project management. Their leadership can often ensure that projects become socially acceptable and local stakeholders broadly engaged in implementation.
- The social capital through solid community organization and good relations between the forest authority and local populations as well as demonstrated results in the field are likely to lead to project sustainability. This may be sufficient but formal monitoring and agreements on follow-up actions are often necessary.

Restoration

- In certain situations restoration of degraded forests may not be justified due to their limited economic outcomes although it may be desired by community members. In such cases it is better to concentrate on plantations which can yield economic returns from wood and NTFPs.
- Local populations can significantly contribute to restoration of degraded areas by enhancing low-cost natural regeneration through protection against fire, uncontrolled grazing and illegal logging, but they need to be provided with incentives to make this happen. Good basic organization of the community has

been the main factor for success for the involvement of local people in restoration and plantation activities.

- Mobilization of adequate funds, technical assistance and human resources is usually needed for continuation of restoration and reforestation activities. This is a critical element of exit strategies for time-bound projects. One source of financing can be revenue from seedling sales of a community-operated nursery but the problem can be that people often are too poor to pay even a low price for seedlings. In such cases other funding would be needed.

Plantations

- In plantation projects for production purposes, it is often questionable to choose species to be planted in the absence of adequate future demand-supply studies. On the other hand, the available information is always imperfect and the right decision becomes known only with hindsight.
- Tree planting can be efficient and proceed according to the schedule but tending is often totally missing. If economic incentives for tending cannot be provided, at a minimum, the government agency needs to provide technical advice.
- Demonstrating the potential of establishing high quality production plantations is not enough as further action is often needed to fully convince local communities, farmers and the private sector on their economic merits.
- Adequate field-level studies of economic, financial, social and environmental feasibility of forest plantations are necessary to justify investment by the private sector, farmers, local communities or the government.
- Competitive industrial plantations in the tropics need state of the art technology, detailed surveys, and adequate research and development.
- Good selection of species and sites, high-quality genetic material and improved techniques are key ingredients of successful plantation projects. Forest investors prefer to have plant material of high quality (even if paying more) and well suited species for the sites.
- If elaboration of the management plan for planted forest is completed only at the end of the project, implementation cannot be ensured. There should be a clear strategy for how implementation can be supported in a systematic way.
- Agroforestry activities are important in generating short-term income thereby ensuring farmers' participation. On the other hand, some agroforestry practices may lead to larger than optimal spacing of planted trees (but the trade-off is less important than ineffective community participation).
- A local forest fund financed through a small tax on the sales of forest products, even though modest, can support critical activities related to forest plantations and restoration even in cases where the main project support has terminated.
- Private companies can be convinced to participate in the funding of follow-up activities with smallholders and communities to increase wood supply for their industrial plants.

Research

- A research element is essential to systematize technical knowledge on selection of sites, species and provenances, methods of propagation and maintenance of planted areas.
- Studies and research in this area suffer from inadequate attention to the acceptance of technologies by communities, farmers and the industry thereby limiting adoption of improved practices.
- Lack of relevant documentation on previous experiences at the project start and on obtained results after project completion seriously limits sharing of lessons learned. Good experimental works are often being carried out but very little is documented, analyzed and systematized.

- The success of reforestation projects should be underpinned by good science, as well as the keenness of the scientists to pursue it.
- Recording systems of technical activities are usually needed to provide a basis for systematization of the knowledge obtained. If there is no monitoring and recording system for activities and their outcomes, it becomes impossible to verify and assess achievements in detail.
- Technical research projects tend to be focused but there is also a need to carry out research on social impacts. Results can be valuable for private organizations or NGOs involved in the promotion of restoration, reforestation forest production.
- Selection of multiple experimental sites is often over-ambitious, albeit reflecting a desire for scientific perfection. Multiple experimental sites should be avoided, especially if remote and difficult to access, as logistical and administrative monitoring conditions can weigh down effective management and hinder sustainability;
- It is always important to ensure maintenance of surviving plantations and appropriate silviculture operations in general but, in research projects on planted forests, this is particularly vital. Research plots may be cleared or burned by uninformed or misinformed local communities leading to a serious loss of costly investments.
- Close relationships are needed between the research (the species, plantation and progeny trials, etc.) and the users of results (the private and state forest companies, forest communities, farmers, etc.). Working closely with the potential users of the research outputs has the benefit of minimizing any mismatch between research and operational activity.
- Establishment and strengthening of a specialized unit for R&D can be a good strategy to ensure the sustainable use of the acquired knowledge.
- Executing agencies and beneficiaries tend to consider that research and development projects are mainly the responsibility of external financial support. Without follow-up financial support, project outputs are sometimes (if not often) ignored or neglected despite their high cost.
- The minimum duration of forest research projects, which incorporate aspects of pure and applied research, is around five years but often much longer. Therefore, long or medium-term technical support may have to be ensured. Although a research project extension may be needed, additional funds may not be requested. This reflects optimistic underestimation of the time needed to implement research activities.

4. GOOD PRACTICES

Project design and implementation

- Good project preparation correctly identifies stakeholders, beneficiaries and partners to be actively involved.
- Activities should be demand driven; adequate control and decision mechanisms should be put in place; and permanent staff dedicated to the project should be ensured.
- The preparatory phase of the project may take longer than planned but it is essential to ensure good participation of local communities.
- There is a need for careful selection of partners and adequate consultation to clarify expectations and commitments during the planning stage. Participation of appropriate educational and research institutions is essential to research and training activities carried out by the project.
- As a proven practice, the project should reflect strategies in line with the national forest policy, taking into account the specific local context.

- A good preparation process includes sufficient surveys and consultations with the stakeholders in order to clearly identify the viability of SFM in the target area, requirements for approval of the forest management plans, and the roles and necessary commitments of the stakeholders. A feasibility study or pre-project study can be useful, particularly in larger projects or when the available information is not adequate for project design.
- Adaptive implementation is a good practice. Changing conditions or errors in the project design may lead to adjustment of the project strategy. For example, the activities may have to be geared towards effective demand rather than to increased supply. This could apply, e.g., to the establishment of a productive nursery, demonstration plantations on a large scale, and promotion of native species.

Restoration and rehabilitation

- Restoration projects involving enrichment planting can have significant impacts when:
 - guidelines on enrichment planting techniques are developed and used nationally; ITTO's guidelines for restoration provide a useful framework for such national guidelines.
 - adequate reconnaissance surveys of the areas to be planted are undertaken to match species to site conditions
 - accumulating knowledge is used in further development of techniques and practices;
 - establishing wildlife corridors and other approaches to improve connectivity in fragmented forests hampered by timber harvesting and other land use practices
- Over-mature seedlings that cannot be used in rehabilitation planting can be provided to schools and other community groups for use in amenity plantings.
- The establishment of agroforestry plantations by local farmers can be a viable alternative economic activity to pure tree plantations in the rehabilitation of some degraded areas. However, projects should demonstrate the significant economic and social potential that agroforestry can have.

Projects involving tree planting

- When designing a plantation project, management planning and timber harvesting should be considered. Clear understanding of targeted markets would help avoid investment failures.
- Dedicated seed collection/processing teams can be designated to collect and process seeds from SPAs, preferably for use in all nurseries. Training in safe tree climbing is necessary.
- Experience on raising seedlings should cover both local and exotic species for commercial plantation development and restoration/rehabilitation of natural forests.
- Efficient and safe methods of transporting seedlings are necessary, thereby enhancing survival rates.
- A visual method for determining when planted seedlings require fertilizer such as nitrogen, phosphorus and potassium (NPK) should be developed. Research is usually required to understand how much fertilizer to apply and what is the most efficient way to apply it to obtain maximum benefit.
- Tree planting projects can be successful when:
 - seed production areas are established and seed quality standards are developed
 - all the mother trees selected for the plantations and progeny trials are mapped and recorded, to enable easy identification;
 - the trials established for basic species selection, species and progeny trials consider both local and exotic species, are well maintained, and used for on-going research, learning and teaching;
 - nurseries are well maintained and are used for on-going research while producing planting materials;
 - procedures for grading and selecting high quality seedlings are in place
 - planting models successful at comparable site, climatic and economic conditions; are developed;

- climatic and edaphic constraints are respected to avoid planting haphazardly and/or at the wrong time;
- the status of soils (structure, drainage, fertility, degradation risks, etc.) covered by various types of plantation is carefully studied and managed;
- financial and economic analyses demonstrate that afforestation and restoration options, new silviculture systems and planting models are cost-effective and economically viable to promote community and private sector investment;
- economic and financial analyses are carried out on different in order to determine the appropriate cost structures;
- economic and financial incentive mechanisms are created for the benefit of local communities and to attract the private sector;
- appropriate technical support and supervision by the government are provided to ensure high rates of seedling survival in planting by the private sector and communities;
- an extension strategy is an integral part of the project including dissemination activities including on-site training activities;
- staff and students continue to be trained;
- support is provided to research into further developing and refining innovative silviculture systems and planting models for restoration of degraded forests and lands;
- good models of public-private partnership are identified which could be replicated ;
- risk assessment considers externalities such as the availability of appropriate planting stock and planning of alternative planting schedules in order to avoid delays in field activities;

Research

- Partnerships between universities, research and development institutes, NGOs and local communities are useful to ensure demand driven research and sharing of responsibilities.
- Research projects often need to be complemented by targeted activities to raise awareness among beneficiaries and decision-makers, technical training and extension.
- Preparing and disseminating reports on successes and gaps in the existing knowledge is a good practice to avoid repeating costly experimental or demonstration plots which have already failed.
- Transfer of technology can involve publication of scientific research results, technical and other reports, training courses, handbooks and brochures as well as participation in regional and international conferences.
- A combination of state-of-the-art technology and local R&D efforts with participation of local wood processing companies is often an appropriate approach to develop technologies for value-added industry utilizing tropical plantations.
- The continuity of research projects can be ensured through the appropriate promotion of their results and through elaboration of new follow-up projects.
- A complete record of project activities, including monitoring and evaluation of positive and negative outcomes, helps replicate success and avoid repeating failures. A research and development unit may be necessary to compile and disseminate the information.
- Strengthening of networks linked to the project before and after its completion, as well as linkages with other forest organizations working in the same field may be necessary for mainstreaming of project results.

Participation

- In order to find solutions to increasing environmental degradation related to deforestation and to combat forest degradation, projects need to particularly focus on community development and other social issues related to SFM.
- Good practices for awareness raising and organization of community members include (i) building on traditions of working in groups and through communities' own organizations, and (ii) informing people that their livelihood depends on the protection of vegetation and that tree planting is a good, often the only, way to improve their livelihoods in degraded areas.
- Participative rural appraisal and broad-based campaign to promote reforestation are often the key to success. Community participation can be best organized through formal committees which ensure systematic approach by the community to development.
- Engaging local communities living around the experimental sites and placing trust in local forest owners can reduce the risk for destruction of planted plots. Incentives may have to be provided to mitigate the risk.
- Clear and transparent rules and mechanisms for sharing of benefits between the government, the community and other actors undertaking forest plantation are often necessary and need to be clearly communicated. Benefit sharing through contractual arrangements could be better than through regulatory rules.
- Demonstration of the economic and social impact of tree planting projects to local people is a feature of successful projects.

Sustainability

- Measures to ensure the uptake of the outputs and continuation of some project activities after completion is often necessary.
- Periodic assessment of experimental plantations (including assessment of nurseries, propagation and irrigation systems) is necessary to determine silvicultural priority activities that should be continued together with long-term maintenance and protection of planted areas.
- The acquired knowledge and results need effective dissemination on websites and through other means in order to share and exchange information with other research or support organizations which could potentially contribute to future initiatives in the field.
- Assessment of policy implications of pilot and demonstration projects is necessary for preparation of adjustments in the policy and institutional framework to ensure mainstreaming of the project results.
- A forestry fund can be the determining factor for sustainability of reforestation activities.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 68/01 Rev.2 (I)	TRAINING IN REDUCED-IMPACT LOGGING IN GUYANA
PD 69/01 Rev.2 (I)	IMPROVED AND DIVERSIFIED USE OF TROPICAL PLANTATION TIMBER IN CHINA TO SUPPLEMENT DIMINISHING SUPPLIES FROM NATURAL FORESTS
PD185/91 Rev.2 (F) II	SUSTAINABLE FOREST MANAGEMENT AND DEVELOPMENT IN PENINSULAR MALAYSIA - PHASE II
PD026/93 Rev.1 (F)	DEVELOPMENT OF BENTUANG KARIMUN NATURE RESERVE AS A NATIONAL PARK - PHASE I
PD018/94 Rev.1 (F) II	PARTICIPATORY FOREST DEVELOPMENT IN THE ALTO MAYO REGION FOR THE SUSTAINABLE MANAGEMENT OF MOIST TROPICAL FORESTS
PD013/96 Rev.1 (F)	MULTIPLE-USE MANAGEMENT IN THE MACAUA NATIONAL FOREST BASED ON RUBBER ESTATES - PHASE I: DEVELOPMENT OF MASTER PLAN TO SUPPORT COMMUNITY ORGANIZATION
PD017/97 Rev.3 (F)	PILOT PROJECT FOR THE REFORESTATION AND REHABILITATION OF DEGRADED FOREST LANDS IN ECUADOR
PD044/99 Rev.2 (F)	IMPLEMENTATION OF A MANAGEMENT PLAN BY THE CHIQUIACA AND OROZAS COMMUNITIES IN TARIJA, BOLIVIA
PD051/99 Rev.2 (F)	SUPPORT TO GRASSROOT FORESTRY PROMOTION INITIATIVES IN THE YOTO AREA
PD041/00 Rev.3 (F,M)	MODEL DEVELOPMENT TO ESTABLISH COMMERCIAL PLANTATION OF DIPTEROCARPS

THEMATIC SUMMARY REPORT No. 5

COMMUNITY FOREST MANAGEMENT AND ENTERPRISE

1. INTRODUCTION

Community Forest Management (CFM) and Community Forest Enterprises (CFE) have gained considerable grounds as an approach to sustainable forest management in the past two to three decades. The concept of community development appears to be a fundamental part of almost any SFM related project. The main objectives and to some extent achievements have included: (1) empowerment of local communities' leadership, promoting democratic approaches of CFM/CFE projects, including women's participation; (2) adequate information to local people about SFM and its benefits; (3) clarification and recognition of rights of local people over forests and forest land; (4) respect for local traditions, especially indigenous people's customary rules; (5) assisting local or indigenous leadership in contacting and consulting with national or regional government authorities; (6) training of indigenous or local people and identification of champions of for CFM/CFE promotion; (7) clear up-front arrangements for sharing of profits and other benefits from forest activities for the community and its members, and (8) strengthening of community organizations. Two main prerequisites underline successful CFM and CFE: (i) clear definition of land tenure and forest access rights and (ii) equitable sharing of expected benefits.

Most CFM and CFE projects have common support elements: (1) natural forest resources management and/or reforestation; (2) direct long-term social and economic development of communities through SFM and associated productive activities involving local poor farmers and indigenous people; (3) rehabilitation of degraded forest lands; and (4) management of buffer zones around protected areas.

Research and demonstration activities are often part of larger CFM/CFE projects which may include: implementing approaches and technologies for the socially, economically and ecologically sustainable utilization of forest resources in compliance with the national laws; and diversifying the tropical timber supply in the regional, national and international markets. Many projects include community based reforestation plans for production of timber and NTFPs, rehabilitation of degraded forests, as well as agro-forestry components.

The expected outcome of CFM/CME projects may include a fully operational management plan being implemented by the community enterprise, a strong and consolidated community forest enterprise; and improved income and employment for community members.

ITTO has been active in supporting CFM/CFE projects in its member countries since its inception. In 2008, the Thematic Programme on Community Forest Management and Enterprise was launched as a strategic tool to enhance on-going efforts.

