



Forestry, food security and livelihoods



Without human intervention the countries of the Caribbean would be covered in dense tropical forests. The higher the annual rainfall, the higher the trees grow. However, the reality is that especially on the islands of the Caribbean most of the original forest cover has been removed for agriculture and housing purposes. Land use is not static, and so for example, the expansion of the banana industry increased the rate of deforestation on several islands. The decline of the industry, just over a decade later, resulted in reduced deforestation rates and in some instances led to an increase of forest cover.

The Caribbean has two distinct types of forest cover due to varying population densities. On islands with high population densities (200 to 300 persons per sq. km) most of the original forest has been removed. Original forest can only be found in the mountainous areas, where the terrain is too steep to be cultivated. With the exception of a few islands, like Dominica, most of the islands have a forest cover of approximately one third of the land area. On the other hand, the continental countries of the Caribbean – Suriname and Guyana – both have a low population density of about 3 to 4 people per sq. km resulting in a lesser demand for agricultural land and a retention of 80% to 90% of their land area as forest.

In spite of their relative small size, island forests play a significant, though largely unheralded role. Most of the freshwater resources are tapped from in and around the forest and are used to satisfy domestic, agricultural and industrial demands. Forests also provide important livelihood opportunities including small-scale timber production, harvesting of non-timber forest products and as a destination for ecotourism. Forest management should therefore be a priority for all countries in the region, rooted in the concept of sustainability, which would allow future generations to be able to obtain the same benefits from the forest as today's user.

FAO's work on forestry

The contribution of trees and forests to food security is often dismissed since the general perception is that the forest does not produce edible commodities.

KEY FACTS

- The Caribbean Islands have a high population density and approximately one third of the land area is covered with forests. Continental countries like Suriname and Guyana are sparsely populated and retain a forest cover of 80-90% of the land area.
- In spite of their relative small size, most of the freshwater resources used to satisfy domestic, agricultural and industrial demands, are tapped from in and around island forests.
- FAO has been assisting the region with the development of:
 - small-scale island forestry
 - eco-tourism and forest services
 - capacity building in participatory forest management
 - the use of non-timber products
 - measuring economic contribution of forest-based activities
 - supporting access to the European market for Caribbean timber
- Untapped potential lies in increasing intra-regional trade; import substitution; sharing national forestry expertise across the region through staff mobility; improved incorporation of forests and trees into agriculture and livestock production.

However, forests play an integral role in the ecosystem, providing water to drink, water for livestock and water for plant irrigation. Forests also provide a variety of livelihood opportunities, capable of generating income for thousands of families in the Caribbean.

FAO has worked extensively on developing all aspects of forest management over a number of years, both through the provision of technical assistance to governments, as well as through its partnership with a number of key NGOs operating in member countries.

Small scale island forestry

In Grenada, St. Vincent and Dominica FAO promoted the use of small portable sawmills to convert round timber into lumber. Two workers using a chainsaw and an attached guide rail can easily produce 300 board feet of lumber generating a net income of US\$ 140 per person a day, approximately four times as much an agricultural worker earns.

These board mills are portable and the environmental impact of timber harvesting is minimal. The technique allows for the conversion of smaller pieces of otherwise unusable round wood to supply local carpenters and small scale furniture manufacturers. Small scale island forestry will never be able to compete with the mass

production of imported construction wood, however increased local production can reduce the import costs of expensive woods for cabinet makers.

Bamboo basketry

The use of non-timber forest products has a long tradition in the Caribbean. The Caribbean community of Dominica for example, has developed basket weaving into a fine art. The raw material is harvested from the Larouman plant in the forest, processed locally and then woven into baskets and table mats. The products of this cottage industry are being sold to tourists and locals alike.

The area of Georgetown in St Vincent was once recognised for its bamboo weaving skills. However the traditional bamboo baskets were replaced by plastic ones. With a changing attitude towards plastic products and an increasing demand from the tourist



market for souvenirs, bamboo baskets have become fashionable again. FAO supported the Georgetown Craftmakers Association in training young women in the production of bamboo baskets.

