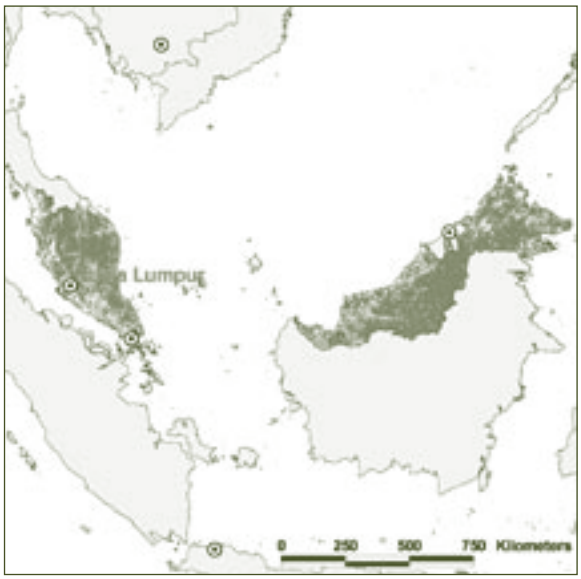
MALAYSIA



*For legend see page 58

Status of forest resources

Malaysia has a land area of 32.9 million hectares and a population of about 25 million people. It is a federation of 13 states and comprises two distinct regions – Peninsular Malaysia, with eleven states, and the states of Sarawak and Sabah (East Malaysia) in Borneo. Estimates of the total natural forest area include 19.3 million hectares (FAO 2001) and 19.5 million hectares[a]. Sarawak is the most forested state, with 75% forest cover; Sabah has 60% and Peninsular Malaysia 45%. With the inclusion of tree crops such as rubber, oil palm and coconut, the percentage of tree cover in Malaysia is 75.5%[a].

Forest types. Malaysia's forests are generally moist tropical forests, those in the lowlands and lower parts of the hills being dominated by Dipterocarpaceae. Of the estimated 17.1 million hectares of dipterocarp forests, 5.40 million hectares are in Peninsular Malaysia, 7.92 million hectares in Sarawak and 3.83 million hectares in Sabah[a]. There are also 1.54 million hectares of peat swamp forest, 1.12 million hectares of which are in Sarawak. Mangrove forests cover about 567,000 hectares; more than half are in Sabah[a].

Dynamics of forest resource change. The average annual loss of forest during the 1990s was an estimated 237,000 hectares (1.2%) (FAO 2005), largely attributable to planned land-use change[a].

Wildfire damaged an estimated 164,000 hectares of forest in the five-year period to 2003; data on damage caused by encroachment, shifting agriculture or premature re-entry to logged areas were unavailable for this report[a].

Permanent forest estate. In 2003, the area of natural-forest PFE was 14.39 million hectares (44% of land area), comprising 3.21 million hectares (22.3%) of protection forest and 11.18 million hectares (77.8%) of production forest (Table 1). These forest lands are gazetted in accordance with the National Forest Act 1984 in Peninsular Malaysia and the relevant state forest ordinance/enactment in the states of Sabah and Sarawak. Peninsular Malaysia contains 4.85 million hectares (34%) of the PFE, Sabah 3.6 million hectares (25%) and Sarawak 6.0 million hectares (41%)[a]. The area of gazetted PFE increased from 12.6 million hectares in 1990 to 14.4 million hectares today[a]. Strong measures of surveillance, enforcement and deterrent punishment are in place to ensure the integrity and security of the PFE. Some 79% of the PFE boundaries have been surveyed and demarcated and are being maintained[a].

Planted forests. At the end of 2003, the total area of planted forest for marketable timber amounted to 263,000 hectares, of which 183,000 are inside the PFE[a]. There are also about 5.27 million

Table 1 PFE

Estimated total forest area, range (million hectares)	Total closed natural forest ('000 hectares) Source: FAO 2001	PFE ('000 hectares)[a]			
		Production		Protection	Total
		Natural	Planted		
19.3–19.5	19,148	11,200	183	3,210	14,593

hectares of commercial agricultural plantations – including oil palm, rubber, cocoa and coconut (MTC 2004). Many of these, especially rubber, are used for wood production in addition to agricultural use.