2. KEY ISSUES

- The status of land tenure and property rights is often not well defined in the community-based project proposals although they are critical project elements. When population density increases, land tenure becomes a serious issue and may need to be addressed separately.
- Although improvement of livelihoods and mitigation of climate change are frequently stated as 'project benefits in proposals, they tend to be mentioned as catchwords without further elaboration.
- In many cases the project concept and strategy are not extensively and comprehensively discussed with the local population before the project approval.
- A great deal of the active participation of the community members in plantation establishment or other field activities is achieved through direct payment (e.g. money or food) and only exceptionally by means of voluntary work. Not all members of the communities are interested in the project or in its outputs and, as a result, their participation varies.
- In several cases trying to meet short-term economic needs of local people has been through such activities as promoting growing new crop varieties, agroforestry, cultivation of NTFP species, and rural

extension. While these alternatives help local people, they may diffuse stakeholder interest in SFM of existing forests and development of tree planting.

- Social aspects such as stimulating active participation, improving environmental and forestry awareness, promoting community organization and community enterprises as well as training, are usually needed.
- Decentralization and democratization pave the way for the people's own initiative in sustainable community development. However, their appropriate introduction needs careful consideration of how these principles can be promoted in the national and local contexts.
- CFM projects may be instrumental in providing diverse important benefits to the communities (including roads, medical facilities, higher crop productivity or facilitated contacts with authorities) but often fail to effectively improve community incomes which may jeopardize investment in planned forestry activities.
- Poor and illiterate rural people, living in agriculture-forest frontiers, may well understand and accept the need for sustainable forest management and forest plantations, but have no economic possibilities to pursue the required actions without financial assistance to sustain or expand project activities
- Economic viability of CFM/CFE activities continues to be a key issue for most projects in this field. Emphasis in the past has been given to social and environmental aspects without due consideration of provision of tangible economic benefits and other incentives to community members.
- In many countries, failure in CFM/CFE development has been attributed mainly to the lack of clear policies and support from the government agencies that may not approve the management plans, grant rights on the forests to the community, or provide any post-project support to the activities started.
- Ecological zoning practiced in many countries may not provide an appropriate framework for forest management planning which can extenuate problems in the approval of plans.

3. LESSONS LEARNED

Project design

- The potential of local communities to implement forest management and conservation is enormous, if well directed. The local people's response and the maintenance of their interest to participate in projects of this kind, despite the occasional absence of practical results, is a clear indication that the community forestry approach, if coupled with adequate technical and economical inputs, can be successful.
- The key prerequisites for a successful planning process at community level aiming at producing a forest management plan are: (i) careful assessment of economic and environmental viability of different production options, (ii) the scope and quality of the plan which complies with the national regulations enabling its rapid approval by authorities and thereby swift start-up of its implementation, and (iii) community's commitment to implement the plan for its entire validity period. There should be at least some kind of evidence that these prerequisites exist or can be met before starting a planning process. Some CFM projects have not been implemented due to unresolved legal matters, loss of commercial value of the species that originated the project, and as a consequence of a government and community decision.
- The main problems of community forest management projects in or around protected areas include: (1) location of project sites in strictly protected forests without a previous analysis of other available options; (2) absence of economic studies that could justify the feasibility of CFM; (3) low quality of forest management plans; and (4) lack of consideration of economic alternatives such as progressive substitution of natural forest utilization by planted forests, ecotourism, compensation for environmental services, etc.
- Some CFM projects are located in protected areas, often inside forest reserves, buffer zones or a corridor between two protected areas. There is a risk that conflicting interests may lead to unrealized outcomes.

- Not all members of local communities living in agriculture-forestry frontiers are willing or interested to participate in forestry programmes. Often most of them prefer to make their living out of agriculture or shifting cultivation, extensive grazing or other activities. This needs to be considered in project design.
- Women development can be an important objective in CFM projects. Women benefit directly from some of the activities such as forest nurseries, food processing and NTFP production but, more important, they clearly play an undisputed and respected leadership role regarding project objectives. Strong women leadership is also an added outcome of many projects.
- In spite of relatively well done forest inventory, forest management plans may lack all required characteristics of a real management plan, even though they may apparently comply with the national regulations. Such management plans demonstrate excessive emphasis on short term aspects, such as Reduced Impact Logging (RIL) practices, but give almost no consideration to long-term planning, including a sustainable cutting cycle and harvesting intensity, road design and construction, silvicultural practices, biodiversity conservation, market for the planned products, costs and economic analysis. RIL is obviously necessary but it is not sufficient to achieve SFM.
- Many projects have failed in giving adequate economic consideration to the productive activities proposed to the communities. As for any other economic venture, CFM/CFE proposals have to be preceded by a feasibility study based on technical forestry matters as well as on a sound cost-benefit analysis. Income generation needs to be addressed as a community or family business enterprise and not as a project activity.
- The ecological sustainability of CFM projects has proved difficult to assess. Some project strategies assume that a natural forest managed for production by a community, is also effectively conserved compared to a legally strictly protected forest where it may be impossible to avoid illegal logging due to weak enforcement. Every case should be carefully analyzed in this respect.
- Most CFM/CFE projects have no quantified baseline information on the pre-project situation. This makes it very difficult to evaluate project impacts; especially those related to natural forest management, restoration of degraded forests, tree planting, and agroforestry activities.
- Project sites should not generally be located in very distant areas. As ITTO projects are intended to be demonstrative, they should be developed in readily accessible areas, where possibilities for success exist and where the ground-level results can be seen.
- Lack of trained human resources at several levels and cumbersome bureaucratic procedures frequently lead to significant delays in decision making and implementation. This can be associated with the lack of interest, commitment and capacity of other line ministries to support project implementation.
- Study tours to community projects in other countries in the region are extremely useful in informing community leaders and other project participants.
- Project proposals on NTFPs need explanation on the species used, economic feasibility and social livelihood dependence to enable assessment of meeting the project objectives. Proposals focusing on management of NTFPs that fail to show relevance to SFM should be reoriented within the context of forest sustainability and the ITTO Objective 2000.
- Research-to-impacts should be outcome oriented. If the focus is on outputs, only 1 under-achievements occur. Research should consider that new technology has to result in livelihood and income positive impacts and that accessible demonstration plots are most useful.
- Technical and market knowledge is necessary but not sufficient condition for success. Other critical elements may include entrepreneurship development, micro-credit facilities, market linkages, but these may be difficult to integrate in targeted CFM projects.
- In protection forests, benefits through community management are often largest in sustainable use of buffer zones and biological corridors between protected areas.

Project implementation

- Awareness raising and organization of community members is often unproductive unless there is already a tradition of working in groups. However, it is possible to make people understand that their livelihood depends on forest protection, tree planting, and finding suitable alternatives to be adopted within a short period. It can, however, be difficult for local beneficiaries to accept that they must work without being paid for a long-term objective, even when they recognize that it is for the benefit of the community.
- The generation of project outputs and results does not necessarily imply achievement of development objectives. Failures in this respect can be due to: (1) project design errors, especially overly ambitious objectives related to available time and resources and inappropriate strategy; and (2) low quality of some key products, results and outputs, such as forest plantations that die after planting or grow below expectations and management plans that are useless and cannot be applied. A clear symptom of the unsuccessful achievement of development objectives can be the abandonment of essential forest activities such as planting and replanting, nurseries, weeding, pruning, thinning, and fire control as soon as the project ended or when resources to pay for services became unavailable.
- A serious problem in CFM projects involving natural forest management has been the low quality of forest management plans.
- Local communities understanding of the need to organize themselves through a forest committee is essential in order to ensure their full participation in the achievement of project objectives.
- The time constraint of project implementation is often the cause of serious mistakes. Usually a full year is necessary for a CFM project to become fully operational (The second year is used essentially to initiate operations and training. Therefore, it is impossible challenge for any forest project to produce significant additional income for the community (apart from wages) before the end of the third year. In tree planting and other restoration activities projects, the minimum time period is usually five years.
- In many community-managed reforestation projects there have been serious errors in site and species selection. Maintenance and silvicultural treatments (weeding, fertilization, thinning, pruning, and fire control) have sometimes been lacking, especially after project completion. Most forest nurseries are abandoned immediately after projects ended. The main reason for the halting project activities has been the "lack of financial resources".
- Two major reasons can lead to failure of CFE wood production and processing projects: (i) the community around the factory cannot simply be changed from primary and subsistence farmers to industry operators; and (ii) the technology introduced may not be compatible with traditional livelihoods.
- Implementation of sustainable livelihoods activities within the framework of a community managed conservation projects requires a broad range of skills that may not be present within the project teams.
- It is very important for project teams to be based in the project area in order to be able to make frequent contacts with communities and local partners and thus ensure relevance of the activities.
- Support to livelihoods activities can often be channeled through specialized local NGOs as medium and long-term partners of the Executing Agencies, using a focused village planning and corresponding business plans.

Sustainability

- Substantial contribution to livelihood improvement of the poor communities as well as to forest protection and biodiversity conservation are critical for sustainability, particularly if the results can be sustained without outside subsidies and are replicable. Without provisions for sustainability upon the conclusion of the project the local population will be disappointed.
- Economic sustainability must be addressed separately for natural forest management projects and for forest plantations, as their realities are quite different.

- Sufficient time is needed for social processes for developing adequate approaches and ownership by the beneficiaries and partners. For this reason a minimum duration of three years should be planned for CFM projects. The initial plan should already give consideration for how the follow-up activities can be sustained.
- Successful CFM and CFE models may also serve as a basis for development of the legal framework (new forest law and regulations) especially as related to participation of the local communities in the decision making process related to the use of natural resources.
- Strong leadership and competence of the technical team and the preparedness of the recipient CFE are important for project sustainability. Strong commitment and good professional skills of the forest administration staff are also required.
- Access to financial capital often leads to success, otherwise CFE projects easily get bogged down with the first difficulties in business development and the accumulated social capital is lost.

4. GOOD PRACTICES

Project design

- An early clear commitment by the government enables effective development of community forest management and enterprises.
- Participatory planning can be successful if based on the priorities and needs of communities and rely on bottom-up approach.
- Provision of adequate information to communities and their formal commitment to implementation in the design phase helps successful implementation.
- Addressing the actual problems in the field orients preliminary analyses on strategic options; in general blueprint solutions have limited value due to diversity of local conditions.
- Establishing economic feasibility of the planned approaches from the perspective of community members based on a cost-benefit analysis is useful for identification of successful project strategy.
- Early consideration of benefit distribution, gender and socio-cultural aspects helps avoid confusion and conflicts during implementation.
- Adequate baseline information on the resources and socio-economic conditions is necessary for planning and to allow assessment of impacts.
- In countries with no or limited practical experience in community forest management, a national strategy would be useful.
- Formal commitment to the project implementation by partners and relevant stakeholders during the design stage can ensure effective implementation.
- Clarification of the tenure and legal access by communities to the forest resource and their right to use the resource avoids designing unfeasible projects.
- Confirmation of the government capacity to effectively apply the forest legislation and to process authorizations of forest use is also a good practice.

Technical aspects

- All forest goods and services including non-timber forest products, fauna and environmental services merit consideration at the planning stage.
- In restoration projects of secondary and degraded forests, appropriate use of low-cost natural regeneration can be feasible.

- In plantation projects, critical elements have been species selection to local conditions, seed availability to meet demand, quality of planting material, as well as phasing of targets to ensure continuous flow of benefits in the long run and to learn from experience.

Economic aspects

- Incentives can be effective if they provide tangible benefits for the community during the whole cycle of the operation and beyond.
- Community forest enterprises need to be oriented for profit generation.
- Engaging those community members who are committed to work for community forest enterprises can ensure efficient operations and targeted results.
- Engagement of the private sector as commercial partners is often highly desirable to have access to market, technology and finance.
- Cooperation between communities can ensure sufficiently large supply capacity to customer demand for products.
- Wages paid in community forest management and enterprises need to be considered costs, not benefits.
- Mitigation of economic risks of the community forest enterprise requires specific measures.

Social aspects

- Consistent effective participation of communities can be ensured by adequate prior consultations, continuous information flow, as well as transparency on project implementation arrangements and financial flows.
- Appropriate sharing of benefits, including to the poor members of the community, helps broad support to economic activities based on forests.
- Continuous monitoring of the gender aspects helps ensuring participation of and benefits for women.

Capacity building

- In addition to technical skills, business management and organizational capacities need to be built up.
- The approach of lead/promotion producers can be useful for effective grassroots level dissemination of results.
- Training needs to be demand driven and practical but carefully planned. Target groups of the training strategy need to cover all the actors, not only technical staff or community leaders.
- Production of adequate tools for implementation (guidelines, manuals and technical packages for community forest management and enterprise) in local language(s) contributes to the project's broader impacts.
- In natural forest management projects, relevant training covers planning (inventory work, environmental impact assessment, other studies, identification and assessment of strategic options, elaboration of management plans), production (particularly reduced impact logging), commercialization of products, and organizational aspects.

Dissemination and mainstreaming of experience

- Broader application of key success factors, lessons learned and constraints requires their proper interpretation in the local context to allow general conclusions.
- Various dissemination mechanisms (e.g. community visits, community business forums) can ensure effective sharing of experience.
- Community networks are highly useful for dissemination.

- To remove the constraints encountered in community forest management the project's policy recommendations need dissemination to decision-makers and follow-up.
- In order to gain broad acceptance for CFM/CFE as a development strategy, effective communication can ensure awareness on the credibility of communities as responsible stewards in the sustainable management of their forests

Implementation arrangements

- To ensure accountability and capability of non-governmental intermediaries need careful assessment (including, among others, technical knowledge, social organization, associated transaction costs, sustainability of commitment, capacity to continue support after project termination).
- Adequate field presence of project staff is necessary in CFM/CFE projects.
- Ownership and management of project assets after termination (e.g. nurseries, vehicles, laboratories, etc.) need to be clarified early in the project planning.
- Community engagement in monitoring and evaluation during and after the project is useful and cost-efficient.

