

NATIONAL FOREST POLICY REVIEW



MALAYSIA

by

Ministry of Primary Industries

Introduction

Malaysia, comprising 330 200 km², is situated north of the equator in the zone from 1° to 7° north latitude and 100° to 119° east longitude. It is divided into the two regions of (1) Peninsular Malaysia, which lies south of Thailand; and (2) East Malaysia, which is north of Indonesia on the island of Borneo. The total land area covers approximately 32.8 million ha with 13.2 million ha in Peninsular Malaysia (numbering 11 states and the Federal Territory of Kuala Lumpur and Putra Jaya); 7.4 million ha in Sabah and the Federal Territory of Labuan; and 12.3 million ha in Sarawak. Peninsular Malaysia is separated from Sabah and Sarawak by 720 km of the South China Sea, giving the country a coastline of almost 4 830 km.

The total population of Malaysia in 2000 was 23.27 million people with a population density of 71 persons/km² and an average annual population growth rate of 2.6 percent from 1995 to 2000. Peninsular Malaysia is the most populous region accounting for 78 percent of the total population. The society is multiracial with the main races being Malays, Chinese and Indians. With respect to urbanization, about 62 percent of the population live in urban areas while 38 percent inhabit rural areas.

After more than a decade of strong economic growth, Malaysia was severely affected by the regional economic downturn of 1997 and 1998. The full impact of the regional crisis on the Malaysian economy was felt in 1998, when the real gross domestic product (GDP) declined by 6.7 percent after 12 years of uninterrupted growth averaging 7.8 percent *per annum*. However, the Malaysian economy has recovered from the crisis, which is evidenced by GDP growth of 6.1 percent in 1999 and 8.3 percent in 2000.

Forest resources

Malaysia is very fortunate to be well endowed with a relatively large tract of rich and diverse tropical rain forest, which has been acknowledged as one of the most complex ecosystems in the world. The total forested area at the end of 2001 was estimated to be 20.20 million ha or 62 percent of the total land area with about 0.85 ha of forest area per capita. Of this total, it is estimated that some 17.91 million ha are inland dipterocarp forests, with the remaining 1.46, 0.58 and 0.25 million ha being freshwater swamp, mangrove swamp and plantation forests, respectively (Table 1). The inland dipterocarp forests are further categorized into lowland dipterocarp, hill dipterocarp, upper dipterocarp, lower montane and upper montane forests.

Table 1. Distribution and extent of major forest types in Malaysia, 2001 (million ha)

Region	Land area	Dipterocarp forest	Swamp forest	Mangrove forest	Plantation forest	Total forested land	Percentage total of forested land
Peninsular Malaysia	13.16	5.46	0.30	0.11	0.07	5.94	45
Sabah	7.37	3.81	0.12	0.34	0.15	4.42	60
Sarawak	12.30	8.64	1.04	0.13	0.03	9.84	80
Malaysia	32.83	17.91	1.46	0.58	0.25	20.20	62

In recognition of the crucial role of forests for socio-economic development and environmental protection, Malaysia has set aside a total of 14.45 million ha of its natural forests as permanent forest estate (PFE) to be managed and developed sustainably. Approximately 10.64 million ha or 73.6 percent of the PFE are production forests with the remaining 3.81 million ha being protection forests. The status of the PFE in Malaysia is summarized in Table 2. Besides the protection forest within the PFE, other protected areas, which have been gazetted/proposed as national parks and wildlife and bird sanctuaries in Malaysia amount to 2.15 million ha (Table 3).

Table 2. Permanent forest estate in Malaysia, 2001 (million ha)

Region/year	1990			2001		
	Protection forest	Production forest	Total PFE	Protection forest	Production forest	Total PFE
Peninsular Malaysia	1.90	2.85	4.75	1.90	2.95	4.85
Sabah	0.50	2.85	3.35	0.91	2.69	3.60
Sarawak	1.40	3.24	4.64	1.00	5.00	6.00
Malaysia	3.80	8.94	12.74	3.81	10.64	14.45

Table 3. National parks, wildlife and bird sanctuaries in Malaysia, 2001 (million ha)

Region	National parks	Wildlife and bird sanctuaries	Total
Peninsular Malaysia	0.43	0.31	0.74
Sabah	0.25	0.16	0.41
Sarawak	0.70	0.30	1.00
Malaysia	1.38	0.77*	2.15