Assessing forest-based incomes

Forests provide a multitude of timber and non-timber products. Since the available forest areas are limited, many forest-based production processes are small scale, informal and never make it into the national accounting system. To assess this hidden value, FAO initiated a study of forest-related incomes generated in St. Vincent, in collaboration with the national forest department. Based on the preliminary assessment, the national production of charcoal is estimated to generate a total income US\$ 540 000. Hunting, although considered a recreational activity, also generates tangible revenues.

Ecotourism and forest services

Caribbean islands have traditionally been beach tourism destinations but an increasing number of tourists are interested in exploring further inland. In most of the small islands, the distance from the coastline to the forest interior is normally less than an hour's drive, enabling the organization of nature tourism into day trips, which is a huge advantage over other ecotourism destinations.

POTENTIAL VALUE OF CHAINSAW MILLING: AN EXAMPLE FROM DOMINICA

Dominica has a forest cover of approximately 40 000 ha. Only 6 000 ha is suitable for forest management and harvesting the remainder being protection forest. Assuming a conservative growth rate of one m³ per year per hectare, the forest could sustainably provide 6,000 m³ of harvestable wood or approximately 2,400 m³ of chain-sawn lumber. This is equal to approximately 1,017,600 board feet of lumber. Based on a local price for chain-sawn lumber of US\$1 per board feet, this represents a value of more than US\$1 million.





Forests bordering the Caribbean Sea in Saint Lucia

Many forest user groups recognise the potential that forest services can have for their livelihood. The forestry departments in St. Lucia for example, collect approximately US\$ 30 000 per year in user fees for nature trails and royalty fees for aerial tram operators. But more important than the fees collected are the associated incomes. The aerial tram attracts 200 000 visitors per year, generating gross revenues of US\$13 million and employment for 150 tour guides.

In Jamaica, FAO provided support to forest user groups to upgrade and market their potential tourism products through the installation of visitor facilities, the preparation of marketing plans and training of community members.

Participatory forest management

Charcoal, lumber, baskets and tour guiding services are all products of island forestry. Though no single one of these activities is likely to play a key role in the national economy, all together they contribute significantly to the islands' revenue. To ensure that these products can be provided in perpetuity they require a sustainably managed forest. The key to successful and cost effective management is to engage forest user groups in the management of the countries forest resources.

Most forests in the English speaking Caribbean are state-owned and the authority to manage these forests

is vested in the national forest departments. The traditional form of managing the country's forest is through the issuing of licences for the removal of timber or other forest products. In recent years however most forest authorities have realised that this is not enough and that a more collaborative approach by all stakeholders is needed. While participatory forest management is accepted in theory, it is a new form of forest governance that still needs to be implemented.

With financial support from the European Union, FAO in collaboration with Caribbean Natural Resources Institute (CANARI), a regional NGO based in Trinidad, conducted a number of training programmes to support forest user groups in strengthening their capacity to participate in the national dialogue on forest policies. Under the same programme national forest authorities were trained to facilitate a dialogue with local forest user groups.

Supporting market access

The continental countries of the Caribbean (Suriname, Guyana and Belize) have extensive forest areas capable of sustaining a viable timber industry. Forest harvesting and downstream processing of wood is an important provider of employment, especially in remote rural areas where forest work is the only employment option. However exploiting lucrative export markets in Europe requires proof that the timber

was harvested legally. Forest operations extending over large areas are difficult to monitor, especially if a multitude of players like small scale chainsaw loggers are involved. Through capacity building of forest user groups and by facilitating the national dialogue on forest governance, FAO is supporting Guyana in gaining secure access to the European timber market.

There is scope for further expansion. Up to now only a few timber species have been utilised and there are opportunities for increased downstream and value added production of lumber and furniture. Through its Forest Law Enforcement, Governance and Trade (FLEGT) Programme, FAO supports the development of improved trade mechanisms for forest products.