Sustainability

- Linking with national forest programmes and similar initiatives can help ensure post-project government support.
- Engagement of commercial partners can ensure post-project revenue generation.
- Linking the project with micro-credit, seed financing and credit schemes can help ensure post-project financing.
- Phasing of project interventions is often advisable to keep specific project objectives attainable.
- Specific exit strategies need consideration already during the planning stages and their finalization is necessary well before the project completion.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD044/99 Rev.2 (F)	IMPLEMENTATION OF A MANAGEMENT PLAN BY THE CHIQUIACA AND OROZAS COMMUNITIES IN TARIJA, BOLIVIA
PD021/97 Rev.2 (F)	DEVELOPING TROPICAL FOREST RESOURCES THROUGH COMMUNITY-BASED FOREST MANAGEMENT, NUEVA VIZCAYA, PHILIPPINES
PD 15/96 Rev.2 (M,I)	UTILIZATION, COLLECTION AND TRADE OF TROPICAL NON-WOOD FOREST PRODUCTS IN THE PHILIPPINES
PD 24/00 Rev.1 (I)	PROMOTION OF SUSTAINABLE UTILIZATION OF RATTAN FROM PLANTATION IN THAILAND
PD014/92 Rev.2 (F) I	A DEMONSTRATION PROGRAM OF SUSTAINABLE UTILIZATION OF TROPICAL FORESTS BY MEANS OF DIFFERENTIATED MANAGEMENT IN HAINAN ISLAND, CHINA - PHASE I
PD026/92 Rev.2 (F,I)	DEVELOPMENT OF METHODS AND STRATEGIES FOR SUSTAINED MANAGEMENT OF MOIST TROPICAL FORESTS IN CAMEROON
PD033/93 Rev.1 (F) I	CONSERVATION, MANAGEMENT, HARVESTING, AND INTEGRATED SUSTAINED USE OF FORESTS IN THE CHIMANES REGION, BENI, BOLIVIA - PHASE I
PD018/94 Rev.1 (F) II	PARTICIPATORY FOREST DEVELOPMENT IN THE ALTO MAYO REGION FOR THE SUSTAINABLE MANAGEMENT OF MOIST TROPICAL FORESTS
PD037/95 Rev.2 (F)	MANAGEMENT OF CATIVO FORESTS AND NON-TIMBER PRODUCTS WITH THE PARTICIPATION OF RURAL AND INDIGENOUS COMMUNITIES, DARIEN, PANAMA
PD013/96 Rev.1 (F)	MULTIPLE-USE MANAGEMENT IN THE MACAUA NATIONAL FOREST BASED ON RUBBER ESTATES - PHASE I: DEVELOPMENT OF MASTER PLAN TO SUPPORT COMMUNITY ORGANIZATION
PD010/97 Rev.1 (F)	A SUSTAINABLE MANAGEMENT MODEL IN THE IWOKRAMA RAIN FOREST
PD014/98 Rev.1 (F)	SUSTAINABLE USE AND REFORESTATION OF AMAZON FORESTS BY INDIGENOUS COMMUNITIES
PD038/99 Rev.1 (F,I)	DEMONSTRATION COMMUNITY FOREST MANAGEMENT IN THE NATURAL CLOUD FORESTS OF THE URUMBA BASIN, SAN IGNACIO
PD049/99 Rev.2 (F)	PILOT PLAN FOR THE SUSTAINABLE MANAGEMENT OF 10,000 HECTARES OF SECONDARY FOREST IN SAN LORENZO, ESMERALDAS
PD289/04 Rev.1 (F)	MANAGEMENT OF THE EMERALD TRIANGLE PROTECTED FORESTS COMPLEX TO PROMOTE COOPERATION FOR TRANSBOUNDARY BIODIVERSITY CONSERVATION BETWEEN THAILAND, CAMBODIA AND LAOS (PHASE II)
PD 58/99 Rev.1 (I)	INTRODUCTION OF A VILLAGE INDUSTRY IN THE COMMUNITY AROUND AN INDUSTRIAL FOREST PLANTATION IN INDONESIA

THEMATIC SUMMARY REPORT No. 6

Illegal Logging and Forest Certification

1. INTRODUCTION

Combating illegal logging and development of forest certification are common issues in the tropical timber producing countries and to the international trade. ITTO has a strong commitment with sustainable forest management (SFM) and was one of the first international organizations to develop and promote Criteria and Indicators (C&I) to facilitate the sustainable management of tropical forests. This and other initiatives have contributed to reduce illegal logging and helped the development of certification schemes.

Assisting members with their efforts in this area is part of the Objectives of the International Tropical Timber Agreement (2006) which call for promotion of the expansion and diversification of international trade in tropical timber from sustainably managed and legally harvested forests.

ITTO has supported its member producing countries to improve forest legislation, governance and law enforcement to establish enabling conditions for sustainable forest management. Strengthening of national capacities in enhancing law compliance and developing forest certification has been a key issue in this field, together with information sharing on various voluntary mechanisms and timber tracking technologies, including their adoption at the national level.

ITTO's Thematic Programme Tropical Forest Law Enforcement, Governance and Trade (TFLET) and the ITTO/CITES Programme have been instrumental in supporting member countries in this field.

2. KEY ISSUES

- Illegal logging is driven, inter alia, by weak governance, ready access to market of illegally harvested timber, high short-term profits for illegal operators, and lack of alternative economic activities for forest dependent people. In many countries there is no level playing field for forest management units (FMUs) which comply with legal requirements and strive for SFM.
- Weak governance is typically associated with limited or no transparency on financial transactions in the forest sector, lack of enforcement and insufficient field control of harvesting operations in forest areas, corruption, lengthy and over-regulated bureaucratic procedures for legal timber production and trade in tropical timber, lack of prosecution of culprits, and inadequate low-paid staff. These constraints are often associated with the reluctance to required institutional reforms in the forest administration.
- The failure to ensure land rights for indigenous peoples, forest-dependent people and other traditional rural populations has led to illegal logging and limited progress in forest certification in many tropical timber producing countries. In addition, indigenous populations and other forest communities are weakly organized and equipped to safeguard their own forest resources against external violators of their rights.
- Projects in addressing illegal logging and weak governance are often complex and sensitive to changes in political priorities and economic conditions.
- Strengthening of governance is often hampered by the lack of reliable information on legal and illegal production and trade of forest products.
- Many current government-operated control systems for the supply chain contain several loopholes and shortcomings thereby reducing their credibility for verification of legality of tropical timber and timber products.
- Progress in certification has been constrained by: (i) inadequate capacities to develop and implement national certification standards at the FMU level; (ii) uncertainty about market benefits which could have encouraged producers to take early action; (iii) increased costs to be borne by FMUs; and, (iv) constantly changing market requirements both in public and private procurement policies related to legality and sustainability of timber products.

- Credibility and market acceptability of different forest certification systems have been questioned sometimes based on legitimate concerns, sometimes due to stakeholder or competitive interests, or sometimes because of speculative information. The choice of forest certification system to be applied remains therefore a sensitive question for tropical timber producers.
- Occasionally progress in forest certification has been constrained due to inconsistencies between government regulations and certification standards.

3. LESSONS LEARNED

Illegal logging

- Identification of the main drivers of illegal logging and associated trade is necessary for designing measures to curb it.
- Providing clarity on land tenure issues is necessary for establishing the legal origin of timber and legal compliance in an FMU.
- The formal recognition of the land rights of indigenous peoples and community customary land rights should be a priority but tends to be beyond the scope of forest projects.
- Mechanisms should be put in place to bring indigenous peoples' organizations and national NGOs, the private sector and the government together for meaningful dialogue on forest governance and certification.
- Conflict resolution techniques have proved useful in stakeholder consultations but the capacity to apply them is sometimes weak.
- Downsizing the industrial overcapacity and make it compatible with sustainable forest production levels, as expressed as the Average Annual Cut, may be necessary to reduce the pressure for illegal logging. Regulatory measures on downsizing may be necessary but are politically and economically difficult to implement. In addition, it may be even counterproductive in case of weak governance. Regulation of new investments in expanding harvesting and processing capacity is commonly the first step. Other approaches such as voluntary measures should also be explored in cooperation with the private sector.
- The reduced supply of large diameter logs to processing industries has also stimulated positive changes in business strategies in the utilization of forest resources. Several companies have invested in new equipment to improve the utilization of raw material through processing of small-sized logs and lesser-used species (LUS).
- Addressing the needs of small-scale enterprises and the informal sector in strengthening governance and implementing timber tracking usually requires specific support.
- Improved governance requires increased transparency and accountability of forest authorities and private sector operators. This should be duly considered in the design of forest information systems.
- Paper trail-based timber tracking systems have inherent weaknesses reducing their credibility. These systems are likely to remain an intermediary solution.
- The development of the local capacity is vital to ensure the sustainability of the project. It also facilitates the funding of new future activities. Excessive reliance on use of external consultants has hampered the uptake of their recommendations, which may affect the project's sustainability.
- Governance strengthening projects often produce valuable technical studies and other reports. Project impacts can be enhanced by effectively disseminating information to relevant government agencies, universities, the private sector, NGOs, and other stakeholders. In addition, press releases and policy briefs have been useful for dissemination of key information to the general public through newspapers and other media.

Forest certification

- Certification processes at local and national levels have brought the private sector, government and NGOs together contributing to improved understanding of difficulties in implementing SFM and its certification, and thereby to a constructive dialogue among stakeholders.
- Fundamental elements in all forest certification systems are legal compliance and good quality management plans and their effective implementation. Forest certification is therefore a useful tool for improving governance.
- There may be a need to harmonize national regulations and certification standards to enhance certification's role in promoting legal compliance. Projects need to examine this issue.
- For FMUs achieving certification means entering an on-going process with enterprise commitment to continual improvement. FMUs are under risk of losing their certificates unless such improvements are made.
- Although the actual certification process at the FMU level may require only one year to be completed, the preceding preparatory process can be arduous and time consuming. It may take several years for a FMU to be ready for certification.
- Phased-approach could be suitable in achieving full certification of an FMU. The first step would usually be verification of legal compliance. However, even the phased-approach is also demanding, e.g. in terms of the strict documentation required, and it can also be time consuming. As the phased-approach should aim at full certification, the FMUs that enter this procedure are expected to be fully committed to the process, granting them enough time to make necessary adjustments. FMUs should be aware that market benefits may be rather limited until full certification has been achieved.
- Government involvement in promoting certification is crucial through improved regulations and procedures, incentives for certified FMUs, as well as direct training support.
- Enterprise level capacity building for certification usually covers improvement of the forest management system, changes in operational practices (e.g. RIL, occupational safety and health), training of staff and sub-contractors, and strengthening of the company-community relationships.

4. GOOD PRACTICES

Illegal logging and governance strengthening

- A detailed study on the current situation and on the future needs, demands and expectations of stakeholders helps planning of the project strategy.
- Effective involvement of key stakeholders is important in projects on governance and certification. It helps mitigate negative impacts related to eventual institutional and other changes during the project implementation;
- Improving governance is often complex and the project design need adequate consideration of necessary measures for institutional strengthening and policy reform.
- Good project design allows for flexibility to ensure effective implementation in changing political and economic conditions. This would also contribute to the sustainability of the project.
- Governance projects often need to address access to statistical and other information at the national and regional levels throughout the different phases of the forest production chain, within appropriate standards of quality and timeliness of information.
- Institutionalization of governance strengthening projects can ensure future continuity and sustainability.

- Projects designed to improve legislation and policy produce specific recommendations for the required changes with adequate indicators to measure progress. Pursuing these recommendations is critical for the sustainability of governance projects.
- In regulations and procedures of tracking of timber and timber products, development of systems based on digitized data capture, storing and analysis to minimize errors and malpractices is usually preferable compared to paper-trail based approaches.
- In governance projects involving improved information systems, technical training needs to cover database managers, enforcement staff, and various users of the improved information.
- Effective dissemination on project plans, activities and results is critical for the project impacts and sustainability. Effective dissemination of lessons learned is necessary for mainstreaming to the policy decision-making level.

Forest certification

- The consistency between mandatory legal requirements and certification standards need to be clarified.
- Development of national forest certification standards helps ensure their consistent application in the specific country context.
- Pilot enterprise approach to build up FMU level capacity for certification needs to include adequate provisions for validation of experience and dissemination of results. Firm commitments are needed from participating enterprises to sharing of the knowledge generated.
- Pilot enterprise approach is also applicable to certification of community forest enterprises but clarity is needed about the cost-benefit ratio and sustained financing of auditing, if community enterprises cannot pay for these services themselves.
- Assessment of the basic level of management systems of community forest enterprise is necessary as their strengthening may be needed before introducing new instruments like timber tracking system or forest certification.
- In the development phase forest communities need support from and close contact with local authorities and other relevant bodies operating in the region as well industrial companies using timber from the forest area. Good project design includes measures to facilitate these linkages.
- Relevant target groups of training on certification include, among others, FMU managers, technical staff, sub-contractors and auditors on technical aspects, and key stakeholder groups on general aspects.
- Technical assistance is effective when it (i) is carefully timed within the project work schedule; (ii) focuses on aspects that cannot be tackled by national expertise; and (iii) includes sufficient training to ensure knowledge transfer.
- There is a risk of conflict of interest if technical assistance and certification audits are carried out by the same organization which should be avoided.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 85/01 Rev.2 (I)	STRATEGIES FOR THE DEVELOPMENT OF SUSTAINABLE WOOD-BASED INDUSTRIES IN INDONESIA
PD 35/94 Rev.4 (M,I)	FOREST PRODUCTS MARKETING ORGANIZATION FEASIBILITY STUDY
PD 25/96 Rev.2 (M)	CHINA'S CONSUMPTION OF FOREST PRODUCTS AND ITS DEMAND FOR THEM IN THE INTERNATIONAL MARKET BY THE YEAR 2010
PD 27/95 Rev.3 (M) II 1	ESTABLISHMENT AND OPERATION OF A FOREST STRATEGIC INFORMATION CENTER (CIEF) PHASE II STAGE 1
PD 56/00 Rev.3 (M)	ENHANCEMENT OF THE FOREST STATISTICS INFORMATION AND MANAGEMENT SYSTEM (STATFOR) THROUGH THE INTEGRATION OF TWO COMPUTER MODULES: COMPILATION OF MANAGEMENT INVENTORY DATA AND MANAGEMENT OF EXPORT LOG LUMBERYARD (GABON)
PD 27/95 Rev.3 (M) II 2	ESTABLISHMENT AND OPERATION OF A FOREST STRATEGIC INFORMATION CENTER (CIEF) PHASE II STAGE 2
PD 80/01 Rev.6 (M)	CONSOLIDATING SUSTAINABLE FOREST MANAGEMENT CERTIFICATION SYSTEMS IN INDONESIA
PD128/91 Rev.2 (F)	MANAGEMENT, CONSERVATION, AND DEVELOPMENT OF MANGROVE FORESTS IN PANAMA
PD017/00 Rev.3 (F)	CONSERVATION AND DEVELOPMENT IN THE NATURAL PROTECTED AREAS SYSTEM OF TAMBOPATA (PERU) - MADIDI (BOLIVIA)

THEMATIC SUMMARY REPORT No 7

Criteria and Indicators for Sustainable Management of Tropical Forests

1. INTRODUCTION

The ITTO Criteria & Indicators for Sustainable Management of Tropical Forests (C&I) were originally published in 1992 and since then they have been revised; training and other support have been provided to countries to facilitate C&I implementation. The purpose of a common set of C&I has been to facilitate governments, forest managers, communities, smallholders and other stakeholders in monitoring, assessing and reporting on the status of forest management and progress made towards sustainable forest management (SFM) at the national and forest management unit (FMU) levels. The ITTA includes several Objectives that are related to the implementation of the C&I to promote sustainable management of tropical forests, including objective (m) *Encouraging members to develop national policies aimed at sustainable utilization and conservation of timber producing forests, and maintaining ecological balance, in the context of the tropical timber trade* and objective (o) *Encouraging information sharing for a better understanding of voluntary mechanisms such as, inter alia, certification, to promote sustainable management of tropical forests, and assisting members with their efforts in this area.*

The ITTO C&I are aimed at serving as a framework for member countries to develop their own system for assessing and monitoring progress towards sustainability at the national and FMU levels. It is expected that when the indicators are made operational in specific country and local contexts, the information generated can facilitate policy design and ground-level implementation of SFM.

The C&I is therefore a useful instrument which enables countries and FMUs to report on the progress made while revealing areas which need additional efforts to achieve SFM.

2. KEY ISSUES

- There is still a lot of misunderstanding on the purpose and value-added of C&I as a tool for implementing SFM at national and FMU levels. Clarity is also lacking on what are the necessary enabling conditions for SFM in national and local contexts.
- National C&I have often been developed through a process which identifies in detail what are appropriate indicators in local contexts. Participation of the development process has sometimes been limited to the government agencies rather than including other relevant stakeholders like the private sector, community forest organizations and NGOs.
- The governments of tropical timber producing countries have programmes to promote and enforce SFM policies and practices by the private sector but there is often no comprehensive data on their impacts;
- The most critical level for implementing SFM is the forest management unit level. The private sector and forest communities being responsible for a large proportion of tropical timber production are therefore the key target groups of C&I implementation. However, their participation has been limited in many producing countries where the focus has been in the government-managed forests.
- There is a strong and growing demand among importers and buyers for information on SFM practices of companies producing tropical timber. The C&I is a potentially useful tool for communication but it is still underutilized and not well understood by target groups in the export markets.
- It is the responsibility of the government to ensure a legally defined Permanent Forest Estate, which is a fundamental element of C&I and necessary for FMUs to achieve SFM.
- The complementary roles of C&I implementation and forest certification processes at local level are not well understood. However, the C&I can provide a useful framework for national certification standards.