* A total of 0.32 million ha are located in the PFE

Malaysia has also ventured into forest plantations to relieve the pressure on natural forests. Large-scale forest plantations in Malaysia are a recent development. Early efforts in plantation forestry were carried out on a piecemeal and rather *ad hoc* basis. In fact, commercial establishment of forest plantation dates back to the 1950s, with the planting of teak (*Tectona grandis*) in the states of Kedah and Perlis. Since then, the program has been widened to include other fast-growing species with *Acacia mangium*, *Gmelina arborea* and *Paraserianthes falcataria* being the major species and *Eucalyptus deglupta*, Pinus and Araucaria being the minor species planted. At the end of 2001, the total area of forest plantations in Malaysia amounted to 0.25 million ha, with 0.07 million ha located in Peninsular Malaysia, and 0.15 million and 0.03 million ha established in Sabah and Sarawak, respectively. These plantations provide general utility timber and aim to supplement timber supply from the natural forests.

Production and trade of major wood-based products

The production of roundlogs in 2001 was estimated to be 20.0 million m³. The total production decreased by about 50 percent between 1990 and 2000. This trend is indicative of Malaysia's desire to conform gradually with a sustainable level of log production, as log supply from conversion areas will be exhausted eventually. Meanwhile, the production of sawntimber, plywood, veneer and mouldings in 2001 was estimated at 5.0, 3.6, 0.8 and 0.7 million m³, respectively. Besides log production, sawntimber also registered a decrease in production of 46.0 percent from 1990 to 2001, while three other products recorded an increase in production, namely plywood (139.9 percent), veneer (64.5 percent) and mouldings (237.0 percent). This trend indicates the realization of the objective to increase downstream processing. The development of downstream industries is strategically important to provide concession holders with a long-term interest in forestry and to create added value and employment in the forestry sector. To promote downstream manufacturing, several incentives have been offered by the government. They include tax incentives as well as incentives for research and development and training.

The total export of timber and timber products, including wooden and rattan furniture in 2001 was impressive and valued at about \$M14.3 billion. The main contributors to the bulk of the export value came from furniture (\$M3.8 billion), followed by plywood (\$M3.5 billion), sawntimber (\$M2.2 billion) and logs (\$M1.5 billion). This trend indicates that Malaysia's export of major wood-based products has increased steadily over the last decade, rising from \$M8.9 billion in 1990 to \$M14.3 billion in 2001, an increase of 60.7 percent. This increase in value is attributed to an increase in export demand for secondary and tertiary wood products, particularly that of furniture and plywood.

Malaysia's timber and timber products are exported worldwide. Major export markets for sawntimber include Thailand, the European Union, Japan, West Asia, China/Hong Kong, Singapore and South Korea. For plywood, the major markets are Japan, China/Hong Kong, the United States, South Korea, Taiwan, Singapore and West Asia. China, the Philippines and Taiwan are major markets for veneer while Japan, China/Hong Kong, the European Union, the United States, Taiwan, Australia and South Korea are the main importing countries for mouldings. Major destinations for builders' carpentry and joinery are the United States, the United Kingdom, Singapore, Japan and Denmark while exports of medium density fibreboard are mainly to West Asia, China, Japan and Taiwan. Major particleboard markets are South Korea, China/Hong Kong, Viet Nam, Taiwan and Singapore and the major markets for furniture are the United States, Japan, the United Kingdom, West Asia, Australia and Singapore.

Major issues facing the forestry sector

International agreements and conventions

During the last decade, tropical forest and its management dominated discussions and deliberations in the international forestry arena. Emanating from the United Nations Conference on Environment and Development (UNCED) in 1992 was the adoption of the first global consensus on forests and the emergence of a firm conceptual foundation for sustainable forest management (SFM). Of particular importance was the adoption of the non-legally binding authoritative statement of forest principles, Chapter 11 (Combating Deforestation) and Chapter 15 (Conservation of Biological Diversity) under Agenda 21, as well as the signing of the Convention on Biological Diversity and the Framework Convention on Climate Change, which have far-reaching implications for forest management.

As a follow-up to UNCED, Malaysia has established a National Committee on the Convention on Biological Diversity (NCCBD) to plan, coordinate and implement actions as required under the Convention. In this regard, the NCCBD formulated the National Policy on Biological Diversity in 1998 to provide the direction to implement strategies, action plans and programs on biological diversity for the conservation and sustainable utilization of its resources.

In addition, a National Conservation Strategy had also been prepared jointly by the Government of Malaysia and the World Wide Fund for Nature, Malaysia (WWF); a country report on the Assessment of Biological Diversity in Malaysia was published by the Ministry of Science, Technology and the Environment in 1997.

