PLANTATIONS DE TECK DANS LE MONDE

SYNOPSIS

THE STATE OF TEAK (TECTONA GRANDIS L.F.) PLANTATIONS IN THE WORLD

IVAN BEHAGHEL

Teak (Tectona grandis) is a species whose timber is much sought-after in joinery, particularly because of the quality of its grain, its hue, and its resistance to various forms of rot and mould. Its natural distribution area covers 25 million hectares in Myanmar (14 million), India (9 million), Thailand (2 million) and Laos (20 000). In these stands, it is usually mixed with other species. Although teak resources were almost plentiful to begin with, they no longer suffice to meet the very high demand from Asian countries, Europe and the United States in a sustainable way. So with more than 2.5 million hectares of plantations, teak is nowadays one of the most widely planted forest species in the world, behind Eucalyptus grandis and Eucalyptus camaldulensis, which each cover some 3 million hectares.

PLANTATIONS IN INDONESIA

Indonesia is something of a special case, because teak was introduced into the island of Java, for reasons both religious and economic, by Hindu monks, in the 14th century, with seed from India. Here, teak found very good growing conditions. It regenerates naturally in several sites in the island, and so much so that at the turn of the century it was even thought to come originally from Indonesia.

The Dutch discovered teak in Indonesia in the 17th century and very swiftly started to log it intensively. In the early 19th century, rules restricting logging were drawn up, at the same time that Forest Management Centres were set up by the State, with an economic goal. These centres, which were at first answerable to the Ministry of Agriculture, became independent, and assumed a special status in 1961, with the name of Pertanika. In 1978, they formed two groups: Persero Perhutani on the island of Kalimantan, and Perum Perhutani, on the island of Java. This latter has become quite important and presides over the largest man-made teak forest in the world, totalling 1.1 million hectares, split into 650 000 hectares in production, in other words actively managed, and 450 000 hectares that are “protected”, encompassing fairly inaccessible plots that are not logged, and old plots that are unmanaged, and regenerate naturally.

PLANTATIONS IN COUNTRIES WITH NATURAL DISTRIBUTION AREAS

The countries with natural distribution areas for teak (Myanmar, India, Thailand and Laos) alone account for almost half the teak plantations in the world, with some 1.3 million hectares. But the forestry policies in these countries differ.

Myanmar is the only country of the four which still exports teak logs from natural forests. The earliest plantations are extremely old (dating from 1825), and the early foresters were very dynamic. One of them, Brandis, developed the taungya method, consisting in cultivating the spaces between teak saplings for the first few years. This method has been widely adopted by all other countries, including in Africa and the Americas. Planting slackened off in the early years of this century, due to onslaughts from wood parasites and political upheavals. But it regained its momentum in the 1960s, rising from 150 ha/year to 1 000 ha/year, with peaks in the 1980s, when the area planted exceeded 10 000 ha/year. At the present time, the total area planted is reckoned to be 225 000 ha.

In India, despite logging-restrictive measures introduced into natural forests in the early 19th century, planting teak to renew this species has swiftly become a real necessity. A forestry department was set up in 1864 to this end. From 1950 on, the pace of plantation was stepped up, reaching 50 000 ha/year in some years. Up until 1990, most plantations were in the hands of State companies with financing provided by backers and sponsors. Since 1990, a certain number of private companies have come into the picture, attracted by the market supporting this species. Today, India is the world’s number two country in terms of teak plantations, just behind Indonesia, with about 1 million hectares.

Thailand, in the 1960s, banned teak-log exports and subsequently set in motion major public reforestation sites, which totalled 6 000 ha/year in the 1970s. The government then encouraged village plantations and plantations established by private industrial companies, such as the Forest Industry Organization. To stimulate these programs, it handed out subsidies for plantations and set up a system of tax incentives. The forested area where plantations are being established today at the rate of 160 000 ha/year is still expanding.

Laos, where the area naturally covered with teak is much smaller (50 000 ha) than in the other three countries, has always attached much less importance to this species and its exploitation. It embarked upon reforestation sites at a later stage and over smaller areas. The earliest plots date from 1942. The total area today covers around 2 500 ha.

OTHER ASIAN COUNTRIES

Plenty of countries are planting teak as a priority species, in order to produce good quality timber, both for home consumption and for export. The most dynamic countries are Sri Lanka and Bangladesh, each with some 70 000 ha, followed by the Philippines (15 000 ha), Vietnam (14 000 ha), Malaysia, and so on...