3. LESSONS LEARNED

Project design

- C&I implementation in ITTO member countries has proved to provide valuable contributions to the current knowledge on SFM at the ground level and major inputs to national policy development. In forest enterprises implementing C&I, it has been demonstrated that managing forestry operations sustainably is not only essential but also feasible.
- Unless the enabling conditions in national forestry policy and company policies are in place as identified in the C&I and various ITTO Guidelines, progress in SFM implementation will be slow.
- Government commitment to SFM based on C&I can persuade the industry and forest communities to embark on systematic efforts to achieve SFM.
- The adoption of C&I as a positive approach has had a powerful psychological and motivational effect on promoting SFM in many countries. However, good communication is necessary over the entire process involving testing, adjusting to local conditions and implementation.
- During the implementation process it is useful to clarify the link between the government regulations on the use of natural resources and the C&I. This can greatly assist forest managers to understand what SFM means in practical forest management.
- It is essential that, at the project planning stage, there is sufficient baseline information on the state of the forest resource as otherwise testing and implementation of C&I may not be meaningful. This would help stakeholders visualize the scale of the problems and the tasks at hand, to estimate the size and time span of the project.
- The absence of baseline data on the state of the forest, for example, also makes it difficult to measure and evaluate some of the C&I project's physical outputs;
- National level processes in developing and testing C&I can be useful in bringing together government agencies, the private sector and NGOs and contributing to a fruitful dialogue on what SFM is and what are the constraints in achieving it. Broad participation strengthens the legitimacy of C&I as a tool to make progress towards SFM.
- Adopting national level C&I and their integration in the forest monitoring system is an important step in the implementation process of SFM. A field manual on how to implement SFM in FMUs may be required to facilitate the operational-level work carried out by forest managers.
- The training strategy is critical for follow-up work to be done to integrate C&I into management and information systems at different levels. Trainees are expected to play two roles: (a) to serve as a pool of trainers to train responsible staff of concession companies and work in educational institutions and training programmes on SFM, and (b) to work as internal assessors in forest organizations or external auditors of independent certification and verification bodies. Trainees should also be able to advise forest managers on corrective actions required to improve present practices.
- Human resource development in SFM needs to be understood as a long-term continuous effort and periodic assessments based on C&I can reveal gaps in the existing skills. In general, countries should prepare comprehensive national programmes for training on the implementation of SFM targeted at forest managers and communities as well as other stakeholders.
- Valuable lessons can be learned from companies and forest agencies in other tropical and non-tropical countries which are also engaged in applying SFM measures.

Project implementation

- A major risk involved in the implementation of C&I projects has been reluctance of the private sector to participate and share their experiences with others. Industry motivation on the implementation of C&I is linked with government shifting from a purely regulatory approach to one that combines regulation with

incentives and market orientation. There should be clear benefits for companies and communities, such as e.g. reduced bureaucratic requirements to ensure their full participation.

- One reason for reluctance has been the appropriateness of provision of confidential information to other companies and stakeholders. This issue needs careful consideration during C&I related project implementation.
- Lack of involvement of some stakeholders in the national C&I processes has been a critical limitation for dissemination and impacts of the project. The private sector, forest communities and NGOs should be beneficiaries of the results and outputs, and their active participation should be ensured. This involves ready access to information, regular meetings, effective dissemination and broad participation in training events.
- Community organizations are useful in ensuring peoples' broad participation reducing also project costs during the C&I development phase. The absence of community groups in the process has limited project impacts. Specific action is necessary to ensure effective community participation in implementation of C&I projects
- Partnerships have been valuable in C&I projects. Community and NGOs can play a useful role in promoting SFM and assisting FMUs in their efforts to gain efficiency. Building up strong strategic partnerships between the government, the civil society and the private sector is a long-term endeavor which needs to be initiated at the national level during the project formulation stage in order to identify common objectives and ensure transparency and accountability in the C&I implementation process.
- Implications of institutional reforms such as on-going decentralization process, can lead to engaging new stakeholders (local governments, enforcement and environmental authorities, etc.) in the C&I process.
- Many C&I projects have revealed that there is an urgent need to develop better understanding and coordination between the authorities of the central and local governments to avoid overlapping and uncoordinated interventions targeted at FMUs.
- Projects implemented by the private sector often produce important results that would be valuable to government policy development. However, the feedback loop has been weak and there should be a mechanism, identified at project formulation, for validating and bringing the lessons learned to the attention of government (e.g. national workshops, analytical studies).
- Involving representatives from main importing countries in workshops and other phases of C&I projects has proved to be useful for improving understanding on sustainable management of tropical forests in exporting countries.

4. GOOD PRACTICES

Project design

- In the participatory project planning process, it is important to explain the positive nature of the C&I and how this tool can help stakeholders in their efforts towards SFM.
- Learning from other countries' experience is useful when the country has limited experience on C&I implementation.
- Project strategy may include development and implementation of national C&I based on ITTO C&I and their testing which can be on FMU, sub-national or national level, as appropriate.
- The top management of companies participating as pilot FMUs need to be fully informed on the implications concerning sharing of experience on C&I implementation.
- National-level project can preferably be housed in the planning/information unit of the forest agency.

Project implementation

- Strong government commitment to use C&I as a policy tool is critical for achieving the targeted results.
- Participation of all the relevant stakeholders is important in the development of national C&I.
- Close coordination among involved government agencies is necessary.
- Project steering group has a critical role to ensure effective implementation and may be assigned tasks related to feedback of the results to policy decision-making level.
- Multidisciplinary working groups and thematic sub-groups have been useful in elaborating national C&I.
- Community forests may need special measures for their involvement in C&I implementation; pilot FMUs could also include community forests.
- Integration of statistical, economic and forest databases contributes to effective C&I implementation.
- Statistical requirements of reporting to ITTO and other international bodies need to be considered.

Capacity building and dissemination

- Effective transfer of knowledge to local specialists avoids dependence on external technical assistance.
- Training planning need to cover all the levels and target groups.
- Dissemination of the C&I information produced can ensure sustained stakeholder support to periodic monitoring and other follow-up activities.
- Wide dissemination in different forms to all relevant stakeholders is desirable including yearbooks, information bulletins, newsletters, CD-ROMs, web portals, and other interactive means.

Sustainability

- Sustainability in the C&I implementation at national and local levels requires periodic review on the progress made for identifying corrective action needs.
- Pilot projects need to include validation of the results and their implications for policy adjustment should be identified.
- Establishment of a partnership engaging the private sector and other stakeholders can ensure their sustained support to improved systems.
- Regional-level sharing of experiences on C&I implementation through networking is helpful for further development.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 48/99 Rev.1 (M,F)	SHARING OF INFORMATION AND EXPERIENCES ON PRIVATE SECTOR SUCCESS STORIES IN SUSTAINABLE FOREST MANAGEMENT (MALAYSIA)
PD 80/01 Rev.6 (M)	CONSOLIDATING SUSTAINABLE FOREST MANAGEMENT CERTIFICATION SYSTEMS IN INDONESIA
PD042/00 Rev.1 (F)	TRAINING OF TRAINERS FOR THE APPLICATION OF THE ITTO, AND THE NATIONAL CRITERIA AND INDICATORS OF SUSTAINABLE FOREST MANAGEMENT AT FOREST MANAGEMENT UNIT LEVEL
PD195/03 Rev.2 (F)	TO ESTABLISH A NATIONAL MONITORING INFORMATION SYSTEM FOR THE EFFECTIVE CONSERVATION AND SUSTAINABLE MANAGEMENT OF THAILAND'S FOREST RESOURCES
PD021/97 Rev.2 (F)	DEVELOPING TROPICAL FOREST RESOURCES THROUGH COMMUNITY-BASED FOREST MANAGEMENT, NUEVA VIZCAYA, PHILIPPINES
PD389/05 Rev.2 (F)	APPLICATION OF THE INTERNAL MONITORING OF SFM PERFORMANCE AT FOREST MANAGEMENT UNIT LEVEL
PD 1/95 Rev.4 (M)	TRAINING DEVELOPMENT ON THE ASSESSMENT OF SUSTAINABLE FOREST MANAGEMENT IN INDONESIA

THEMATIC SUMMARY REPORT No. 8

Forest Information Systems

1. INTRODUCTION

There is currently a lack of systematic and reliable information on forest resources and forest-based industries in many countries. There is also a need for further development of forest information systems which can support policy and market development for sustainable forest management and associated further processing of tropical timber and timber products. Improved transparency on forest sector would greatly facilitate international efforts against illegal logging and illegal timber trade. Adequate information is necessary for governments in assessing performance and revising forest policies and regulations. Both the public and private sectors need sufficient information for decision making on investments.

ITTO has supported many countries to develop Forest Information Systems (FIS) together with various activities in this area including training, collection, compilation and dissemination of information and other related activities. The purpose has been to improve availability and quality of information on the forest sector. ITTO coordinates with member countries and other international organizations the collection, compilation and dissemination of information on tropical forests, industrial production and trade of tropical timber products.

These actions have been taken in view of achievement of the ITTA objective (i) *Strengthening the capacity of members for the collection, processing and dissemination of statistics on their trade in timber and information on the sustainable forest management*, and objective (h) *Improving market intelligence and encouraging information sharing on the international timber market with a view to ensuring greater transparency and better information on markets and market trends, including the gathering, compilation and dissemination of trade related data, including data related to species being traded*.

2. KEY ISSUES

- The quality of planning, supervision, monitoring and evaluation is often weak due to lack of sufficient information on forest resources, production and markets, and environmental values and services of forests.
- The quality of data is often weak, not least because of manual systems used in data collection and processing. The credibility of FIS relies on the accuracy and timeliness of the data processed and the information disseminated.
- The value added of processed statistical data is still largely limited. Comprehensive data analysis has not yet been given due attention. Therefore, FIS inputs to policy development and decisions have often remained limited. In order to have a full impact on policy reform and management decisions, an effective planning and control system is needed. FIS needs to go beyond mere data capture and correction of errors to include analysis and effective dissemination mechanisms.
- In many countries, the national FIS is understood as a tool for the government. However, forest and market information is needed by the private sector and other stakeholders but their needs are not always recognized.
- Inconsistencies of data produced by different government agencies create confusion among stakeholders and can lead to unnecessary conflicts in pursuing policy objectives.
- Lack of equipment and qualified personnel for the processing, analysis, validation and dissemination of information is frequently observed; the status of information units can be low and its budgetary resources limited. This is often due to the fact that the top management has not realized the value of information systems as a management tool.
- The scattered and dispersed nature of the forest information among the different institutions and geographic levels of the country represents a particular challenge for FIS development.

- Due to limited available resources, many national FIS have been developed through a piecemeal approach focusing on certain elements (e.g. timber tracking, industrial wood consumption). Various FIS components are not therefore integrated within the same modular framework and data inconsistencies are common, reducing its value for supervision and monitoring.
- Dissemination of statistical information suffers from delays and may not be directed to all the relevant target groups. This undermines the benefits from the investment in information systems. Data collected from the field is not reported back to middle management that perceives itself as a simple provider of information rather than as an effective user in day-to-day decision-making process.

3. LESSONS LEARNED

Project design

- In view of the dynamics and complexities of the forest sector, the design of national forest information system projects, should allow sufficient flexibility to facilitate technical and administrative adjustment over time.
- The FIS design should be targeted at meeting information needs of different stakeholders.
- To limit the scope of FIS projects, their strategy could initially be based on minimum requirements and the entire systems can be built up by phases through a modular approach within a comprehensive FIS framework.
- The entire FIS scope can be extensive and may include such elements as forest inventory data on different levels, concessions, community forests, reforestation activities, industries, non-timber forest products, wildlife and hunting, prices, markets, etc.

Project implementation

- Many projects targeted at improving data capture and processing have found that annually publishing information on timber production and trade supplied by the concessionaires and the timber industry companies is not sufficient for effective sectoral control and administration. It is necessary to have a closer and more frequent control of the source data supplied by the private sector and to establish field check procedures.
- The implementation of a FIS project requires the involvement of multidisciplinary and well trained personnel, with a capacity to transfer their knowledge. An experienced team, good working conditions and good personal links with the production sector has resulted in efficient project implementation. The core project team can be relatively small but needs in-depth understanding on the sector combined with knowledge on information technology.
- Compilation of statistical information into reports is the first phase which needs to be complemented by analysis of data. Studies based on statistical analysis add value to the information generating insights for policy design, organizational development, and investment opportunities in the forest sector.
- The transfer of a new technology that requires change in work procedures may initially cause fears and resistance to change. It is important to effectively communicate on the objectives and the expected situation to maintain confidence and enhance cooperation among the involved parties.
- In the specification of the equipment, growing demands due to improved awareness and skills of potential users should be anticipated in order to accommodate increasing volumes of data to be handled in the future.
- Sufficient funds should be allocated for training, with emphasis on database managers, to ensure the efficiency of the system, to be more autonomous in solving day-to-day problems, and to have an exposure to new developments. Training is also needed on the use of webpages.
- To ensure effective management and project sustainability, a stable team of qualified personnel is required as frequent key staff rotation has disrupted many development efforts.

- A number of FIS projects have extensively relied on external expertise, creating a continued dependence on their inputs. The same can happen if the project software is based on tailor-made applications rather than relying on those which are broadly used in forest organizations for other purposes.
- Use of hand computers for field-level data capture can reduce problems of data accuracy and consistency in forest inventory and field control of timber harvest. Concessionaires should be encouraged to adopt this kind of technology.
- Security policies and procedures are needed for FIS control including automatic back-up copies of the system, which should be kept outside the facilities of the institution.
- If the FIS is not properly institutionalized and the status of the information unit remains marginal, the project's sustainability is endangered.
- The interaction of the forest authority with the industry staff can be developed to ensure timely supply of data to FIS.
- A good forest information system can be adjusted to also cover the needs of other areas. The experience gained and the lessons learned can help in the building up and operation of new systems of information (e.g. biodiversity or other environmental aspects) for the country.
- The use of electronic means is important to improve the dissemination of the information, but printed material is still often necessary for reporting on main indicators.
- Implement dissemination and outreach procedures at all levels related to the information resources (database) and statistics available through the system, so that they can be used by different users and can generate actions that will contribute to the consolidation of the system;

4. GOOD PRACTICES

Project design

- FIS projects require detailed planning. They would benefit from being part of clear national/ organizational strategies to improve information systems.
- Flexibility is often needed to ensure effective implementation in changing conditions.
- A limited number of strategic requirements can be focused on in the initial phase of building up of information systems.
- In decentralized institutional setting, sub-national bodies can be given a broader role than just data collection.
- Phasing of this kind of projects can be risky due to risks related to institutional or organizational changes. Also overambitious scope and targets should be avoided.
- Strong government commitment is necessary for achieving the targeted results and awareness need to be created among top management on the strategic importance of reliable up-to-date information.

Technical aspects

- Spatial information is a key aspect of any FIS which needs to be integrated with Geographic Information Systems.
- Land holding and tenure arrangements and regulatory requirements should be considered in the FIS design.
- Four basic sub-systems need to be covered: data collection, data processing and storage (data base), data analysis, and dissemination and access to data.
- Modular approach can be useful for individual sub-systems of information on specific topics, but interaction, coordination and compatibility among various data bases need to be ensured. Also, the

integration of statistical, economic and forest data is necessary and provides effective management and control tools.

- Specific measures are often needed for acceptable quantification of illegal forestry operations and the production and raw material use of the informal sector (e.g. periodic sample-based surveys).
- Reconciling data on timber flows in different stages of the logistic chain is important for data consistency.
- Consideration of statistical requirements of reporting to ITTO and other international bodies in the FIS design will allow cost-efficient reporting in due course.
- Clarity on conversion factors from log to sawnwood is needed from the beginning; particularly those applied for import and export data.
- Statistical theories and methods can improve and optimize data collection and analysis.
- Building up consistent time-series on critical indicators adds value to the information produced.
- In decentralized systems, appropriate communication technology can ensure better links among different levels of organization.
- Engaging the private sector and other stakeholders, and providing results to them contributes to their support to improved systems.
- Compatibility of the designed FIS with the budgetary framework is necessary.
- Clarity of responsibilities among participating organizations and their different levels is critical for economic efficiency.
- Systems depending on external expertise and services tend to have low cost-efficiency and can suffer from unexpected risks.