Institutional arrangements

Forest tenure. An estimated 98% of natural forest and 69.2% of forest plantations are state-owned; the remaining area is privately owned[a]. The special rights of indigenous communities are provided in the Aboriginal Peoples Act 1954. In Sarawak, forests cleared by native communities for agriculture before 1958 are recognized as Native Customary Rights Land.

SFM policy framework. A national forestry policy (NFP) was adopted in 1978 as a framework for SFM; this was revised in 1992 in response to growing concern for the conservation of biological diversity, the sustainable utilization of genetic resources and the participation of local communities in forestry. The Malaysian C&I for SFM were developed in 2000 based on the ITTO C&I.

Forest policy and legislation. Under the federal constitution, land-use falls within the jurisdiction of the states. Each state is empowered to enact laws, formulate its forest policy and manage its forests. The federal National Forestry Act (1984) establishes the general rules on forestry and each state is empowered to enact laws and regulations in line with those rules. The federal government also provides advice and technical assistance, maintains experimental stations and funds research and training. The National Forestry Council (NFC), established in 1971, serves as a forum for coordination between the federal and state governments to discuss and resolve problems and issues relating to forest policy, administration and management, including the determination of the annual timber harvest. There is a commitment in the NFP that: sufficient land strategically located throughout the country be dedicated as PFE; the permanent forests be managed in accordance with the principles of sound forest management; and the efficient harvesting and utilization of forest products and the development of forest industries be promoted.

The legislative framework is defined in the National Forestry Act (1984) and the Wood-based Industries Act (1984). The National Forestry Act was amended in 1993 to include more stringent penalties for certain forest offences, particularly illegal logging. Provision was also made for the police and armed forces to enforce the act. The National Forestry Act is adopted for implementation by all the states and is complemented by relevant laws dealing with land and water conservation, environmental quality, wildlife protection, the management of national parks, biodiversity conservation, and the rights of indigenous communities.

New incentives were introduced in 2002 and 2003 to attract investment by the private sector and encourage its greater involvement in SFM. These included: pioneer status to private plantation ventures with 100% exemption from income tax for ten years; incentives to concessionaires to carry out R&D and the development of human resources; a reduction in royalty rates for RIL, enrichment planting and fire management; and differential royalty rates for lesser-known species.

Institutions involved in forests. The forestry departments are responsible for the planning, management and administration of forest resources. The Forestry Department Headquarters, Peninsular Malaysia, is responsible for forestry-sector planning, forest management, forest development and operational studies, the provision of technical advice and services, and staff training. The state forestry departments in Peninsular Malaysia and Sabah are responsible for the administration, management and development of forest resources, the regulation of forest harvesting, the collection of forest revenue, and the planning and coordination of the development of wood-based industries in their respective states. In Sarawak, these functions are carried out by the Sarawak Forestry Corporation, while the Forestry Department is vested with regulatory functions. Apart from the forestry departments there are a number of specialized institutions such as the Forest Research Institute of Malaysia (FRIM), the Malaysian Timber Industry Board (MTIB), the Malaysian Timber Certification Council (MTCC), and university forestry faculties.

Responsibility for forestry and timber at the federal level resided with the Ministry of Primary Industries until March 2004. Following the most recent general election, the Forestry Department, FRIM and the departments of Environment and Wildlife

were placed under the new Ministry of Natural Resources and Environment (NRE). Consequently, the implementation of the NFP, the National Policy on Biological Diversity (1998) and matters relating to the upstream activities of the forest sector are placed under the jurisdiction of NRE. Timber and other downstream activities of the sector, including processing, manufacturing, marketing, trade, exports and international cooperation (including ITTO) are under the responsibility of the Ministry of Plantation Industries and Commodities, which replaced the Ministry of Primary Industries. This division of responsibilities poses a coordination challenge.