Malaysia has participated in the United Nations Intergovernmental Panel on Forests (IPF) and its successor, the Intergovernmental Forum on Forests (IFF) since 1995. The objective has been to pursue a consensus and formulate options for further action to promote the management, conservation and sustainable development of all types of forests; combat deforestation and forest degradation; promote international cooperation; and to facilitate international trade in forest products. A preliminary assessment on the relevance of the more than 270 Proposals for Action was undertaken by Malaysia with the formation of a Working Committee in April 2001. In this regard, 186 of the Proposals for Action had direct relevance to the forestry sector in Malaysia. These will be given further consideration and be incorporated into Malaysian national forestry programs; progress in implementing them will be reported to the United Nations Forum on Forests.

As an active (producer) member country of the International Tropical Timber Organization (ITTO), Malaysia is committed to SFM in the overall context of sustainable development. Malaysia's commitment to the ITTO Year 2000 Objective is attested by the development of the Malaysian Criteria and Indicators for Sustainable Forest Management (MC&I) and the allocation of financial resources to carry out forest development activities, as well as projects and studies related to sustainable management. In addition to the normal development and operational budget, the government has allocated a total sum of \$M350 million from the Timber Export Levy to undertake complementary forestry projects, activities and studies to enhance Malaysia's capability to attain the ITTO Year 2000 Objective.

Forest management

The issues of timber certification and SFM practices are a growing concern locally and globally. In this regard, forest management in Malaysia has become multifaceted in nature, giving consideration to biological diversity, the protection of endangered species and carbon sequestration. The management emphasis will be refocused from mainly timber to the simultaneous production of several socially desirable outputs, encompassing water, non-timber forest products (such as rattan, bamboo, medicinal plants, resins and dyes), recreational and other protective functions. Due consideration will be given to conservation and the preservation of the forest resource base to protect biological diversity through the maintenance of national parks, virgin jungle reserves (VJR) and wildlife sanctuaries. There is also a need to internalize the replacement and environmental costs of providing forest goods and services.

Since 1994, efforts toward timber certification have been adopted by the government to provide better market access and hopefully higher prices for local timber extracted from the sustainably managed PFE on the international market. The government has established the Malaysian Timber Certification Council (MTCC) as an independent body to plan and operate the national timber certification scheme. *Inter alia*, the MTCC will develop and implement standards related to timber certification; establish and implement a system to oversee and monitor the certification scheme, including appeal mechanisms; and establish a network for national and international bodies related to timber certification to facilitate cooperation and mutual recognition arrangements. Several developed countries have imposed timber certification as a condition for market access, particularly for tropical timber. Certification is supposed to be voluntary but it has become a prerequisite in some markets. In this regard, Malaysia's stand is that timber certification should not be used as a non-tariff barrier, as it is against the principle of free trade. The imposition of such a condition will increase the cost of production for developing countries, which unfortunately do not receive much of a premium in return, and in some cases no premium at all, for their certified timber.

It has been realized that sound timber harvesting techniques are essential for successful SFM, not only for protecting the forest environment but also for contributing towards social and economic development. Research into reduced impact logging (RIL) has been intensified with particular attention being given to improving the technologies for harvesting in hill forests. At present, research on harvesting techniques conducted by the Forest Research Institute Malaysia has focused on modified ground-based machinery and skyline systems in collaboration with local and Japanese companies. Once the modified equipment and techniques have been tested and finalized, they could be used in other tropical forests in the region.

Forest and wood-based industries

Based on projections for forest production, the log supply in Malaysia is expected to decline gradually to a sustainable level of around 22 million m³. Consequently, forest and wood-based industries are expected to adapt to the changing scenario through the advancement of technology, a reduction of production costs and waste, as well as a reorientation of product promotion and subsequently acceptance by consumers. Hence, efficiency in production and changes in consumption pattern are required as well as an increase in utilization efficiency. In other words, as a result of these developments, future trends in timber utilization will shift from large-dimension to smaller logs, from commercially well-known timber species to lesser-known species and from solid to reconstituted wood. Currently, efforts are being undertaken by the government to increase the efficiency of timber utilization. They include the revoking of operating licenses for inefficient mills that have ceased operation for at least two years; encouraging existing mills to replace their old machinery to improve mill efficiency; research in optimizing the utilization of logging and mill residues, as well as promoting trade of the lesser-known timber species.

