Increasing the value

An ITTO project to improve forest management and increase the use of non-traditional timber species in Honduras aims to generate more income for forest users

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ONE of the chief constraints to the sustainable management of natural tropical forests is the low financial return that such management generates. This is due partly to the heterogeneity of tree species: the market values only a few, reducing the income that can be generated by timber production.

Since 1997, the Honduras National Forest Administration (AFE-COHDEFOR), with support from ITTO, has been implementing ITTO PROJECT PD 47/94 REV.3 (I): *Industrial utilisation of lesser-known forest species in sustainably managed forests* (PROINEL).

PROINEL is located in the Forest Region of Atlántida in the centre of the northern coastline of Honduras. Its pilot field sites, Toncontín and Urraco, are located in the upper area of the Cangrejal River Basin, some 25 km south of La Ceiba, one of the country's major cities. The forest producers benefiting from the project are dispersed over about 110 000 hectares of tropical moist forest in the northern departments of Atlántida, Colón and Olancho, although the lessons learned may have implications for a much larger area of the Honduran tropical forest estate.

Framework: project officers assess the practicability and efficiency of chainsawing with frames.

The main objective of this project is to increase the acceptability of so-called lesser-known species—species that are generally ignored by timber traders and processors—in the market while, at the same time, improving forest management and forest harvesting so that increasing the volume of timber extracted from the forest does not increase (and, in fact, decreases) the damage done by the logging operation.

The project's internal structure comprises three components: silviculture and utilisation; industrial and commercial promotion; and training.

Silviculture and utilisation

The activities in this project component are based on two specific objectives: to assess the ecological and forestry impacts of the utilisation of lesser-known species on the forests; and to develop appropriate low environmental impact technologies for the sustainable management and utilisation of tropical forests.

The activities and research work related to these objectives have been carried out in the community forests of Toncontín and Urraco, where reduced impact logging techniques are being used, including 'chainsawing with frames'—the primary milling of logs in the forest using chainsaws and a mobile 'frame' *(see photo)*—and directional felling so as to increase productivity, ensure better timber quality and reduce soil and vegetation damage. In particular, the milling of the logs in the forest has the environmental benefit of limiting the need for roads and machinery inside the forest. Environmental impact assessments on the effects of using a greater number of forest species, including research on the natural regeneration of the species, have also been carried out. As part of the work, a network of permanent sample plots has been established and is being monitored; this will provide information in coming years for the continuous improvement of broadleaved forest management.

Regeneration of tree species from managed forests after Hurricane Mitch: Hurricane Mitch, which hit Honduras in 1998, left a large swathe of damaged and destroyed forest in its wake. This study is analysing the effects of the hurricane on forest dynamics. For example, it is comparing the abundance of species, recruitment and mortality in damaged and undamaged forests, and the effects of differences in light availability on species' regeneration.

Effects of logging on floral richness, diversity and composition in moist forests: six variables are being evaluated in this study. They are: number of individuals; species; families; basal area per hectare; Simpson Index; and Shannon Index. The results are promising, showing no significant difference in horizontal structure and floral

diversity between forest logged using directional felling and chainsawing with frames (at the intensity applied in Toncontín), and unlogged forest.

Financial, technical, ecological and social validation of the system of chainsawing with frames: validation tests produced an average yield of 224 board feet/m³ for chainsawing with frames, which is higher than the minimum yield set by AFE-COHDEFOR (180 bd ft/m³); as a result, the Forest Region of Atántida is requesting AFE-COHDEFOR to increase the minimum yield to 224 bd ft/m³. The financial advantages of chainsawing with frames over hand-held chainsawing and manual sawing, the two techniques used most commonly in the region, include higher yield and productivity, and lower additional costs for industry in the processing of timber. Environmentally, chainsawing with frames removes the need to fell small-diameter trees for the construction of benches, common practice in hand-held and manual sawing. Chainsawing with frames also improves worker safety, particularly by reducing vibrations for the chainsaw operator.

Implementation and evaluation of forest logging in 60 hectares of broadleaved forest: this study is still under way and is expected to produce further data on the effects of vegetation damage caused by commercial-scale logging.

Development of volume tables for broadleaved species: volume tables are being developed for the timber volume assessment of non-traditional timber species as a supplement to existing tables. Under this system, higher levels of accuracy will be achieved in the scaling of the various species found in the broadleaved forests of Honduras.

Industrialisation and marketing

This project component is based on two specific objectives: to carry out basic and applied research to determine the best end-uses for 20 lesser-known species; and to contribute to the introduction of these species into national and international markets.