Within each state the consultative committees at the village, *Mukim* and district levels strengthen the participation and involvement of local communities.

The public is well aware of the importance of wildlife and environmental quality. Stakeholders including environmental NGOs, social groups and forest-worker movements are active in forestry and forest-related initiatives. The forest industry is also strongly involved at both federal and state levels through, for example, the MTIB, the Malaysian Timber Council, the Sarawak Timber Industry Development Corporation, the Sabah Timber Association, the Sarawak Timber Association and other associations.

Status of forest management

Forest for production

Malaysian forest policy emphasizes the sustainable management of forests and the balance between protection and production. The silvicultural and harvesting regulations for the different forest types specify the detailed steps to be followed. These include codes of forest practice, forest harvesting guidelines and standard road specifications. RIL and helicopter logging are being conducted with emphasis on reducing environmental impact and (for the latter) on timber harvesting in terrain and conditions that preclude ground-based systems; in Sabah some 2,000 personnel from both the Forestry Department and the private sector have received training in RIL operations[a]. Peninsular Malaysia has adopted a Forest Management Policy and Strategy, and Sarawak and Sabah have policies of managing their forests sustainably. Forest divisional management plans are regularly prepared to run for about 10–15 years.

At present, 14 million hectares, representing 73% of all forests in Malaysia, including all peat swamp forests, 81% of the inland forests and 23% of the mangrove forests, are covered by forest management plans (up from 2.5 million hectares in 1980)[a].

Forest management implementation. All timber harvesting and related management operations are carried out by contractors operating on the basis of either a long-term logging agreement or a short-term licence. Large concessions are normally granted under legally binding agreements. These concessions are often tied to wood-based industries and some of them cover periods of up to 30 years. Logging is controlled by the respective state forestry department through its local offices; a total of 8,344 forestry-related personnel were employed in the public sector in 2000[a]. Size limits, intensity of extraction, logging sequence, methods of treatment, transport routes, standards of road construction, etc are generally stipulated in the logging licences. In Sabah, new opportunities for joint activities between government and the private sector have been made possible through a recent initiative under which the state government established 27 FMUs to be managed sustainably. Each FMU is about 100,000 hectares in size and management agreements with private companies offer secure tenure for 100 years. The FMUs are generally in forests that have been logged or are being logged. The private sector is invited to participate in the management of these FMUs according to scientifically based management plans approved by the Sabah Forestry Department. Data on the total number of active logging concessions and their sizes were not made available for this report. The Matang mangrove forests in Peninsular Malaysia have been managed sustainably for more than 100 years.

Silviculture and species selection. The silvicultural system used for managing Malaysian dipterocarp forests has changed over the years. Regeneration improvement felling was replaced by the Malayan Uniform System in the 1950s; these two mainly applied to lowland forest. The Selective Management System (SMS) was introduced in 1978 as logging moved into the hill dipterocarp forests and as advances in the technology of wood-processing rendered marketable many species that were previously not so. This allows harvesting to be carried out on a 25-year cycle; the minimum

Table 2 Some commonly harvested species for industrial roundwood (2001-2003)*

Timber species	Remarks
Shorea spp (meranti)	Used in sawmilling and plywood
Anisoptera spp (mersawa)	Used in sawmilling and plywood
Dipterocarpus spp (keruing)	Used in sawmilling and plywood
Dryobalanops spp (kapur)	Used in sawmilling and plywood
Hevea brasiliensis ('Malaysian oak')	From rubber plantations. Much is exported as finished products

* With the exception of *H. brasiliensis*, each of these is made up of a group of species with similar timber characteristics

cutting size prescribed is 60 cm diameter for dipterocarps and 45 cm for non-dipterocarps. Only merchantable trees (up to about ten trees per hectare) are allowed to be harvested. Post-harvest treatments concentrate on: (i) assessing the condition of the crop after logging; and (ii) measures for rehabilitation/enhancement of the crop determined according to its condition at the time. By the end of 2003, 2.1 million hectares of logged-over forests had been treated silviculturally and 50,000 hectares more had been enriched with native species.