AFRICA AND THE AMERICAS

Africa and the Americas together account for 10% of world plantations. Teak was introduced into Africa, in Nigeria, at the end of the 19th century, and into the Americas, in Trinidad, in 1913, but was not developed straightforwardly on either continent. In certain countries, on the other hand, the vogue for this species has been expanding constantly since 1960, and the annual increase in areas planted to teak is very marked. This is the case in Africa with Côte d’Ivoire (42 000 ha), Nigeria (40 000 ha), Ghana (30 000 ha), Sudan (14 000 ha) and Tanzania (5 000 ha), and in the Americas with Costa Rica (24 000 ha), Panama (13 000 ha), and Brazil (10 000 ha).

Ten years ago, these plantations, far away from the original distribution area, represented a negligible factor in terms of the overall teak wood trade. Nowadays, though, they are having an ever greater influence on the market, because of low production costs (since yields are usually higher than in the original distribution area) and the good quality of their timber.

FUTURE TRENDS

The area of teak plantations has doubled since 1950, and is still expanding in more than 50 countries, due to the vogue for this species. Teak wood production, which is currently estimated at 4 million cu.m, will rise to more than 20 million cu.m by the year 2020. The very strong demand for the timber of this species should absorb this production. Based on quality, marked price swings are to be expected for this timber. The number one quality criterion will be the log diameter, followed by the density of the wood, its colour and its shelf life.
SYNOPTIS

TEAK FROM VILLAGE PLANTATIONS IN CÔTE D’IVOIRE

GINÉS MALDONADO, DOMINIQUE LOUPPE

At the beginning of 1999, teak plantations cover an area of almost 55,000 ha in Côte d’Ivoire, with 10% outside the State-owned public forests. In the countryside, teak is not only present in small and large stands but also scattered here and there in the landscape.

Introduced 70 years ago, teak (Tectona grandis Linn. f.) has been gradually adopted by country people who have learnt to know about and appreciate it. Numerous uses have been developed by farmers and some teak products are about to play an increasing part in local economy.

The article deals with the present situation of village teak plantations, their common uses and the products that farmers derive from them. The authors also focus in particular on the future prospects and the challenges that teak represents for rural populations.

TEAK STANDS IN THE COUNTRYSIDE

Teak has been introduced in some villages from the early 1930s at the same time as the earliest plantations in the public forest areas in Bouake (central Côte d’Ivoire), firstly destined for quality timber requirements for railways. Then villagers had to make their own small plantings following the orders of French colonial foresters. Some forced workers in public forests collected stumps and seeds by themselves and teak trees became more and more scattered in the savanna region.

More recently, farmers’ teak plantation represented around 5,000 ha in 1998. Most of them are established on a small scale: from 0.5 to 10 ha close to houses, except for the SATMACI projet in the North (Korhogo): from 15 to almost 400 ha. The land chosen is often the poorest and the least productive corresponding to low productivity rates: 5 to 8 m³/ha/yr.

Lack of silvicultural management, apart from irregular coppicing due to villagers’ needs and hard ecological conditions causes poorly shaped trees, with lots of branches.

The oldest village teak stands seem to be located in the Centre (Bouake, Sakasu) and in the North of Côte d’Ivoire (Odienne, Korhogo, Ferkessedugu, Dabakala), but teak trees have recently been widely planted over almost the whole country, except the evergreen forest zone to the South.

Despite effective ownership of the land, villagers do not feel that they own their own trees because of old forestry laws that declare that all trees belong to the State authorities. Fortunately, the current forestry and land reform is about to change the situation with planted trees.

THE USES OF TEAK

Teak is nevertheless much appreciated by country people for the same reasons that lie behind its worldwide fame: durability and strength.

Teak is mainly used to produce poles for construction (frame, lumber, straw huts) but also for a wider range of purposes (benches, seating, small bridges, weaving looms, etc.). In towns, teak poles are also used for scaffolding and smaller wood for firewood (high demand and availability; several natural types of firewood are preferred to teak wood in villages). There is only slight sawing activity due to the small diameter of the logs and the export monopoly using the largest logs. Otherwise, other native woods, much cheaper than teak, supply local markets.

Teak trees are also useful alive, as hedges surrounding mango fields, for example. Planted near towns, they indicate appropriation. Although non-wood teak products seem to be quite scarce, we can note that red dye has few applications essentially because of fixing problems, whereas teak leaves are widely used as wrappers by butchers in the northern markets.