Industrialisation: laboratory research and processing tests were carried out to identify the characteristics of the 20 species, and the resulting information was published in technical newsletters. The workability of these species in processing industries at the national level is currently being investigated.

Involvement of local processors: under the project, cooperation agreements were concluded with several corporations and institutions to disseminate information on the uses of the 20 species. These include: Cooperativa Colón Atlántida Honduras Limitada (COATLAHL), Villatoro, Cornejo and Associates, the Centre for Forest Product Utilisation and Promotion (CUPROFOR), the Tela Industrial Timber Cooperative (CIMATEL), the National Association of Timber Processing Industries (ANETRAMA), the Industry Association of San Pedro Sula, the National Professional Training Institute (INFOP), the Regional University Centre of the Atlantic Coast (CURLA/UNAH), and the Toncontín Group, the Urraco Group and other independent timber companies. Partnerships with these institutions are continually being strengthened. Further, the project is having a positive impact on the profitability of some 2000 timber-processing companies concentrated mainly in the cities of Tegucigalpa, San Pedro Sula, El Progreso, Tela and La Ceiba through the dissemination of information on the efficient processing of the 'new' species.

Promotion and marketing: up to May 2002 some 22 exhibitions to display furniture products made from lesser-known species had been held in the country's major cities with the participation of industrialists, technical institutes, and timber-processing cooperatives and associations. Some foreign industrialists have also shown an interest in acquiring these timbers, although a ban on the export of non-processed timber is restricting the development of this market. A key challenge for the Honduran timber-processing sector is to raise the standard of manufacturing to a level where it can gain access to the higher-value international market.

Introduction of new species into the domestic market: according to a survey of 500 timber companies carried out by PROINEL in February 2002, 17 out of the 20 species researched and promoted by the project are being sold on domestic markets. These are: *Brosimum alicastrum*, *Cojoba arborea*, *Calophyllum brasiliense*, *Gordonia brandegeei*, *Guarea grandifolia*, *Huertea cubensis*, *Hyeronima alchorneoides*, *Ilex tectonica*, *Macrohasseltia macroterantha*, *Mortoniodendron anysophyllum*, *Pouteria izabalensis*, *Symphonia globulifera*, *Tapirira guianensis*, *Terminalia amazonia*, *Virola koschnyi*, *Vochysia hondurens*is and *Vochysia jefensis*. The introduction of some of the species into the domestic market has been hampered by the fact that the prices that can be obtained for such species are not commensurate with the high costs incurred by producers in sawing, processing, transport and taxes. Indeed, this is one of the most common problems with lesser-known species: because they are lesser known by the market, the prices they command are usually very low. Increasing the recognition of these species is therefore an important part of PROINEL's task, although the extent to which this can be done is partly dependent on the underlying properties and attractiveness of the timber.

Training

The objective of this project component is the transfer of knowledge on forest, ecological and environmental management, and on industrial and marketing opportunities. A wide range of training activities is being implemented with the participation of local communities, forest producers and timber industrialists.

Through this component, training has been provided to producers in improved forest logging techniques, including directional felling, chainsawing with frames, and chainsaw management and maintenance. In addition, producers have been trained in silvicultural treatment techniques to improve the management of broadleaved forest resources. A total of 25 courses have been provided to date in 21 communities, training 451 farmers from 42 producer groups in the Forest Region of Atlántida.

Further, some 455 rural women in 19 communities in the Forest Region of Atlántida have received training in: the involvement of women in forest management plans; non-timber products; the role of the environment in maintaining quality of life; forest nursery management and reforestation; family orchard management; and agroforestry.

Finally, 21 courses were implemented throughout the Forest Region of Atlántida for about 350 forest workers and timber industrialists in issues such as basic carpentry; open-air timber-drying and storage; wood preservation; wood surface treatments; the management of timber from the forest to the timber yard; the classification of broadleaved timber species; furniture design and flexible production; and basic administration skills.

Conclusions

To date, the project has provided training for 1256 people, including farmers, industrial workers and rural women, in 34 communities of the Forest Region of Atlántida on issues related to forest management, industry and marketing, and increased the access of forest-dependent communities to income-earning opportunities. Thus, the net effect of the project has been the generation of additional income for many forest-dependent communities while, at the same time, reducing the impact of forestry operations on the forest. Hopefully, this effect will encourage the sustainable management of the forest for generations to come. However, the low prices that are still being obtained for many of the 'new' species are limiting the achievement of this goal; financial sustainability remains a crucial element of sustainable forest management and one that continues to require attention.