Capacity building and dissemination

- Building up statistical information capabilities of the participating organizations may require special efforts.
- Training should cover all the levels, including data collectors and users of data.
- Training is also often needed for effective dissemination.
- Wide dissemination in different forms to all relevant stakeholders is desirable including yearbooks, information bulletins, newsletters, CD-ROMs, web portals, and other interactive means; these different ways are complementary.

Implementation arrangements

- Project steering group has a particularly critical role to ensure effective implementation of FIS projects due to the need for inter-agency coordination and cooperation.
- Multidisciplinary working groups and thematic sub-groups can be helpful in working out the detailed FIS components.
- Effective interrelationship among available skills (experienced, high-level personnel), the required technological levels (specialized hardware and software) and efficient organization and management of the project is a key factor of success.
- Private sector can be effective in implementation if the government does not have sufficient staff and capacity, and when flexibility is needed in implementation.

Sustainability

- FIS needs to be institutionalized and supported with adequate budgetary and staff resources. The information unit in forest agencies needs a clear mandate and appropriate place in the organization to ensure its continuous role.
- Sustainability of FIS projects requires strengthening links with the involved parties, comprehensive system manuals, reliability of information, effective dissemination, and established procedures of statistical analysis.
- An agreed follow-up and monitoring arrangement can help ensure sustainability.
- Effective dissemination of results showing the value of information produced contributes to sustained stakeholder support to operation of the information systems.
- Specific exit strategies in the project design and during implementation are often required for ensuring sustained operation of the FIS.
- Regional-level sharing of experiences through networking is helpful for further development of the national FIS.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 29/96 Rev.1 (M)	REINFORCEMENT OF THE NATIONAL SYSTEM FOR THE COLLECTION AND PROCESSING OF FOREST STATISTICS AND SUPPORT FOR THE TRAINING OF FIELD UNITS
PD 34/94 Rev.1 (M)	ESTABLISHMENT AND IMPLEMENTATION OF A FOREST STATISTICAL INFORMATION SYSTEM
PD 27/95 Rev.3 (M) II 1	ESTABLISHMENT AND OPERATION OF A FOREST STRATEGIC INFORMATION CENTER (CIEF) PHASE II STAGE 1
PD 56/00 Rev.3 (M)	ENHANCEMENT OF THE FOREST STATISTICS INFORMATION AND MANAGEMENT SYSTEM (STATFOR) THROUGH THE INTEGRATION OF TWO COMPUTER MODULES: COMPILATION OF MANAGEMENT INVENTORY DATA AND MANAGEMENT OF EXPORT LOG LUMBERYARD (GABON)
PD 27/95 Rev.3 (M) II 2	ESTABLISHMENT AND OPERATION OF A FOREST STRATEGIC INFORMATION CENTER (CIEF) PHASE II STAGE 2
PD 24/95 Rev.1 (I)	THE IDENTIFICATION, PROPERTIES AND USES OF THE TROPICAL TIMBER IMPORTED TO CHINA FROM LATIN AMERICA
PD 35/94 Rev.4 (M,I)	FOREST PRODUCTS MARKETING ORGANIZATION FEASIBILITY STUDY
PD 167/91 Rev.1 (M)	DIAGNOSIS AND EVALUATION OF THE BRAZILIAN FORESTRY SECTOR

THEMATIC SUMMARY REPORT No. 9

Reduced Impact Logging

1. INTRODUCTION

Reduced impact logging (RIL) was developed to facilitate and improve the implementation of sustainable forest management (SFM) of tropical forests. The original purpose was to reduce impacts of harvesting operations, but RIL has become a new management approach for improving operational planning, harvesting methods, and supervision and monitoring. RIL is part of the implementation of forest management plans with which its planning is closely linked. RIL, therefore, is one element of the toolbox for SFM at the forest management unit (FMU) level. It is applicable both in large-scale concession operations, for which it was originally developed, and small-scale community and privately managed forests.

In addition to reducing damage to the remaining vegetation, soil and water, RIL also contributes to improved regeneration in harvested areas and future sustainable production of timber and non-timber forest products. As the technology also aims at reducing costs, its application contributes to profitability. RIL also improves working conditions and occupational safety and health of the workers. In addition, RIL-based operations usually meet the forest certification standards related to harvesting.

The ITTA Objectives calls for the promotion of practices that contribute to improve sustainable management of tropical forests, such as RIL. The development and promotion of RIL are related to several ITTA Objectives including objective (f) *Promoting and supporting research and development with a view to improving forest management and efficiency of wood utilization and the competitiveness of wood products relative to other materials, as well as increasing the capacity to conserve and enhance other forest values in timber producing tropical forests*, objective (m) *Encouraging members to develop national policies aimed at sustainable utilization and conservation of timber producing forests, and maintaining ecological balance, in the context of the tropical timber trade*, and objective (p) *Promoting access to, and transfer of, technologies and technical cooperation*.

ITTO has been supporting the development of low-impact logging models, testing operational options in specific forest conditions and training of planners, supervisors and workers in several countries. Some projects have supported governmental and non-governmental organizations to establish training centers to develop human resources for the timber industry and to facilitate the adoption of reduced impact logging operations.

2. KEY ISSUES

- RIL is not yet adequately mainstreamed in the policy and regulatory requirements set for forest operations.
- The government policies and regulations are not always compatible with RIL and may need to be revised to allow its adoption.
- Implementation of RIL largely depends on the commitment of the timber industry management to improve operational forestry practices. There is a perception among many companies that RIL leads to increased costs even though the improved operations have been demonstrated to be cost-efficient.
- Convincing company management of the benefits of RIL is not enough. Field managers should be supportive to the necessary changes and adequately trained to implement RIL in their particular area of responsibility.
- Full implementation of the RIL approach requires effective supervision and communication within the organization. This often means a fundamental change to a logging company's organizational structure and rules of procedure/operational standards.
- In some cases companies are not interested in RIL because it disrupts the *status quo* of their management systems and operational practices, and because many companies are mainly concerned

about their immediate supply of raw material rather than optimizing their costs and minimizing their environmental impacts.

- Introduction of RIL has in many pilot projects involved the use of expensive equipment which has been necessary for improved forestry practices. Mainstreaming of the technology has been constrained by limited investment capacity of FMUs.
- Adaptation of RIL to community forests and other small-scale FMUs is still at initial stages. This would require specific concerted efforts.
- Specialized RIL training centers have suffered problems of sustainability when external financial support has finished. Adequate training fees from private companies sending their staff for training have not been adequate to ensure financial sustainability.

3. LESSONS LEARNED

Project design

- RIL projects usually involve participation of pilot FMUs which can serve as training grounds and experimental areas. This approach has proved to be useful for the introduction of RIL. However, this is only the first step and mainstreaming RIL needs other efforts.
- The pilot area selected for the implementation of RIL practices is often remote and located in steep terrain which tends to slow down the pace of work and reduce the demonstration potential of the area.
- The RIL model is currently mainly applicable to large logging enterprises that use heavy equipment. Medium-sized and small-scale operations and community-based forest enterprises use simpler technologies that also tend to result in adverse environmental impacts. As these smaller FMUs are numerous in many countries, their particular conditions should be taken into consideration in project design (choice of technology, FMU-level capacity building strategy, etc.).
- For the successful application of RIL it is necessary to have technically competent planners, operators, and supervisors. Well-trained operators need equally well-trained supervisors to ensure that work is carried out properly and to provide feedback to improve practices continually.
- The field-level operational staffs, the core target group of many RIL projects, needs to be fully consulted in the determination of training requirements in the planning phase.
- Participating companies should be prepared to meet the costs of training of their staff.
- Collaborating agencies have not always actively participated in the project which calls for clear statement of intention from all the planned parties.
- A feasibility study on a special RIL training center should be carried out before its financing can be justified.

Implementation

- It is important to identify environmental impacts associated with logging operations, particularly in steeply sloping areas and highly erodible watersheds. Especially planning of forest roads and other infrastructure should be carefully done, and measures to minimize adverse impacts should be taken.
- Alternatives to opening forest tracks and skidding can be analyzed for possible feasibility in specific local conditions. Helicopter logging reduces the need for road building in steep terrain and eliminates impacts on soil and water but it is costly and therefore applicable only in special cases. Cable logging systems are usually applicable in steep terrain.
- In many cases, the same road standards and road construction practices are used on steep slopes as in lowland forests. This can lead to significant stream sedimentation and loss of water quality, with serious

downstream impacts on drinking water, river transportation, irrigation, hydroelectric projects, and activities such as fish and shrimp farming.

- Detailed operational planning of RIL harvesting needs to consider, inter alia, differences in the wood technological characteristics of the lesser known timber species, and needs for taxonomical identification of additional species to ensure their due consideration in operations. Simple field guides for quick species identification have proved to be useful for lesser-used species.
- Machinery has been inappropriate in some local conditions and should therefore be specified, applicable to local conditions.
- Import procedures of improved logging machinery for RIL should be clarified in advance before their procurement.
- Overly optimistic scheduling of activities should be avoided. Collecting the necessary baseline data for RIL planning has often taken longer than originally anticipated.
- RIL projects are rarely successful for effective transfer of knowledge if the implementation is mainly based on short-term visits by overseas consultants.
- Training of trainers and pilot FMU staff has been useful in the initial stages of RIL introduction but it needs to be complemented by broader awareness raising among industry management and the government staff and expanding training activities to other target groups.
- It is important to understand that the targeted benefits may require a longer period of implementation than anticipated which can reduce the possibilities for convincing industry management on RIL's ultimate benefits.
- For effective dissemination of RIL project outputs to the public and private sector stakeholders requires a ready access to the results through short-term training courses, workshops, seminars, videos and posters in exhibitions, printed material, and a well-designed web-page.
- Technical reports of RIL projects are crucial for informing management and professional staff in private and public organizations. They should include comparative analyses on costs and productivity as well as environmental impacts of the RIL and conventional logging approaches.
- Reaching small-scale enterprises and community forests which are scattered in the country and experience limitations in the access to information would need specifically tailored dissemination activities.

Sustainability

- Some RIL activities and their promotion have lost momentum after the project completion.
- Monitoring of RIL's success based on a set of relevant indicators can help in communicating on the long-term benefits obtained.
- Comparative analyses between traditional logging and RIL have often been lacking in many projects limiting the industry's interest in improved practices.
- Independent RIL training centers usually need continual external funding even if demand for training services can be created through the project.
- It is difficult to sustain RIL training operations and promotion based on training courses fees.

4. GOOD PRACTICES

Project design and implementation

- RIL project design needs to be realistic and overambitious goals should be avoided.

- Essential aspects of RIL projects include (i) establishment of baseline information, (ii) identification of specific causes of accelerated soil erosion, (iii) development of guidelines for road construction and other practices that would significantly reduce the erosion rates, and (iv) training.
- Careful selection of sites for pilot areas at the very beginning can ensure that the areas meet criteria related to access and representativeness.
- Comparative cost and benefit analysis of RIL is an efficient tool to promote awareness raising on benefits among stakeholders.
- External experts are often required but resident staff or experts working continuously over long period with local counterparts would be preferable.

Sustainability

- Measures for systematic follow-up training and harnessing of knowledge and applicability to local conditions of the RIL technology, including among medium and small-sized operators and community forests, can ensure sustainability.
- Carefully planned exit strategies have proved to be critical for the continuous adoption of the RIL technology. They can include among others
 - Full involvement of national specialists
 - A follow-up mechanism for tracking cost-benefit ratios and other impacts
 - Assessment of the post-training performance of field operatives
 - Widespread awareness raising among forest industry management
 - Targeted dissemination on the benefits and costs, practical demonstration and technical documentation.
 - Partnerships with educational forestry institutions to ensure RIL to be included in their curriculum
- The government should consider establishing policies that encourage forest industry and communities to make available their workers for training on a regular basis.
- In order to address future sustainability when establishing training facilities, the project could make funding conditional for incorporating RIL in training.
- RIL training centers could eventually acquire a corporate status before the external funding is exhausted to enable self-financing from beneficiary organizations. However, as training fees charged to participants have not generally been sufficient for ensuring sustainability.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 47/94 Rev.3 (I)	INDUSTRIAL UTILIZATION OF LESSER-KNOWN FOREST SPECIES IN SUSTAINABLY MANAGED FORESTS
PD 3/96 Rev.2 (I)	DEVELOPMENT AND EXTENSION OF RUBBERWOOD PROCESSING AND UTILIZATION TECHNOLOGY
PD026/96 Rev.4 (F)	STUDIES ON THE MANAGEMENT STANDARDS OF HILL DIPTEROCARP FORESTS IN SARAWAK FROM A WATERSHED MANAGEMENT POINT OF VIEW - PHASE II
PD39/06 REV.2 (F).	REGIONAL PROJECT TO PROMOTE REDUCED IMPACT LOGGING IN THE CONGO BASIN. PHASE 1.

THEMATIC SUMMARY REPORT No. 10

Further Processing, Industry Development and Efficiency

1. INTRODUCTION

Further processing of tropical timber and timber products creates value to the forest resource and thereby contributes to sustainable forest management (SFM). It creates income and employment, promotes investment, increase foreign exchange earnings and substitute imports in producing countries. Development of further processing of tropical timber is therefore part of national sustainable development strategies. To make this happen the industrial operations need to be able to meet customer demands and be efficient in order to compete in the local, national and global markets.

Due to obsolete machinery and lack of vertical and horizontal integration in many tropical countries, the industry suffers from low recovery rates and high levels of residues both in harvesting and processing operations. There is a considerable potential to improve efficiency in wood raw material utilization which would improve the profitability of the industry and reduce environmental impacts. However, innovations are often needed to tap this potential.

The tropical timber industry development promotion is part of the ITTA, particularly its objectives (i) *Promoting increased and further processing of tropical timber from sustainable sources in producer member countries, with a view to promoting their industrialization and thereby increasing their employment opportunities and export earnings;* and (f) *Promoting and supporting research and development with a view to improving forest management and efficiency of wood utilization and the competitiveness of wood products relative to other materials, as well as increasing the capacity to conserve and enhance other forest values in timber producing tropical forests.*

ITTO has financed a large number of projects to facilitate the sustainable development of the tropical timber industry, and the impacts have largely been positive. However, there is significant scope to improve effectiveness, impacts and sustainability of projects.

The recently approved Thematic Programme of Industry Development and Efficiency is expected to give a boost to ITTO's support in this field.

2. KEY ISSUES

- Lack of knowledge on the status of the forest resource and potential availability of raw material is often a critical constraint for industrial investment and policy design.
- Excessive local capacity in relation to the potential wood supply creates market imbalances and can encourage illegal logging.
- Wasteful logging practices and low recovery rates in industrial processing are the main reasons for inefficiency, which is often coupled with lack of utilization and commercialization of industrial by-products and residues.
- Only relatively few potentially valuable timber species are being utilized in many countries and opportunities offered by lesser-used species (LUS) are not tapped. High logging waste is often coupled with lack of markets for all species and wood dimensions that could be harvested.
- The value added of tropical timber industries in many producing countries is low, representing lost opportunities for sustainable development. Lack of downstream further processing is constrained by limited knowledge on market prospects, and weak financial situation of mills not being able to invest in new product lines. Low levels of productivity are an additional general constraint for the competitiveness of tropical timber industries.
- Skills and capacity at all levels of the organization tend to be inadequate in most producing countries. Even weaknesses in basic technical skills are a widespread problem throughout the tropical timber

industry. Only few countries have been able to provide regular opportunities for training in the wood-based industries.