THE OUTLOOK

At the present time, teak is above all used for log exports to India, from both public teak forests and from village forests. Despite the low productivity and the defects of village teak logs, most village teak plantations have been much logged. Because of exceptionally good conditions of profitability (more or less free access, farmers under-informed about the teak timber trade and value, etc.), a lot of loggers pounced on rural teak back in 1995 and still are. Teak prices are negotiated from 4,000 F CFA to 15,000 F CFA (US$ 7 to 25, € 6 to 23), and even as much as 30,000 F CFA (US$ 51, € 46) per cu.m. This is much less than the Sodefor teak price (before logging): 90,000 F CFA per cu.m (US$ 153, € 137) with a current average FOB price of US$ 250.

Nevertheless, although this brisk logging rush frustrated many farmers, some people (young farmers, but also State employees and urban executives) realised that teak wood could also be an interesting source of income for the community and for themselves. This is why more and more plantations (with every kind of stump) are nowadays being introduced by private agencies.

Moreover, because of a deep structural crisis in logging and the timber industry, the government of Côte d’Ivoire initiated a global reform in 1995 in order to protect and to manage rainforests more effectively and with sustainable goals. The most striking measure was certainly the total logging ban for native species in January 1997. The legislative points of the reform are still being discussed by all the trade and State partners. To a certain extent, farmers will benefit from the changes because, in the near future, they will officially recover total ownership of planted trees. On the other hand, private forest projects are being encouraged by the reform, in spite of the lack of forestry consultancy structural support for them. Since many practical problems may occur, we are far from achieving any permanent results. But whatever will be, will be...
RÉSUMÉ
CARTOGRAPHIE DU CARBONE ORGANIQUE DES SOLS EN INDE DU SUD
Exemple du district de Shimoga au Karnataka

Les sols constituent l’un des principaux réservoirs terrestres de carbone organique ; il est donc important d’estimer le carbone perdu par ce réservoir quand interviennent des changements d’utilisation des terres. Ces pertes peuvent s’estimer à partir de deux états du stock et le but de l’étude présentée était de mettre au point une méthode d’estimation et de cartographie du carbone des sols à l’échelle régionale, c’est-à-dire pour plusieurs dizaines de milliers de km².


Les améliorations de la méthode pour satisfaire aux requêtes des modèles globaux de changement climatique sont ensuite abordées en prenant comme référence les directives du GIEC.

Mots-clés : effet de serre, carbone organique, sols, cartographie, Inde.

ABSTRACT
MAPPING ORGANIC CARBON IN SOILS IN SOUTHERN INDIA
The example of the Shimoga district in Karnataka

Soils are one of the main terrestrial reservoirs of organic carbon. So it is important to estimate the amount of carbon lost by this reservoir when changes in land use occur. These losses can be assessed on the basis of two states of the stock, and the goal of this study was to develop a method for estimation and mapping of soil organic carbon on a regional scale, in other words for several thousand square miles.

This method has been developed in South India and, for the time being, the results are limited to a study of carbon content in the soil surface layer. A statistical model describes the carbon content on the basis of pedological and environmental parameters. It helps to estimate the carbon content for different types of land use and to draw up the map for a known state of land use. Examples are given to illustrate the variations in carbon content associated with the transformation of ecosystems in different sorts of agro-systems.

Improvements of the method to meet the requirements of global climate change models are then tackled, taking IPCC guidelines as a reference.

Key words : greenhouse effect, organic carbon, soils, mapping, India.

RESUMEN
CARTOGRAFÍA DEL CARBONO ORGÁNICO DE LOS SUELOS DEL SUR DE LA INDIA
Ejemplo del distrito de Shimoga, en Karnataka

Los suelos constituyen una de las principales reservas terrestres de carbono orgánico y, por consiguiente, es de suma importancia evaluar el carbono perdido por estas reservas cuando se modifican las condiciones de utilización de las tierras. Estas pérdidas se pueden evaluar a partir de dos estados de las existencias y el objeto del presente estudio ha consistido en desarrollar un método de evaluación y de cartografía del carbono de los suelos a escala regional, para varias décadas de miles de kilómetros cuadrados.