More than 120 species are used for timber production. Besides those listed in Table 2 these include, from native forests, *Hopea* spp (merawan), *Gonystylus bancanus* (ramin), *Intsia palembanica* (merbau), kedondong (*Canarium* spp, *Santiria* spp), *Pterocarpus* spp (angsana), *Terminalia* spp (talisai), and, from planted forests, *Acacia mangium, Tectona grandis* (teak), *Toona ciliata* and *Gmelina arborea*.

Planted forest and trees outside the forest. The establishment of significant-sized forest plantations started in 1957 with teak, which was only successful in areas with a distinct dry season. Since then the program has been widened to include other fast-growing species such as *A. mangium, G. arborea, Paraserianthes falcataria, Eucalyptus deglupta*, *Pinus* spp and *Araucaria* spp. FAO (2001) estimated the area of plantations to be: *Acacia* – 180,000 hectares, *Eucalyptus* – 19,000 hectares, teak – 12,000 hectares, other broadleaved species – 12,000 hectares, and conifers – 47,000 hectares. In the past ten years, rubber has been planted for latex and timber, particularly in Peninsular Malaysia, and finished products of rubberwood have captured a lucrative export market. Rubber plantations are managed on a rotation of about 25 years; about 20,000 hectares are currently being replanted annually. In Sarawak, 1.0 million hectares have been set aside since 1998 as licences for planted forests for the development for forest plantations of exotic and native tree species. Trees are also widely planted in orchards, urban areas, recreational areas and along highways.

Forest certification. The MTCC was established as an independent body in 1998; it develops and implements standards for timber certification through multi-stakeholder consultations, establishes and implements a system to oversee and monitor the certification scheme, establishes networks and cooperates with other national and international bodies concerned with timber certification, and facilitates arrangements for mutual recognition. By 2004, the forests of eight states covering 4.67 million hectares in Peninsular Malaysia (including 171,000 hectares of plantations) and 60,000 hectares in Sarawak had been independently assessed and awarded the national certificate of forest management. Another 650,000 hectares are being examined for possible certification[a]. In addition, as of October 2005 the FSC had certified three FMUs totalling 77,242 hectares, of which 64,808 hectares are natural forests and 12,434 hectares are planted forests (FSC 2005). The MTCC is actively cooperating with the FSC and the PEFC to seek their endorsement.

Estimate of the area of forest sustainably managed for production. The entire PFE allocated for timber production is covered by forest management plans[a].

Table 3 Management of the production PFE ('000 hectares)

Natural					Planted		
Total	Allocated to concessions/ under licence	With management plans	Certified	Sustainably managed	Total	With management plans	Certified
11,200	6,790[a]	11,200	4,620	4,790[d]	183	183	183

Of the harvested PFE, management guidelines were implemented on an estimated 3.96 million hectares in Sarawak and Peninsular Malaysia over the five-year period to 2001, although post-harvest surveys had been conducted on only 201,000 hectares of that area[a]. In the absence of a comprehensive evaluation of the extent to which such management plans are being implemented effectively, the area of natural-forest production PFE being managed sustainably is estimated to be at least 4.78 million hectares[d], corresponding to the total area certified by the MTCC and the FSC and the 162,000-hectare Bintulu Model Forest in Sarawak (Table 3).

Timber production and trade. Total Malaysian industrial log production was 21.5 million m^3 in 2003, down slightly from 22.2 million m^3 in 1999 (ITTO 2004, 2005); in 1990 the estimated total industrial log production was 39.1 million m^3 (ITTO 1995). Log exports fell from 6.74 million m^3 in 1999 to 5.47 million m^3 in 2003 (ITTO 2004, 2005), continuing the downward trend evident since 1990, when exports were an estimated 20.3 million m^3 (ITTO 1995). Sawnwood production fell from 5.24 million m^3 in 1999 to 4.77 million m^3 in 2003 (ITTO 2004, 2005).