- To ensure continuous industrial development, employers and employees need to be able to continually refresh and enhance their skills and also need to be interested in sharing experiences with others. The tropical timber industry has not been particularly open for external training of their staff primarily relying on in-house training, the impact of which by definition is somewhat limited.
- Industry management does not always understand the value of investment in human resource development and is often unaware of technical improvement opportunities and market prospects. The technical and market requirements of further processed products are often poorly understood, limiting the interest in entering value-added operations which need different business models and managerial skills from primary processing of sawnwood, veneer and plywood.
- R&D is still typically weak in tropical timber industries. Technology transfer takes place primarily through suppliers of machinery. The industry's capacity to innovate is generally weak and new product development is constrained by limited understanding of market requirements and capacity to market entirely new products in the domestic and regional markets.
- Due to internal focus in industrial operations, there is often lack of interest and commitment among top management to participate in development projects limiting the entry of technical and managerial improvements.
- Industry associations are often too weak to act as effective intermediaries for sharing of new knowledge and promoting the industry's interests in policy development.

3. LESSONS LEARNED

Enabling conditions

- Consistent strong political leadership in the promotion of industrial development is necessary and it would reduce conflicts among stakeholders on the development and conservation objectives related to the utilization of tropical forest resources.
- Elaboration and implementation of national strategies for the development of the forest industry based on sustainably managed forests and legal compliance can provide a useful framework for public sector support and industrial investment.
- Establishment of enabling conditions for investment in SFM, forest plantations and further timber processing through an appropriate policy and an adequate legal and institutional framework is necessary. Specific financing mechanisms for timber industries are often needed.
- Barriers to industrial and trade development need to be reduced or removed in many countries, including high transaction costs due to bureaucratic procedures, frequent delays in obtaining necessary government permits, customs codes, representing irrelevant and unnecessary trade restrictions, etc.

Project design

- A collaborative approach to project implementation involving a wide variety of stakeholders in the design and implementation can result in significant positive impacts, but it can lead to unnecessary complexities, representing a risk for lack of commitment of some partners.
- There is a need to consider other related ITTO-funded projects and other initiatives in the country during the project design and implementation to learn from lessons, enhance synergies and avoid overlaps.

- In a private sector targeted project it is difficult to combine several broad objectives at the same time, e.g. improvement in forest management, industry efficiency and value added timber processing, marketing and capacity building in certification.
- If the project is implemented by a private sector organization (e.g. an industry or trade association), its capacity to implement the planned tasks needs careful assessment.
- Due to lack of sharing of new knowledge and skills among the industry at large, project impacts often remain limited.
- Pilot projects can be very useful but assessment of their outcomes and dissemination of the results are needed as part of the project to ensure mainstreaming of feasible improvements in further processing and efficiency improvement.
- Active participation of primary beneficiaries and other main stakeholders is necessary to ensure project relevance, technical feasibility, and realism in setting objectives.
- A good risk assessment in forest industry projects can minimize external effects on project implementation and enhance the sustainability of results.

Technical assistance and training

- Projects targeted at supporting forest industry development should be demand driven. If the main driver is expanded supply of technical assistance, there is a risk for failure or ineffectiveness. Awareness raising on the need for improvements and development opportunities among industry management may therefore be necessary starting from the project's inception.
- If industrial companies only participate as recipients of technical assistance, the results may not be adopted by them. Firm company commitment to participate in development projects is therefore necessary.
- Technical studies and assistance can create significant improvements in company operations if prepared by qualified specialists. On the other hand, sustained reliance on external support should be avoided through transfer of knowledge and skills.
- It is important to manage beneficiary expectations from the outset. For instance, there should be clarity about how long technical assistance to companies will be available and what exactly it should deliver.
- In case there are only few pilot companies as beneficiaries of a technical assistance/ training project, there should be a clear strategy for how to disseminate the results to other companies.
- In-house training on new technologies and skills is pragmatic and effective as it can be tailored to solve the specific problems of individual mills. In-house training can also accommodate a large number of participants at minimum cost. It allows direct participation of trainees in problem identification and discussion, as well as practical demonstration of technical improvements.
- Baseline information on performance of individual mills and procedures for monitoring of progress would be needed prior to commencing the in-house training. This would allow proper project design and quantitative assessment of impacts of the training provided.
- In-house training sessions should also be attended by host company top management to gain in-depth understanding on the role of processing efficiency, product quality, and skills which together largely determine company competitiveness and business survival. This understanding can also ensure sustainability of the project impacts.
- External training is appropriate for specialized skills and it is also valuable for cross-breeding of technology improvement among participants.
- Workshops, seminars and dissemination of technical documents to relevant stakeholders are primary vehicles for sharing of information and training results.

R&D and market development

- Support to R&D aimed at improving forest management and harvesting operations, industrial efficiency of wood utilization, as well as innovation and new investment can yield significant positive results. R&D should also consider how to enhance forest values through waste reduction and optimum utilization of the timber production potential.
- Development of lesser used species utilization would require knowledge on their technical characteristics, potential wood supply based on forest inventories, testing of processing methods, definition of product characteristics, and market acceptability, before marketing can be started.
- Market studies for timber products are valuable for industry if they include product/species specific information on domestic and export market potential and distribution channels, competitiveness, and identification of practical sales opportunities. Studies should focus on tropical timber and timber products from sustainably managed forests.
- Market studies are also necessary for development of fuelwood, charcoal and other forms of bioenergy as business areas for timber industries.

Project implementation

- The private sector needs to be fully involved in the implementation of industrial development projects.
- Adaptive learning approach, based on regularly collected feedback during project implementation, can result in practical improvements which ensure that project activities are targeted at beneficiary needs recognizing that these tend to change over time.
- Private sector organizations like industry associations can provide a useful dissemination channel of project results to individual enterprises.
- Industry cooperation is critical to the success of all training courses, with participating companies providing premises, materials, and equipment. Industrial companies should also make available trainers and participate in the preparation of training materials to ensure that they are applicable in practice. This is necessary as educational institutes do not have the adequate capacity for specialized technical training which involves practical demonstration.
- Sensitivities related to commercial interests can limit participation of companies in development projects. Such sensitivities should be identified early in the project cycle together with options to mitigate this problem, with the purpose of respecting confidentiality of company information and promoting effective cooperation within the industry.
- Continuous dissemination of information and results that could be replicated contributes to project impacts and sustainability. Dissemination needs to be tailored to target audience needs to facilitate adopting operational improvements.
- Project staff turnover is a significant risk and needs to be minimized. To mitigate this risk, the knowledge generated should be properly documented, key documents filed and secured, and other information on project implementation safely transferred in case there is a change in responsible personnel of the project.

Communities and other stakeholders in forest industry projects

- In industry related projects, consultations with, and involvement of, relevant stakeholders are necessary right from the beginning of project formulation up to the implementation and completion of the project. Active involvement of stakeholders is a key to success of industrial development projects.
- For projects that consider the involvement of local communities in forest management, it is important to clarify the relevant legal aspects in particular to ensure the communities' future access to the resources and their use rights.

- People living around wood-processing factories cannot simply be converted from primary producers or subsistence farmers into industrial operators. Such a change is a sensitive time-consuming process which needs to be coupled with socio-economic development of surrounding communities. Executing agencies which are specialized in technological development are usually ill-equipped for such tasks and therefore partnerships with organizations with experience on social development may be necessary in development projects involving new industrial sites in rural areas.
- In projects with the involvement of local communities, a pre-project or initial assessment of the economic conditions is often needed as it helps in improving the realism of the project design, assessment of impacts, dissemination of results, and mitigation of possible implementation risks. It is especially important to produce information on the costs and benefits of industry development for the affected communities.
- It is not always possible to involve all the community members in forest activities related to a project. A special unit or organization facilitating the participation of community members has often proved to be useful to enhance social impacts of industry development.
- The main public and private sector stakeholders involved in a project have, in general, access to the project results through short courses, printed material, technical assistant visits, consultations, workshops, exhibitions and seminars. However, in general, small-scale enterprises and individual producers scattered in the region may have limitations in this respect and often need specific targeted actions to have access to the project results.

Sustainability

- The positive impacts of the training courses will only be sustainable if the courses are continued on a regular basis and training materials are widely disseminated, including through relevant training and vocational institutions.
- There is often a risk of relying too heavily on industry in-kind contributions because such cooperation cannot be assured into the future; therefore, engagement of training institutes and other partners is also important.
- Sustainability of project impacts can be ensured through awareness raising among company owners and executives so that they no longer act solely for short-term profit, but as investors striving for long-term sustainable business development.

4. GOOD PRACTICES

Project design

- Project strategy can cover timber and timber products, non-timber forest products, bio-energy and payment of environmental services to increase social, economic and environmental benefits of industrial operations.
- Good forest industry projects are focused, relatively short term and have realistic targets. Long-term projects with a large number of objectives and activities, as well as several actors, should be avoided.
- Cooperation, coordination and partnerships with other related projects and initiatives are necessary. Duplication should be avoided and the project proposals should give necessary information on this aspect.
- Successful industry projects strive for direct financial benefits to participating companies contributing to their commitment to implementation, project impacts and sustainability.
- In R&D projects close relationship between the productive sector and research institutes ensures that the actual development needs are addressed.

Projects involving the private sector

- Criteria of selecting companies participating in an enterprise-targeted project can include the following elements depending on local conditions: (i) potential for efficiency improvement in forest and industrial operations; (ii) development strategy of value added wood products; (iii) market potential of less-used species in the international and domestic market; (iv) commitment to capacity building and technical assistance for the industrial development; (v) capacity in marketing and market promotion, (vi) development of partnerships and networks with other exporting companies and international buyers; and (vii) improvement potential of the planning and control system.
- Company requests for project participation require clear indications on what are their needs for external support. Commitment to implementation can be demonstrated by providing in-kind and other contributions. Participating companies should not be only recipients of technical assistance or training.
- Co-financing in projects involving the private sector can be a decisive element to achieve the necessary commitment but clear agreements should be established with participating companies to define their obligations and expected benefits.
- Elements for measurable target indicators for industry development can include logging efficiency, recovery rates of processing, waste utilization, labor productivity, product quality, added value, domestic and export sales volume, and cost and price levels.
- Projects involving several companies can be successful if there are no conflicts of commercial interest.
- Private sector executing agencies such as industry associations need to have an adequate management capacity to implement projects and this should be demonstrated in advance.

Training and technical assistance

- Effective technical assistance and capacity building are demand driven rather than pushed by the service supply. Due to lack of awareness among industry management, specific efforts may be needed to create the demand.
- An appropriate balance between technical assistance and training is important in the project strategy. Too much emphasis on training will not give desired results on the ground without accompanying technical assistance.
- Prior to training courses, target participants should be interviewed to ascertain their skill levels and training needs for course design to meet those needs.
- Effective dissemination of technical manuals and other materials produced to non-participating companies and other relevant stakeholders is necessary for broad project impacts.

Sustainability

- Effective communication on positive results and experiences gained raise awareness and interest among non-participating companies. In particular, the results of forest resource surveys, market studies and technical studies require effective dissemination in appropriate forms to potential beneficiaries and to share knowledge broadly.
- There is often a need to engage other partners (e.g. training institutes, research bodies, extension services, NGOs, consulting companies, etc.) to contribute to the project sustainability (e.g. future availability of training programs, technical assistance).
- Industry associations can have an important role to secure future availability of technical assistance and other consulting services for members after the termination of the project.

- Relevant government agencies and educational and research institutes can be encouraged/tasked to provide follow-up necessary technological and financial support. Their engagement in industry projects is therefore often necessary.
- Continuous updating of relevant information to facilitate industrial development, especially on forest resources, potential wood supply, and markets would contribute to the sustainability of forest industry projects.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 7/94 Rev.3 (M,I)	INFORMATION AND TECHNICAL ASSISTANCE FOR PRODUCTION AND TRADE ON TROPICAL TIMBER
PD 109/90 Rev.4 (I)	ASSISTANCE TO MODERNIZATION, RESTRUCTURING AND DEVELOPMENT OF WOOD-BASED INDUSTRIES IN COTE D'IVOIRE
PD 10/00 Rev. 2 (I, F)	SUSTAINABLE MANAGEMENT AND UTILIZATION OF SYMPODIAL BAMBOOS IN SOUTH-CHINA
PD 51/00 Rev.2 (I,M)	IMPROVEMENT OF RUBBERWOOD UTILIZATION AND MARKETING IN THAILAND
PD 286/04 Rev.1 (I)	STRENGTHENING THE CAPACITY TO PROMOTE EFFICIENT WOOD PROCESSING TECHNOLOGIES IN INDONESIA
PD038/99 Rev.1 (F,I)	DEMONSTRATION COMMUNITY FOREST MANAGEMENT IN THE NATURAL CLOUD FORESTS OF THE URUMBA BASIN, SAN IGNACIO
PD 47/94 Rev.3 (I)	INDUSTRIAL UTILIZATION OF LESSER-KNOWN FOREST SPECIES IN SUSTAINABLY MANAGED FORESTS
PD 3/96 Rev.2 (I)	DEVELOPMENT AND EXTENSION OF RUBBERWOOD PROCESSING AND UTILIZATION TECHNOLOGY
PD 34/99 Rev.2 (I)	DEVELOPMENT AND IMPLEMENTATION OF STRESS GRADING RULES FOR TROPICAL TIMBER IN THE PHILIPPINES
PD 58/99 Rev.1 (I)	INTRODUCTION OF A VILLAGE INDUSTRY IN THE COMMUNITY AROUND AN INDUSTRIAL FOREST PLANTATION IN INDONESIA
PD 24/00 Rev.1 (I)	PROMOTION OF SUSTAINABLE UTILIZATION OF RATTAN FROM PLANTATION IN THAILAND
PD 69/01 Rev.2 (I)	IMPROVED AND DIVERSIFIED USE OF TROPICAL PLANTATION TIMBER IN CHINA TO SUPPLEMENT DIMINISHING SUPPLIES FROM NATURAL FORESTS
PD 146/02 Rev.1 (I)	PROMOTING SUSTAINABLE UTILIZATION OF BAMBOO THROUGH COMMUNITY PARTICIPATION IN SUSTAINABLE FOREST MANAGEMENT
PD026/92 Rev.2 (F,I)	DEVELOPMENT OF METHODS AND STRATEGIES FOR SUSTAINED MANAGEMENT OF MOIST TROPICAL FORESTS IN CAMEROON
PD026/96 Rev.4 (F)	STUDIES ON THE MANAGEMENT STANDARDS OF HILL DIPTEROCARP FORESTS IN SARAWAK FROM A WATERSHED MANAGEMENT POINT OF VIEW - PHASE II
PD 35/99 Rev.4 (I)	PERFORMANCE EVALUATION OF EXPORT WOOD FURNITURE IN RELATION TO STRENGTH AND END-USE APPLICATIONS USING ESTABLISHED TEST STANDARD
PD 167/91 Rev.1 (M)	DIAGNOSIS AND EVALUATION OF THE BRAZILIAN FORESTRY SECTOR
PD 17/92 Rev.4 (I)	TECHNOLOGY TRANSFER/COMMERCIALIZATION OF SELECTED COCOWOOD UTILIZATION TECHNOLOGIES
PD089/90 (F) III	SUSTAINABLE FOREST MANAGEMENT AND HUMAN RESOURCES DEVELOPMENT IN INDONESIA - PHASE III
PD089/90 (F) III	SUSTAINABLE FOREST MANAGEMENT AND HUMAN RESOURCES DEVELOPMENT IN INDONESIA - PHASE III
PD 3/96 Rev.2 (I)	DEVELOPMENT AND EXTENSION OF RUBBERWOOD PROCESSING AND UTILIZATION TECHNOLOGY
PD008/95 Rev.1 (F)	MULTIPLE RESOURCES STRATIFICATION, MAPPING AND INVENTORY FOR THE FIRST FOREST ZONE IN GABON - PHASE I

THEMATIC SUMMARY REPORT No. 11

Non-Timber Forest Products

1. INTRODUCTION

Non-timber forest products (NTFPs) are, for several countries, important products to generate social and economic benefits and thereby help the implementation of sustainable management of tropical forests. NTFPs play an important role to improve livelihoods of local communities which are involved in their harvesting, processing and trade. Some NTFPs (bamboo, rattan, medicinal plants, and others.) have large formal markets and are traded internationally thereby generating income and employment in forest areas.