In recent years, forest industries in Malaysia have been distancing themselves from manufacturing low value primary products. This is in line with national objectives and priorities as stipulated in the Second Malaysian Industrial Master Plan (1996–2005), in which Malaysia will need to reposition itself as a supplier of quality products from the medium to the upper market echelons. The forest and

timber-based industry is expected to embark on more sophisticated and up-to-date marketing strategies to guarantee its share in both local and international markets, as well as in existing and unexplored markets. Trade promotions and participation in international fora will continue to be pursued. The use of electronic media for information dissemination and documentation, like export document processing, is expected to be enhanced as well as trade liberalization through negotiations in various fora and institutions such as the World Trade Organization, Asia-Pacific Economic Cooperation and ASEAN Dialogue Partners. However, Malaysia is concerned about the link that is being made between trade and environment policies, as it may be used to justify protectionism and impede market access of goods from the developing countries.

Policy and institutional framework

National Forestry Policy

In Malaysia, state forestry policies have been in existence since the early 1950s. Recognizing the overall importance of forests for the welfare of the local community and the national economy, as well as the need for uniformity among the various states, a National Forestry Policy was formulated and accepted by the National Forestry Council (NFC) in 1977. It was endorsed by the National Land Council (NLC) on 19 April 1978.

The objectives of the National Forestry Policy are reflected in Sabah's forest policies and a similar forest policy has been implemented in Sarawak. The National Forestry Policy recognizes the vital role of forests for the welfare of the community and national economy through the concept of multiple use. The salient features of the policy, among others, include the dedication as PFE of sufficient areas of land strategically located throughout the country; this is in accordance with the concept of rational land use forests are to be managed as Protection Forest, Production Forest, Amenity Forest and Research and Education Forest. Responding to the current concern of both the local and world community about the importance of biodiversity conservation and sustainable utilization of genetic resources, and the role of local communities in forest development, the National Forestry Policy was amended in 1992. It embodies eight new provisions, which include assessing the integrity of PFE, multi-sectoral participation in forestry and non-wood forestry programs, conservation of biodiversity and international cooperation. The new provisions also refine the directions and actions to be taken in attaining the goals of SFM. The eight new provisions are as follows:

- **Forest legislation**, which emphasizes the judicious implementation of the National Forestry Act (1984) to ensure sustainable forest resource management and conservation.
- **Forest plantation**, which encourages the establishment of high-quality timber forest plantations as well as the active and increased participation of the private sector.
- **Agroforestry**, which promotes the involvement of local communities near forest fringes in the planting of forest fruit trees to conserve forest resources.
- **Non-wood forest products** (NWFPs), which specifically encourage the production of bamboo and rattan as well as their scientific and sustainable management.
- **Community forestry**, which aims at meeting the needs of recreation and tourism.
- **Conservation of biodiversity**, which intensifies the conservation of flora and fauna.
- **Special scientific values**, which involve setting aside specific areas for the purpose of scientific studies.
- **International cooperation**, which aims at fostering closer international cooperation to achieve better understanding of forest management and development.

The salient features of the revised National Forestry Policy are:

- To dedicate as PFE sufficient areas of land strategically located throughout the country in accordance with rational land use to be managed as Protection Forest, Production Forest, Amenity Forest and Research and Education Forest.
- To manage the PFE in order to maximize social, economic and environmental benefits for the nation in accordance with the principles of sustainable management.
- To implement a planned program of forest development through forest regeneration and rehabilitation operations in accordance with appropriate silvicultural practices.
- To promote efficient harvesting and utilization within the production forest for maximum economic benefits from all forms of forest produce and to stimulate the development of appropriate forest industries commensurate with resource flow and to create employment opportunities.
- To promote planned development of forest industries towards the production of more value-added finished and semi-finished products for local consumption and export.
- To encourage an aggressive *Bumiputra* participation in wood-based industry in compliance with government policy.
- To establish forest plantations of indigenous and exotic species to supplement timber supply from the natural forest.
- To promote active local community involvement in various contracts of the forestry development projects and to maintain their involvement in agroforestry programs.
- To increase the production of NWFPs through scientific and sustainable management practices to supplement local demands and the requirements of related industries.
- To undertake and support a comprehensive program of forest training at all levels in the public and private sectors in order to ensure an adequate supply of trained human resources to meet the requirements of forestry and wood-based industries.
- To encourage private investment in forest development through the establishment of forest plantations on private lands.
- To undertake and support intensive research programs in forestry and forest products aimed at enhancing maximum benefits from the forest.
- To promote education in forestry and undertake publicity and extension services in order to generate better understanding among the community of the multiple values of forests.
- To provide for the preservation of biological diversity and the conservation of areas with unique species of flora and fauna.
- To develop a comprehensive program in community forestry to cater to the needs of rural and urban communities.
- To set aside specific areas for forestry education and other scientific studies.
- To foster closer international cooperation in forestry in order to benefit from the transfer of technology and exchange of scientific information.