The main wood-based industries are sawmilling, wood-based panel products, wood moulding and furniture manufacture. Others include secondary and tertiary processing industries such as timber treatment, the prefabrication of wooden houses, and furniture and parquet manufacture. The government aims to make Malaysia a major producer of high value-added, wood-based products in the world market. The supply of raw materials at competitive prices, relatively low labour costs and strong international prices have created favourable conditions for the growth of forest industries in Malaysia over the past ten years.

Malaysia earned US$2.47 billion from the export of primary wood products in 2003; plywood accounted for 43% of this, followed by sawnwood (27%) and logs (21%) (ITTO 2005). In the last few years, the average annual traded value (international and domestic) of all wood products has reached about US$4.5 billion[a]. The share of furniture and woodworking in international trade has also been increasing; it reportedly reached about 35% of the total of all forest product exports in 2002[a].

Non-wood forest products. Malaysia has given priority to the development of commercial NWFPs. Small-scale, rural-based industries using forest produce such as rattan and bamboo are common. Besides rattan and bamboo, marketed NWFPs include damar and copal gum, *Dyera costulata* (jelutong latex), nipah sugar, *Aquilaria* spp (gharu wood), illipe nuts and oil, and *Palaquium* spp (gutta percha). More recent is the development of aromatic plants, health products and medicines based on plant and animal species from natural forests.

Forest for protection

Soil and water. The forest area managed for the protection of soil and water is about 4.21 million hectares, or about 13% of the land area[a], of which about 3.21 million hectares fall within the PFE; this latter number comprises forest managed primarily for biodiversity and environmental conservation and is the total area of the protection PFE. No logging is allowed in sensitive and catchment areas.

Biological diversity. Malaysia is one of the twelve mega-diverse countries. It is estimated to have 12,500 species of flowering plants and more than 1,100 species of ferns. In Peninsular Malaysia, 26% of tree species are endemic. Sabah and Sarawak are key areas of endemism. The fauna is considered even richer than the flora: it includes 300 mammals, 750 birds, 350 reptiles, 165 amphibians, more

Table 4 Management of the protection PFE ('000 hectares)

Total	Attributed to IUCN categories I–IV	Allocated for soil and water	With management plans	Sustainably managed
3,210[a]	1,400[a]	3,210	3,210[d]	3,210[d]

than 300 freshwater fish and 1,200 butterflies. Of Malaysia's estimated 19,335 forest-dependent species, 72 mammals, 542 birds, seven amphibians and 29 butterflies are considered endangered[a]. Fifty-one mammals, 45 birds, 22 reptiles, 45 amphibians and 688 plants are listed as critically endangered, endangered or vulnerable on the IUCN red list of threatened species; of these, 30 mammals, 42 birds, 45 amphibians and 15 plants are found in forests (IUCN 2004). Twenty-three plants are listed in CITES Appendix I and 889 in Appendix II, including ramin (CITES 2005). There are both *in situ* and *ex situ* conservation measures to protect endangered species.

Protective measures in production forests. In areas under selective logging, elaborate standards have been specified for the protection of water courses, construction of bridges and water crossings, establishment of stream buffers, and the alignment of skid trails, etc. The use of chemicals for the poison girdling of trees has been discontinued[a].

Extent of protected areas. Of the total PFE, 3.21 million hectares are classified as protection forest. Outside the PFE, other protected areas that have been gazetted/proposed as national parks and wildlife and bird sanctuaries contain forest amounting to an estimated 2.15 million hectares, making a potential total protected forest area of 5.36 million hectares (16.3% of Malaysia's total land area). According to UNEP-WCMC (2004) 1.40 million hectares of forest are in reserves classified in IUCN protected-area categories I–IV, including 730,900 hectares of lowland evergreen broadleaved rainforest, 174,000 hectares of lower montane forest and 29,600 hectares of freshwater swamp forest. Seven hundred thousand hectares of forest protected areas are located in Sarawak; the two largest areas are supported by ITTO projects (Lanjak-Entimau Wildlife Sanctuary with 187,000 hectares and the extended Pulong Tau National Park covering 165,000 hectares). The long-established 434,000-hectare Taman Negara National Park straddling the states of Pahang, Terengganu and Kelantan in Peninsular Malaysia is also worth citing. Additionally, there are 135 virgin jungle reserves with a total area of 115,000 hectares scattered within the PFE to preserve samples of the full range of forest types.