Este método se ha desarrollado en el sur de la India y, por el momento, los resultados se limitan al estudio de la concentración de carbono de la capa superficial del suelo. Un modelo estadístico presenta la concentración de carbono acorde a parámetros pedológicos o medioambientales. El método permite, pues, evaluar la concentración para diversos tipos de utilización de las tierras y elaborar un mapa para un estado conocido de utilización de las tierras. Varios ejemplos ilustran las variaciones de la concentración de carbono, vinculadas con la transformación de ecosistemas en diversos tipos de agrosistemas.

Las mejoras del método para satisfacer los requerimientos de los modelos globales de cambios climáticos se examinan a continuación tomando como referencia las directivas del I.P.C.C.:

Palabras clave : efecto invernadero, carbono orgánico, suelos, cartografía, India.
RESUMÉ

LA GESTION DES FORÊTS EN INDONÉSIE
Trois décennies d'expérimentation hasardeuse (1967-1998)

Depuis le milieu des années 60, l'Indonésie, qui disposait alors de la deuxième forêt tropicale du monde, s'est lancée dans une série de politiques forestières et agricoles, sans procéder à une évaluation rigoureuse de son potentiel et en privilégiant souvent les bénéfices à court terme. Trois décennies plus tard, le pays possède une industrie du bois particulièrement développée et est devenu le premier exportateur mondial de contreplaqué. Toutefois, des incendies, qui ont parfois ravagé plusieurs millions d’ha, affectent régulièrement l'archipel depuis 15 ans et révèlent une fragilisation grave des forêts. La FAO, au début des années 90, et le gouvernement indonésien, plus récemment, en sont venus à reconnaître que le pays allait prochainement être obligé d’importer du bois. Cet article analyse les grandes phases de la mise en valeur des forêts pour essayer de déterminer les problèmes structuraux qui se posent dans l'archipel.

Mots-clés : exploitation forestière, certification, incendie de forêt, El Niño, Indonésie.

ABSTRACT

FOREST MANAGEMENT IN INDONESIA
Three decades of risky experiments (1967-1998)

Since the mid 1960s, Indonesia, which then had the world’s second largest tropical forests, embarked upon a series of agricultural and forestry policies without any proper assessment of its potential, with a frequent preference for short-term profits. Three decades later, the country has a particularly well-developed timber industry and has become the world’s number one exporter of plywood. But fires, which have in some cases destroyed several million ha, have been regularly affecting the archipelago for the last 15 years, seriously endangering the forests. In the early 1990s, the FAO and, more recently, the Indonesian government have acknowledged that the country would soon be forced to import timber. This article analyses the major phases of forest development in an attempt to identify the structural problems facing the archipelago.

Key words : logging, certification, forest fire, El Niño, Indonesia.

RESUMEN

GESTIÓN DE BOSQUES EN INDONESIA
Tres decenios de experimentación aventurada (1967-1998)

Desde mediados de los años 60, Indonesia – que disponía entonces del segundo bosque tropical del mundo – emprendió una serie de políticas forestales y agrícolas sin proceder a una evaluación rigurosa de su potencial y dando preferencia, con frecuencia, a los beneficios a corto plazo. Tres decenios después, este país dispone de una industria maderera particularmente desarrollada, llegando a ser el primer exportador mundial de madera contrachapada. No obstante, los incendios, que han destruido varios millones de hectáreas, afectan regularmente al archipiélago desde hace 15 años y reflejan una fragilización grave de los bosques. La FAO, a principios de los años 90 y el Gobierno indonesio más recientemente, llegaron a la conclusión por la cual el país se vería obligado, dentro de breve plazo, a importar maderas. Se analizan en el presente artículo las principales fases de valorización de los bosques, para intentar determinar los problemas estructurales que se plantean en el archipiélago.

Palabras clave : explotación forestal, certificación, incendio de bosques, El Niño, Indonesia.
RÉSUMÉ
LA FOURNITURE DE VIANDE D’IMPALA (AEPYCEROS MELAMPUS) AUX POPULATIONS LOCALES DE NYAMINYAMI (OMAY, ZIMBABWE)