The ITTA objective (q) makes a specific reference to importance of NTFPs: *“Promoting better understanding of the contribution of non-timber forest products and environmental services to the sustainable management of tropical forests with the aim of enhancing the capacity of members to develop strategies to strengthen such contributions in the context of sustainable forest management, and cooperating with relevant institutions and processes to this end”*.

Consequently, ITTO has financed a large number of projects to promote the production and trade of NTFPs with significant positive impacts. For ITTO's projects, it is important to demonstrate the linkage between NTFPs and sustainable forest management (SFM). NTFPs can be the principal source of forest-based revenue for local people but their harvesting, processing and trade is often inefficient and weakly organized and therefore the potential to contribute to SFM is far from being tapped.

2. KEY ISSUES

- Information on collection/gathering, utilization and trade of NTFPs is important to develop sustainable income and improve livelihoods of forest communities. However, available data is often deficient or may be lacking to design programmes and projects.
- Government policy and regulation may occasionally be in conflict with NTFP development.
- The relationship between conservation and community forest enterprises (CFE) is not positive if over-harvesting occurs in the forest. Projects involving NTFP production and utilization should take into consideration biodiversity, and seek to balance environmental conservation aspects and socio-economic benefits.
- Limited basic skills of local communities in business development and their members are a key constraint to sustainable NTFP use and its successful commercialization.
- Promotion of sustainable use and management of NTFPs has to generally focus on the development of small-scale production and marketing systems involving local stakeholders. However, reaching them can be a major challenge to effectively share knowledge and experience.
- Stakeholder participation, particularly in the case of forest communities, is vital for NTFP projects but local people are not always effective participants.
- Transfer of improved processing technologies for value added products can take place through South-South cooperation but necessary commitments and incentives by both parties are not always easy to establish.

3. LESSONS LEARNED

Project design

- Land and forest use rights of local communities and indigenous peoples need to be compatible with the development of NTFP-based activities to avoid or reduce conflicts, and to ensure permanent access to land.

- NTFP project strategies can target at increasing socio-economic benefits and revenue of local government through improved methods of harvesting, reproducing, processing and marketing for which many opportunities exist in tropical forest areas. NTFP development could reduce the pressure on forests once the forest communities' income levels are improved.
- Forest communities tend to have a perception that NTFP project operations are against government rules. A detailed review of policies is therefore important, followed by effective communication to stakeholders.
- Many project designs have targeted at improving data and technical information but fail to make necessary provisions for dissemination of results and support to their adoption.
- Pilot projects including both harvesting and processing can be successful in demonstrating benefits from NTFP development but their site selection should consider access to facilitate demonstration on the ground.
- NTFP development often needs targeted projects rather than support being part of other government programmes.

Communities and other stakeholder participation

- Implementation and sustainability of NTFP projects need active participation of local stakeholders. Farmers and other beneficiaries of the communities need to be fully involved throughout the project cycle.
- The collaborative approach with active involvement of communities, the private sector and other stakeholders has proved to be effective and facilitates the implementation of NTFP project activities.
- Economic feasibility of the promoted improvements in harvesting and processing is critical to get farmers and other community members interested in NTFP development. If long payback periods are expected, the communities' interest is easily lost.
- Technically oriented NTFP projects (especially food projects) need to fully recognize socio-economic conditions to ensure the acceptability of new technologies and facilitate their adoption by communities.
- Conducting successive short training courses targeted at government extension staff, communities, and the private sector to cover all the necessary aspects of the NTFP development can be a feasible capacity building strategy if supported by adequate technical assistance.

NTFP production and trade

- Raw material surveys and improved forest management are often required to justify major investment or development programmes NTFP production.
- Traditional NTFP collection/gathering practices can be either sustainable or unsustainable depending on factors such as harvest methods, intensity and frequency. Thorough assessment of traditional methods is necessary before starting to develop new technologies. Gradual improvements in the existing practices may often be the best approach for ensuring adoption by producers.
- Waste reduction in the harvesting, processing and distribution process should be promoted as the waste rates are often high.
- Market studies need to be carried out in the beginning of the project to serve as a basis for technical work and marketing efforts.
- Technical and market knowledge is necessary but not a sufficient condition for success. Other critical elements include entrepreneurship development, micro-credit, and market linkages. These elements have sometimes proved to be difficult to integrate into a single project.

- Introducing new NTFP in the traditional domestic diets can be a difficult task, and therefore alternative markets in urban areas should be sought. Even if local market may not exist for fresh NTFPs, processed products may be destined for export markets, which are not limited by traditional use.
- Quality control and complete product information are necessary for entering the formal markets, especially in the case of preserved food products. For natural products there are fewer problems.
- In export development, market studies are necessary in establishing potential sales volumes, quality requirements, packaging and other safety standards, and specific marketing strategies. The entire supply chain should be considered in developing export markets.
- Access to financing is important to promote as projects tend to get bogged down with initial difficulties in business development. The investment built up in social capital may therefore be lost.
- Study tours to other countries in the region are extremely useful for community members to understand practical aspects of NTFP development.
- R&D activities have been successful when they have been clearly targeted at practical application in resource management, harvesting, processing and end-use utilization.

Sustainability

- Economically feasible improvements which are broadly disseminated and can be demonstrated on the ground can ensure the sustainability of NTFP projects.
- Establishing commercial partnerships between producers and the private sector contributes to project impacts and sustainability. Subsequent policy interventions may be necessary to ensure sustainable impacts of NTFP projects. Governments should continue data collection to monitor changes in the forest, to validate and fine tune management planning and sustainable harvesting levels for NTFPs after the project completion.
- Continuing financial and other support from local government has been critical to sustained success as NTFP development is often focused on some regions in the country only.
- Successful local initiatives are not always replicated, limiting community forest enterprise (CFE) development based on NTFPs as a strategy for sustainable livelihoods even though the project may have demonstrated their viability. Effective dissemination is therefore necessary for ensuring replication but further promotional efforts may be needed after the project's completion.
- Adoption of the project training products by relevant educational institutes contributes to project sustainability. Also, networking between communities and the private sector within the country and regionally can improve sustainability.
- Local beneficiaries may be unsatisfied for the lack of sustainability of project support if the development process is not sufficiently advanced. A successive stage of support programme may prove necessary to ensure sustainability.

4 GOOD PRACTICES

Project design

- Existing policies and regulations should be reviewed to identify potential barriers for NTFP development.
- The project strategy needs to provide for an active involvement of rural communities in SFM and utilization of NTFPs to enhance their socio-economic benefits and alleviate poverty.
- Consultation processes and other participative arrangements should be put in place to ensure commitment to project objectives and the communities and their members' acceptance of the proposed technologies.

- The pilot community approach is often feasible in introducing and testing improved technologies for collection, processing and storage of NTFPs. Provisions in the project design should be made for validation and dissemination of the experience.
- Training and extension strategies can be phased to ensure that beneficiaries are gradually exposed to new information corresponding to their absorption capacity and development needs.
- The duration of project interventions should be long enough to have an impact, but the strategy can also be phased starting with technical and socio-economic studies.

Implementation

- Resource surveys, analyses of the existing harvesting and processing practices, market studies, and socio-economic surveys should be carried out for detailed planning of the project implementation.
- New technologies should result in livelihood and income improvements and they should be acceptable by communities.
- Establishment of permanent sample plots for monitoring of plant occurrence and behaviour after harvesting and management interventions is deemed necessary.
- An appropriate balance between technical assistance and training to community members is needed.
- Integration and transparency of supply chains of NTFPs contributes to generation of value added in forest areas and appropriate benefit sharing between actors.
- Market strategies should consider the potential of local, formal national and international markets, and their product quality and other commercial requirements. In marketing, communities need to wisely identify their target customers, how to reach them, how buyers make decisions, and what price can be obtained.
- The project office should be located near the pilot project sites and other focal areas to facilitate the work and to enable ease supervision.

Sustainability

- Risk factors associated to NTFP development can be mitigated by action to encourage the government to provide enabling environment and support (finance, extension, legal access to the resource base, incentives for sound harvesting practices).
- Appropriate information on techniques and technologies on NTFP product development and utilization efficiency should be published and effectively disseminated.
- Engagement of industry associations in dissemination and extension activities should be attempted when they have adequate promotional capacity.
- Establishment of partnerships between communities and the private sector should be promoted for sustainability of project impacts.
- Regional thematic networks should be supported to promote utilization of individual NTFPs.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 15/96 Rev.2 (M,I)	UTILIZATION, COLLECTION AND TRADE OF TROPICAL NON-WOOD FOREST PRODUCTS IN THE PHILIPPINES
PD 56/99 Rev.1 (I)	PROMOTION OF THE UTILIZATION OF BAMBOO FROM SUSTAINABLE SOURCES IN THAILAND
PD 24/00 Rev.1 (I)	PROMOTION OF SUSTAINABLE UTILIZATION OF RATTAN FROM PLANTATION IN THAILAND
PD 108/01 Rev.3 (I)	DEVELOPMENT OF SUSTAINABLE RATTAN PRODUCTION AND UTILIZATION THROUGH PARTICIPATION OF RATTAN SMALL HOLDERS AND INDUSTRY IN INDONESIA
PD 146/02 Rev.1 (I)	PROMOTING SUSTAINABLE UTILIZATION OF BAMBOO THROUGH COMMUNITY PARTICIPATION IN SUSTAINABLE FOREST MANAGEMENT
PD 277/04 Rev.3 (I)	PROMOTING SELECTED NON-TIMBER FOREST PRODUCTS BASED ON COMMUNITY PARTICIPATION APPROACH TO SUPPORT SUSTAINABLE FOREST MANAGEMENT IN EAST KALIMANTAN
PD026/92 Rev.2 (F,I)	DEVELOPMENT OF METHODS AND STRATEGIES FOR SUSTAINED MANAGEMENT OF MOIST TROPICAL FORESTS IN CAMEROON
PD037/95 Rev.2 (F)	MANAGEMENT OF CATIVO FORESTS AND NON-TIMBER PRODUCTS WITH THE PARTICIPATION OF RURAL AND INDIGENOUS COMMUNITIES, DARIEN, PANAMA
PD 3/96 Rev.2 (I)	DEVELOPMENT AND EXTENSION OF RUBBERWOOD PROCESSING AND UTILIZATION TECHNOLOGY

THEMATIC SUMMARY REPORT No. 12

Markets, Marketing and Trade

1. INTRODUCTION

Markets, marketing and trade are important areas to develop and sustain a healthy timber economy. Markets ultimately create the value for tropical timber and timber products and thereby establish preconditions for sustainable forest management (SFM). Trade contributes to generations of income and employment and supports investments for competitive operations, which can ensure sustainability of the economic benefits derived from timber and non-timber forest products and services.

Several ITTA Objectives reflect the importance of actions that are necessary to improve markets, marketing and trade of tropical timber and timber products. Among the ITTA Objectives relevant to this thematic area are objective (b) *Providing a forum for consultation to promote non-discriminatory timber trade practices*; objective (d) *Enhancing the capacity of members to implement strategies for achieving exports of tropical timber and timber products from sustainably managed sources*; objective (e) *Promoting improved understanding of the structural conditions in international markets, including long-term trends in consumption and production, factors affecting market access, consumer preferences and prices, and conditions leading to prices which reflect the costs of sustainable forest management*; objective (h) *Improving market intelligence and encouraging information sharing on the international timber market with a view to ensuring greater transparency and better information on markets and market trends, including the gathering, compilation and dissemination of trade related data, including data related to species being traded*; and objective (k) *Improving marketing and distribution of tropical timber and timber product exports from sustainably managed and legally harvested sources and which are legally traded, including promoting consumer awareness*.

The International Tropical Timber Organization (ITTO) has financed several projects and activities related to the development of markets, marketing and trade of tropical timber and timber products. These projects have mainly been aimed at improving market transparency and build up capacity in market information systems, marketing and trade development.

The recently launched ITTO Thematic Programme on Trade and Market Transparency is expected to provide increased support to this critical area in the work of the Organization.

2. KEY ISSUES

- The market requirements for timber and timber products are constantly changing due to economic conditions, regulatory changes related to trade and increasing attention given to environmental aspects of tropical timber products. This calls for intensive monitoring of new developments and identification of implications for tropical timber producers. Without assistance, tropical timber producing countries will continue to face difficulties in having facilitated access to import markets.
- Complex export and import procedures in both developed and developing countries, lack of clarity of sanitary/phytosanitary and other regulations, and high transaction costs paid to trade intermediaries are other barriers for trade development.
- Adequate knowledge on the market prospects is critical for investment decisions and policy design but it is frequently insufficient. High risks need to be taken due to lack of detailed market information.
- Information on the structure of the value chain of tropical timber and timber products is inadequate, limiting strategic planning for vertical integration at enterprise level and policy design at national level.
- Many market studies carried out are too generic to be useful for marketing development at enterprise level.
- Small and medium-scale enterprises have limited access to available market information limiting their possibilities for entering new business areas.
- Few companies in the timber industry have adequate market information systems. In general, the capacity to analyze available market information is also limited.

- Knowledge on domestic and regional markets is often limited in the timber sector which has traditionally focused on main import markets. This has resulted in loss of significant economic opportunities.
- Trade of tropical timber is heavily concentrated on a relatively few number of main commercial species. Diversification would contribute to economic efficiency of forest management and utilization, but it has been hampered by lack of information on markets and weak marketing capacities to bring new products to the market. In particular, end uses and market characteristics of individual species, including lesser-used species (LUS) and plantation species, are poorly known.
- Trade development efforts have often been valuable but need active follow-up work by participating companies, which has often been lacking.
- In producing countries, the legal and policy frameworks are often inappropriate with bureaucratic customs and inspection procedures and associated high transaction costs, corruption, as well as inappropriate taxation and inadequate incentive mechanisms. There is a need for trade facilitation measures to address these problems.
- Interest and commitment of companies to participate in projects to strengthen marketing capacity has often been limited due to lack of understanding of potential benefits. Pilot companies have not been eager to share new knowledge on markets that has been generated.
- Private sector bodies such as industry and trade associations are too weak in most tropical timber producing countries to play an active role in trade development.

3. LESSONS LEARNED

- Incentives to promote foreign trade have been a decisive factor in the expansion of the wood industry in several countries.
- Regulatory measures to limit exports of logs and primary processed products tend to distort local markets but can be a transitional measure to develop trade in further processed products.
- Any market information improvement should be based on systematization of information rather than *ad hoc* studies. Continuous monitoring of market developments is necessary. On the other hand, *ad hoc* studies are often needed for kick-starting marketing in new products or markets.
- Unreliable projections of demand and supply make planning at enterprise and national levels difficult, leading to taking unnecessary risks which can be significant both for the government and individual enterprises.
- Depending on the situation, market studies are needed to cover a broad scope for policy design and evaluation and be specific to serve for information needs of individual companies.
- Market studies are also needed for bioenergy such as fuelwood and charcoal when markets are developed for these products
- Information on market potential on LUS needs to be complemented by inventories establishing potential supply and by technical studies on processing aspects. Market promotion of LUS is only possible afterwards.
- Developing standards for timber and timber products and associated quality control can help improve competitiveness.
- Support to development of marketing strategies and strengthening of marketing skills can be piloted with few companies but mechanisms are needed to share knowledge and experience broadly.
- Support to improving market information and marketing can often be usefully provided through industry and trade associations.