Estimate of the area of forest sustainably managed for protection. The area of protection PFE under sustainable management is estimated to be 3.21 million hectares (Table 4), the total area of protection PFE. Protected forest areas outside the PFE may also be so managed but data were not available for this report.

Socioeconomic aspects

Economic aspects. Forests and forest industries play an important role in the Malaysian economy, although there has recently been a decline in their contribution to GDP, from 5.3% in 1996 to 4.4% in 2000[a]. About 337,000 people (3.3% of the labour force) were directly employed in the forest-based sector in 2003[a], up from 177,000 in 1990. Much of this increase can be attributed to the expansion of the secondary processing industry.

Livelihood values. Forests are still important for the livelihoods of many indigenous communities, particularly tribal communities in Sarawak and Sabah. De Beer and McDermott (1996) estimated that about 700,000 people in Sarawak and Sabah obtained at least part of their livelihood from the forest; some Penan were still nomadic and almost entirely dependent on forest produce. The rights of indigenous communities for the subsistence use of forest products are officially recognized. Sago palm (*Eugeissona utilis* and *Metroxylon* spp), meat, fish, wild honey and mushrooms are regularly collected, as are medicinal plants, dart poison, birds' nests, rattan and bamboo.

Social relations. The rights of local people regarding the use of forest resources are recognized by the 1957 Land Code, the 1956 Land Ordinance and

other laws. Logging in forest areas claimed by indigenous communities has sometimes created conflicts between timber operators and local communities, particularly in Sarawak and particularly for the nomadic Penan people. These claims are being addressed through the legal system but remain one of the obstacles to mutual recognition between the MTCC and FSC certification schemes.

Summary

Malaysia's forests are generally well managed, although there are differences between Peninsular Malaysia, which has the strongest approach, and Sabah and Sarawak; however, all regional forestry administrations are committed to achieving SFM. The forest sector plays an important role in the Malaysian economy and is a significant employer. Already a major producer of value-added, wood-based products in the world market, this part of the sector is likely to continue to grow. A large part of its furniture manufacturing is based on rubberwood, which is grown in plantations, while much of the harvest from natural forests is still exported as plywood, sawnwood and logs. Well-organized and resourced forestry administrations at both federal and state levels have the capacity to ensure that concessionaires adhere to prescribed practices and to oversee the long-term management of the resource.

Key points

- Malaysia's PFE comprises 11.2 million hectares of natural production forest, 183,000 hectares of plantations and 3.21 million hectares of protection forest.
- At least 4.79 million hectares of natural-forest production PFE are estimated to be under SFM; the estimated area of protection PFE so managed is 3.21 million hectares.
- Deforestation within the PFE is insignificant, but there is degradation in some forest areas.
- Malaysia is a federation and forestry is under the jurisdiction of the states. Thus, the implementation of the national forest policy requires a cooperative approach by the state and federal authorities, which is done primarily through the National Forestry Council.
- At the federal level, the division of responsibilities between the Ministry of Natural Resources and Environment and the Ministry of Plantation Industries and Commodities poses a coordination challenge.
- Managing relations between indigenous communities and concession companies needs further attention.
- All timber harvesting and related management operations are carried out by contractors operating on the basis of either a long-term logging agreement (concession) or a short-term licence.
- In Sabah, FMUs of 100,000 hectares each have been established and 100-year forest management agreements offered to forestry companies.
- Certification of forest management is well advanced in Peninsular Malaysia and is expected to increase in Sabah and Sarawak.
- There is a well-established protected-area system in place covering 16.3% of the total land area. Nevertheless, there is a need to establish better coordination between the federal government and the states in wildlife management and environmental conservation.

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[d] ITTO estimate

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