Opportunities for development Intra Caribbean Timber Trade

The disparity in the distribution of forest resources within the Caribbean provides a great opportunity for the exploitation of synergies among CARICOM countries.

The island countries import more than 90% of their wood and wood products most of which is sourced from outside the Caribbean, while only a few timber species are traded and exported from the continental countries. 60% of Guyana's sawn wood export for example, is made up by only 6 timber species.

There is a considerable potential to increase the sustainable production of lumber and wood products in the continental countries in order to satisfy demand in the island states. At the same time, the increased use and trade of lesser known and competitively priced timber species would not only assist the island countries in reducing their import bill but would open additional employment and business opportunities in the continental countries.

Forest plantations

The production and export of the Caribbean's traditional agricultural crops like sugar and bananas has declined considerably over the past decade and a further decrease is likely. As a result of

these developments, large swathes of agricultural land are no longer being cultivated and in many Caribbean countries it can be observed that land formerly used for agriculture is in the process of reverting to bush and eventually to forest.

While these naturally regenerated secondary forests protect the soil against erosion and land degradation and will harbour an increasing amount of plant and animal biodiversity, they would prove much more beneficial to the economy if their creation was guided by ecologically sound forest plantations management. The Forestry Department in Jamaica for example, has identified 67,000 ha of land with the potential for reforestation, most of which is marginal agricultural land in private ownership.

Timber resources are expected to diminish worldwide and it would be prudent to begin to reduce the very high dependency on foreign wood imports of the Caribbean islands. Through the preparation of model calculations and the organisation of regional knowledge sharing events FAO encourages investment in forest plantations as a profitable business.

Mobility of forestry staff

Well trained human resources are a key requirement for sustainable forest management, starting at the level of forest workers and extending to senior forest managers. Due to the limited size of the forestry sector in all CARICOM countries the training of forest personnel should be offered and coordinated in a regional context.

Trinidad and Guyana have well-established forest training institutions and the exchange of expertise and students should be further facilitated. Because of the rather small number of professional foresters in the Caribbean an increased movement of forest managers throughout the Caribbean, including the relevant government departments, will lead to a better and more efficient use of human resources within the Caribbean and will benefit the forestry sector as a whole.

Over the years FAO has facilitated such an exchange of expertise. Specialists from the Forest Training Centre in Guyana offered training in Reduced Impact Logging and the proper use of chainsaws in Belize, Grenada, St. Vincent and Trinidad.

Agroforestry

Trees play an important role, not only within forests but in the wider Caribbean landscape. The integration of timber and fruit trees in agricultural production systems has a long tradition in the region. While a simple combination of trees with annual crops may prove difficult due to seasonal water scarcity, short-term inter-planting of banana and timber trees have proven to be successful.

With climate change rapidly taking place, trees and forest will become more important. A rise in temperature is expected to negatively affect livestock production. The integration of shade trees in pastures may help to mitigate this effect and opens the opportunity to combine forest plantations with cattle or small ruminants.

The Way Forward

The sustainable management of trees and forests needs to be more integrated into the national policy dialogue to better emphasize the ecological role and economic potential of forests for national development. This potential needs to be communicated to a wider public with the key aim of highlighting the importance of forest as the source of the drinking water.

Additionally, the sustainable production of forest goods and services can contribute significantly to economic growth by providing employment, reducing imports while preserving the integrity of forest resources.

Increased intra-regional trade of forest products will open increased export opportunities and will lead to reduced imports of wood products to the Caribbean.

Forests are likely to be affected by the expected effects of climate change and future forest management has to take this into consideration. Good forest management can contribute to the mitigation of the negative effects of climate change to other sectors.

In view of the many external benefits of forests public policies should be geared to support sustainable forest management. Investments in forestry require a long term perspective so public policies are required to facilitate a stable investment environment.



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