Aspects nutritionnels et socioculturels des interactions homme-animal

La viande de brousse est une ressource importante pour les populations traditionnelles vivant au contact de la grande faune, d’un point de vue socioculturel et également d’un point de vue nutritionnel. Mais les mesures de conservation de la nature prises en Afrique en ont bien souvent limité ou interdit l’accès aux populations locales. Dans les zones communales de Nyaminyami (Omay, Zimbabwe), un programme d’abattage (Projet Nyama) et de vente de viande d’impala (Aepyceros melampus) aux communautés locales opère depuis plusieurs années. Les populations locales, majoritairement tonga, possèdent une connaissance profonde de la faune et de la flore de la zone sur laquelle elles ont été déplacées depuis la création du lac Kariba. La grande faune suscite une peur symbolique entretenue par les agressions subies par les personnes lorsqu’elles se déplacent sur la zone ou qu’elles protègent leurs cultures contre les invasions d’animaux. D’autre part, les habitants de Mola vivent dans une situation nutritionnelle très précaire. Le Projet Nyama est en conséquence relativement bien connu et perçu par les populations locales. Pour améliorer la perception du projet, les personnes interrogées suggèrent l’extension du programme à d’autres espèces que l’impala, et une plus grande transparence sur les modes de fonctionnement du projet, notamment le choix des points de distribution, approvisionnés en fonction des zones où les animaux sont abattus.

Mots-clés: viande de brousse, impala, gestion de la faune, Tonga, nutrition, ethnozoologie, Zimbabwe.

SUMMARY
PROVIDING IMPALA MEAT (AEPYCEROS MELAMPUS) TO LOCAL POPULATIONS IN NYAMINYAMI (OMAY, ZIMBABWE)

Nutritional and sociocultural aspects of man-wildlife interactions

Bush meat is an important resource for traditional populations living in contact with large African mammals, from a sociocultural and nutritional point of view. But nature conservation policies implemented in Africa have often limited or prohibited access of local people to this resource. In the Nyaminyami Communal Lands (Omay, Zimbabwe), a project (Nyama Project) aimed at cropping impala (Aepyceros melampus) and selling the meat to local communities has been operating for several years within the CAMPFIRE programme. During a survey carried out in January 1996, it was found that local populations, mainly Tonga, still retain a profound knowledge of the surrounding fauna and flora, despite the fact that they were displaced after the creation of lake Kariba. Big game at hand is a tempting bonus. It also maintains an ancestral fear that is reinforced by the aggression felt by people when they travel in the area or protect their crops from animal raiding. People living in Mola are in a very precarious nutritional situation. Consequently, the Nyama Project is relatively well known and well perceived by the local people who were questioned. To improve the perception of the project, local communities suggest that other game species could also be included in the cropping programme and ask for more transparency in the functioning of the project, especially with regard to the sensitive issue of where to crop the animals and where to distribute the meat.

Key words: bush meat, impala, wildlife management, Tonga, nutrition, ethnozoology, Zimbabwe.

RESUMEN
EL SUMINISTRO DE CARNE DE IMPALA (AEPYCEROS MELAMPUS) A LAS POBLACIONES LOCALES DE NYAMINYAMI (OMAY, ZIMBABWE)

Aspectos nutricionales y socioculturales de las interacciones hombre-animal

La carne procedente de la selva constituye un recurso importante para las poblaciones tradicionales que viven en contacto con la gran fauna, tanto desde un punto de vista sociocultural, como también desde el punto de vista nutricional. Pero, las medidas en pro de la conservación de la naturaleza tomadas en África han limitado o prohibido a las poblaciones locales el acceso a este recurso. En las zonas comunales de Nyaminyami (Omay, Zimbabwe), un programa de matanza (Proyecto Nyama) y de venta de carne de impala (Aepyceros melampus) en las comunidades locales, se ha llevado a cabo en el marco del programa CAMPFIRE desde hace varios años. Las poblaciones locales, en su mayoría tonga, poseen un profundo conocimiento de la fauna y la flora de la zona en la cual se han visto desplazadas desde la creación del lago Kariba. La gran fauna crea un temor simbólico mantenido por las agresiones resentidas con motivo de los desplazamientos en esta zona o la protección de los cultivos. Por consiguiente, el Proyecto Nyama es relativamente bien conocido y percibido por las poblaciones locales. Para mejorar el enfoque del proyecto, las personas interrogadas han sugerido la ampliación del programa a otras especies distintas del impala, así como una mayor transparencia respecto a los modos de funcionamiento del proyecto, y fundamentalmente, la opción de los puntos de distribución aprovisionados acorde a las áreas en que se efectúa la matanza de los animales.

Palabras clave: carne de selva, impala, gestión de la fauna, Tonga, nutrición, etnozoología, Zimbabwe.

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