4. GOOD PRACTICES

- Identification and proper assessment of optional measures of export trade regulation (export bans for logs, export taxes and quotas, etc.) is necessary for designing policy measures for the development of exports in further processed products.
- Special studies can identify barriers to trade both in exporting and importing countries and propose measures to eliminate or reduce trade barriers.
- Clarification of the needs for information is important for a proper design of market studies and market information systems.
- Continuous updating of market and resource information is necessary due to changing demand and supply conditions.
- Development of market information systems and marketing capability needs specific targeted efforts, including training.
- Pilot enterprise approach in improving market information and marketing capability can be useful but possible conflicts of interest among competing enterprises need to be addressed.
- Trade development projects need to include provisions for follow-up activities by participating enterprises to ensure their impacts.
- Private sector executing agencies need to have an adequate management capacity for project implementation.
- Effective marketing promotion can be undertaken through well-organized roundtables between buyers and suppliers in the country of origin with sufficient participation on both sides.
- Effectively dissemination among potential beneficiaries is critical for investments in improving market information. Special measures may be needed to convert the data into information which is useful for small and medium-sized enterprises.
- Development of trade and market networks is helpful for ensuring sustainability of market promotion projects.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 109/90 Rev.4 (I)	ASSISTANCE TO MODERNIZATION, RESTRUCTURING AND DEVELOPMENT OF WOOD-BASED INDUSTRIES IN COTE D'IVOIRE
PD 24/95 Rev.1 (I)	THE IDENTIFICATION, PROPERTIES AND USES OF THE TROPICAL TIMBER IMPORTED TO CHINA FROM LATIN AMERICA
PD 7/94 Rev.3 (M,I)	INFORMATION AND TECHNICAL ASSISTANCE FOR PRODUCTION AND TRADE ON TROPICAL TIMBER
PD 15/96 Rev.2 (M,I)	UTILIZATION, COLLECTION AND TRADE OF TROPICAL NON-WOOD FOREST PRODUCTS IN THE PHILIPPINES
PD 51/00 Rev.2 (I,M)	IMPROVEMENT OF RUBBERWOOD UTILIZATION AND MARKETING IN THAILAND
PD 146/02 Rev.1 (I)	PROMOTING SUSTAINABLE UTILIZATION OF BAMBOO THROUGH COMMUNITY PARTICIPATION IN SUSTAINABLE FOREST MANAGEMENT
PD 167/91 Rev.1 (M)	DIAGNOSIS AND EVALUATION OF THE BRAZILIAN FORESTRY SECTOR
PD 35/94 Rev.4 (M,I)	FOREST PRODUCTS MARKETING ORGANIZATION FEASIBILITY STUDY
PD 25/96 Rev.2 (M)	CHINA'S CONSUMPTION OF FOREST PRODUCTS AND ITS DEMAND FOR THEM IN THE INTERNATIONAL MARKET BY THE YEAR 2010
PD013/96 Rev.1 (F)	MULTIPLE-USE MANAGEMENT IN THE MACAUA NATIONAL FOREST BASED ON RUBBER ESTATES - PHASE I: DEVELOPMENT OF MASTER PLAN TO SUPPORT COMMUNITY ORGANIZATION
PD 17/92 Rev.4 (I)	TECHNOLOGY TRANSFER/COMMERCIALIZATION OF SELECTED COCOWOOD UTILIZATION TECHNOLOGIES

THEMATIC SUMMARY REPORT No. 13

PROJECT DESIGN AND IMPLEMENTATION

1. INTRODUCTION

Good project design is a critical factor for achieving objectives, achieving desired impacts which are sustainable over time, with lowest possible cost. Efficient implementation involving partners and relevant stakeholders is the other critical element of good projects. Executing agencies are on different levels with regard to their capacity to design and implement projects; some are relatively experienced with well-established management systems, others are weaker still in the early phases of their learning curve. The ex-post evaluations of ITTO projects have shown that both have scope for improvement independently from which particular problem needs to be solved through a project intervention.

This document summarizes the key issues, lessons learned and some good practices which tend to be common to projects on reforestation and forest management, forest industry and economic information and market intelligence. Some of the comments, observations and conclusions may seem very specific because they were drawn from a variety of projects. They are included however, because of their potential value for projects under preparation or being executed.

The ultimate objective of this summary is to help project formulators and implementers in designing and executing future ITTO projects. The summary is based on the review of 92 ex-post evaluation reports on projects implemented in Africa, Asia and Latin America. The reports of the Expert Panel on Project Appraisal have been also drawn on.

ITTO's Manual for project formulation (2007) remains the main guidance for how projects should be designed and proposals should be presented. This document provides valuable information which can be used for additional reference, as appropriate.

2. ISSUES

Project design

- In spite of improvements over time, the quality of project proposals remains a key issue. Weak proposals have long approval process with several revisions. They also tend to lead to problems in implementation due to inadequate planning.
- While ITTO projects are usually satisfactory with regard to their relevance and their implementation has been fairly effective, areas which especially need improvements include enhancing project impacts and sustainability. In particular, attention is needed to improve economic impacts, to address gender issues, to enhance social capital, and to empower forest communities.
- The contents of project proposals may meet the formal ITTO requirements but they often lack clarity on the problems to be solved, how objectives are related to them, and the project strategy for feasible solutions. This is particularly typical in field-level projects on community forestry and enterprises, restoration, plantations, and projects which involve several stakeholders.
- Project beneficiaries are not always clearly identified. Due consideration has not sometimes been given to the needs of ultimate beneficiaries while executing agencies have been presented as the primary beneficiaries of projects.
- Stakeholder involvement is often inadequate which results in weaknesses in project design, limited or no ownership of project activities and results, and limitations in project impacts and sustainability.
- In some areas related to field implementation, institutional strengthening and capacity building, projects may best contribute by providing low level support over the medium term rather than a one-time intensive heavy dose of support.

- Possibilities for creating effective partnerships have not always been taken into account during the planning stage.
- Gender aspects are neither always sufficiently recognized in the project design phase, nor subsequently during project implementation. This is a critical area in which improvements are required.
- Economic and social sustainability appear to be the most problematic areas after the completion of projects.
- Exit strategies are generally weak and often focus on the continuation of the intervention through a follow-up second phase or another project which may not be forthcoming.
- The project development process is often neither transparent nor adequately documented.
- A project is sometimes designed or presented in a vacuum without considering or informing on other interventions in the same area or theme in the country.

Project implementation

- Pro-active tools to improve project implementation such as mid-term review and evaluation have been rarely used.
- Project impacts often remain limited due to inadequate dissemination of results and lessons learned undermining the viability of the investment made.
- It has been difficult to adapt the project activities to changing conditions on the ground.
- Steering Committees have focused their work on the review of the progress in relation to the project work plan but many of them have not played an active role in foreseeing risks and mitigating them as well as removing other obstacles in project implementation.
- Frequent delays in project implementation are due to external and internal reasons often reducing the project's efficiency.

3. LESSONS LEARNED

Project design

- The problem to be solved is not always clearly defined. As the projects are time and resource-bound interventions, they need to be focused and their strategic contribution has remained unclear. Causes and effects are not often correctly identified, and therefore the project is unlikely to be successful in solving the core problem(s).
- Projects that have been closely targeted at specific substantive themes and achieving tangible results within the available resources and time period have good chances to succeed. Such projects are often technically oriented and can deliver the targeted verifiable impacts.
- Projects that have focused on problems in which a narrow project strategy is not deemed adequate easily become complex. Simultaneous interventions in more than one impact areas tend to increase risks and other problems during implementation. In these situations project design should be particularly carefully carried out based on adequate information and stakeholder consultations.
- The development objective to be contributed is often defined on such a general level (e.g. sustainable development or sustainable forest management) that assessment of to what extent the project will contribute to its achievement is not feasible.
- The project development process is often not transparent and inadequately documented. It may be unclear if the instigator was an external body, a stakeholder group which is experiencing specific problems, or other targeted direct beneficiaries.

- Matters which determine the strategic value of a project are not always explicitly addressed in project proposals. This has hampered efficient implementation and weakened the projects to effectively contribute to their respective objectives.
- Relevant development objectives, precise formulation of specific objectives and use of consistent terminology are important prerequisites for an unambiguous well understood project proposal.
- Use of a logical framework matrix (LFM) facilitates project design and contributes to coherence and transparency but is no guarantee for the consistency between activities, anticipated outputs and objectives.
- LFM appears to be considered more as a formal requirement for project proposals than a useful tool for ensuring consistency in the project design between objectives, outcomes, outputs, activities and inputs. LFM has sometimes been interpreted as a straightjacket without recognizing flexibility which is necessary for successful project implementation in changing conditions.
- Stakeholder consultation is needed for project design but it is often understood only as a formal requirement and applied in a top-down manner. The purpose is not only to provide inputs to project design but also to start building up ownership among stakeholders right from the formulation phase. In particular, supply-driven projects (e.g. institutional strengthening and science oriented projects) tend to overlook the importance of seriously involving stakeholders with the formulation of the project.
- Adequate identification of beneficiaries and their needs in the regional and international level projects may be missing, particularly if it is based on secondary information or stakeholder perceptions. The resulting project design tends to suffer from weak relevance to country situations, limited impacts and sustainability.
- Project design has not always considered other interventions in the same area or theme in the country and building up effective links for sharing of lessons learned and information generated.

Project implementation

- Inconsistencies in the use of terminology for key concepts and terms can lead to problems in project implementation.
- Mobilizing the participation of local communities has allowed for dissemination of the importance of forests to the communities and enhanced their commitment to SFM.
- Project effectiveness can benefit from the involvement of several partners in implementation but it can increase complexity and there may be lack of clarity of responsibilities and allocation of resources. Expectations among partners from the design phase do not always correspond to the reality of the implementation phase.
- In field projects, site selection is often not optimal as related to accessibility, spatial linking of SFM and income generation activities, and using the project sites for demonstration and dissemination purposes.
- The limited achievements in community development are often due to lack of detailed prior project identification with the beneficiaries and lack of assessment of institutional capacity and needs in implementing such activities.
- Project implementation and effectiveness benefit from a combination of implementing agencies and organizations, which cover responsibility for national/regional policy formulation and implementation, research and science, and on the ground implementation.
- Developing and maintaining partnerships is an excellent concept to build up collaboration among stakeholders towards SFM. Operational partnerships tend to take time to establish which often needs a phased process. Transparency and effective communication between partners through a project is a key for smooth joint implementation and reduce unnecessary frictions. An NGO member is often a necessary partner for witnessing and providing international credibility, as well as specialist technical know-how.

- Due to changing operating conditions and accumulating experience during implementation, the adopted project strategy may have to be modified at the request of target beneficiaries. This can be crucial for efficiency, effectiveness and impacts of the project. Any modification of the strategy should be accompanied by necessary adjustments in the logical framework.
- Many projects have not developed or implemented a communication strategy representing a serious limitation for project impacts.
- Project staff turnover is a significant risk for implementation and needs to be minimized.
- Excessive reliance on use of external consultants hampers the uptake of their recommendations and this may affect the project's sustainability.
- Projects with duration longer than 3 to 4 years may benefit from a phased approach (division into two or more phases, which are separately submitted for approval and funding). Phased approach tends to minimize risks and builds up knowledge and capacity gradually while allowing for necessary adjustments in the proposal and budget for each follow-up phase.
- Exit strategy is essential for ensuring project sustainability but feasible options have not always been thought out before the completion of activities.

4. GOOD PRACTICES

Project design

- Natural forests represent an important resource for present and future generations especially when properly and sustainably managed. Forestland use needs to be guided by long-term objectives based on careful land use planning. Methods adopted should be environmentally sound, economically viable and socially acceptable.
- As part of the project development process preliminary surveys can help identify actors, their expectations and willingness to participate, as well as to explain the project's challenges and the rights and duties of everyone.
- When projects are aimed at addressing problems which require simultaneous interventions in several areas, project design needs adequate background information and stakeholder consultations. Pre-projects or preliminary studies are often needed.
- The design of complex projects often require institutional strengthening for ensuring sustainability. Tight, clearly defined and realistic objectives are helpful in such situations.
- The design of ITTO projects can benefit from the practical lessons learned in previous projects. Demonstrating this strengthens the proposal.
- Integration and spatial linkage of activities and outputs among relevant other projects strengthen project proposals.
- Description of the design and implementation processes benefits from details on the involvement of stakeholders and the degree to which their ownership is perceived.
- Complex projects often require an adequate analysis of the institutional set-up of the Executing Agency.
- Dividing the project into successive phases can be made when it is deemed necessary. For phased projects, there should be a clearly articulated end of each phase and an evaluation before starting a new phase.
- Relevant monitoring criteria can be derived from the Logical Framework Matrix ensuring consistency between the set objectives and the expected outputs and outcomes.
- The purpose of LFM is not only to assure consistency of the project design but also to serve as an interactive planning tool.

- Good project design is based on full commitment and proactive participation from those actors who should play indispensable roles during later stages of the project or even after project completion.
- Realistic cost estimates of facilities and activities and the time required to achieve planned outputs contribute to good project design.
- Realistic exit strategies are needed already at the planning stage but they are often further revised when experience is accumulated during the implementation process.

Project implementation

- Project start-up workshops/meetings with the participation of all stakeholders are a good tool for launching the implementation process.
- Project field sites selection based on representativeness and facilitated access would allow generalization of results and effective demonstration.
- For successful partnerships, clarity needs to be established on the roles and responsibilities of each partner prior to embarking on project implementation, including accountability and expected benefits.
- Establishing a conflict resolution mechanism in advance is a good practice to prevent and handle conflicts. A possibility to organize extraordinary project meetings is helpful when problems arise.
- Technical studies, manuals and lessons learned need effective dissemination both internally within the Executing Agency and externally to relevant government agencies, the private sector, forest communities and NGOs. The information is also useful for education and training institutions.
- Disseminating key information of the project's results through newspapers, journal articles and electronic and social media can be highly effective for generating broader awareness and impacts. A specific strategy for information dissemination to potential users can ensure systematic sharing of knowledge.
- Modern means of communication are useful for regularly keeping partners informed on the project progress. Overcoming eventual language barriers needs a due attention.
- Competence of project coordinators/leaders, consultants and national experts is important. Their Terms-of-Reference and contracts should be specific in terms of the products and outcomes required, the duration of service, and the time frame for delivery of the products.
- The project strategy needs swift modification if there are important changes in operating conditions. Respective changes should be made in the LFM.
- Project Steering Committees (PSC) is primarily a decision-making body while serving as an information platform. PSCs should continuously assess the relevance of the project strategy for necessary adjustments, and actively participate in removing constraints in project implementation.
- Donors' attendance in PSC meetings contributes to good communication, not only on project implementation but also for sharing of the lessons learned. Their participation can also ensure that the lessons are communicated to policy levels, including ITTO itself.
- In addition to regular audits, occasional more complete financial assessments would facilitate implementation, including justification of budget items, improving accuracy of budget estimates, and promoting strong accountability.
- Competent project management teams built up at the start of the project enable smooth implementation. Managerial staff rotation should be minimized while other staff can be rotated in order to make use of their role in disseminating the knowledge and lessons learned in the project.
- Swift assignment of government staff to a project can ensure smooth project start-up.
- To mitigate the risks related to key staff turnover, the knowledge generated should be properly documented, key documents filed and secured, and other information on project implementation safely transferred in case there is a change in responsible personnel.

- Consultancies in the implementation of project's activities should not be conducted at the cost of institutional capacity building.
- A mid-term review is necessary whenever the project's implementation shows clear signs of weakness.
- Project monitoring and evaluation are an integrated part of the project activities. Impact indicators are needed for the objectives and performance indicators for the outputs. The means of verification need to be clearly identified. Recording of project activities and outputs need to consider information needs of monitoring and evaluation.
- The planned exit strategy may have to be adjusted to cater for changes in the project environment and the expected post-project situation.