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## **META-EVALUATION OF PREVIOUSLY EVALUATED ITTO PROJECTS**

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

#### **Summary Report**

#### **10. Further processing, industry development and efficiency**

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## 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