Forest legislation

To ensure effective implementation of the National Forestry Policy, various forestry enactments and ordinances have been formulated and enforced by the state authorities since 1910. The legislation was streamlined and strengthened in the areas of forest management planning and forest renewal operations with the acceptance and passing of the National Forestry Act and the Wood-Based Industries Act in 1984. Currently, these two acts are being enforced by all the states in Peninsular Malaysia. In tandem with the revised National Forestry Policy, the National Forestry Act of 1984 was amended in 1993 to include more stringent penalties for certain forest offences, which include a mandatory jail sentence of at least one year. Currently, action is being taken to revise the Wood-Based Industries Act.

These legislations are also supported by other legislations related to land use:

- Water Enactment (1935)
- Land Conservation Act (1960)
- Environmental Quality Act (1974)
- Protection of Wildlife Act (1972)
- National Parks Act (1980)

In Sabah, the existing legislation governing forestry is the State Forest Enactment (1968) with the subsidiary legislation of Forest Rules (1969). The enactment was amended in 1992 to incorporate provisions for SFM and development, which include requirements for the preparation of forest management and harvesting plans, and the establishment of a rehabilitation fund and program. The other legislations relevant to the protection and management of forests include the Parks Enactment (1984), Wild Life Conservation Enactment (1997), Conservation of Environment Enactment (1998), Water Resource Enactment (1998), Cultural Heritage (Conservation) Enactment (1997) and the new State Biodiversity Enactment (2000).

Sarawak has enacted new ordinances and subsidiary rules and amended some existing legislation to enhance roles and responsibilities in managing its vast forest resources and diverse wildlife. Since 1992, a number of ordinances have been enacted or amended in consonance with current local and global needs and to expedite action or action plans. They are: the Forests Ordinance of 1954 (amended in 2001); the National Parks and Nature Reserves Ordinance (1998); the Wild Life Protection Ordinance (1998); the Wild Life Protection Rules (1998); the Wild Life (Edible Bird's Nests) Rules (1998); Sarawak Biodiversity Centre Ordinance (1997); Natural Resource and Environment Act (1994); and the Forests (Planted Forests) Rules (1997). These ordinances provide the legal basis for the effective implementation of the state's forestry policy, conservation and forest management plans.

Incentives for investment

To encourage greater private sector investment in forest plantations, the government is providing fiscal incentives and full tax exemption under the Pioneer Status for 10 years or 100 percent tax exemption under the Investment Tax Allowance for five years, effective from 1993.

An attractive package of short- and long-term fiscal incentives for new and additional investments is available to stimulate and support the growth of priority sectors including wood-based industries. The principal incentives are contained in the Promotion of Investments Act of 1986 and the Income Tax Act (1967). The following additional incentives are available to manufacturers who export their processed forest products:

- An export credit refinancing scheme;
- Abatement of adjusted income for exports;
- Double deduction of export credit/insurance premiums;
- Double deduction of promotion exports; and
- Export allowance.

A very important step taken by the government to promote the downstream processing of wood is the introduction of a system of export levies and royalties on (wood) raw materials in Peninsular Malaysia and Sabah. These levies/royalties are aimed at ensuring an adequate supply of raw materials for the wood-based industry and encouraging further processing in the country. For Peninsular Malaysia, the levies range from \$M40 to \$M250/m³ and cover some selected timber species, veneer and utility plywood and downstream products. In the case of Sabah, export royalties are imposed on sawntimber and selected timber products and range from \$M20 to \$M400/m³.

Sabah has adopted a major policy shift in promoting the participation of the private sector in the implementation of SFM. The Sabah State Government in 1997 issued 10 long-term Sustainable Forest Management License Agreement (SFMLA) Concessions in accordance with Section 15(1) of the Forest Enactment (1968) involving 19 of the 27 forest management units (FMUs). The SFMLA requires the concessionaires to manage the FMU for a period of 100 years according to

the following conditions:

- The FMU is managed according to the conditions of the SFMLA.
- The concessionaire submits a performance bond of \$M5 million.
- A forest management plan (FMP) is prepared and approved.
- The participation of at least 30 percent of Sabah Bumiputra in the company.
- Employing environmentally-friendly harvesting methods such as RIL and skyline yarding.
- Carrying out silviculture and enrichment planting as required.
- Employing professional foresters with experience.
- The concessionaire shall bear all costs of forest management planning and implementation.

In the spirit of smart-partnership, the state government through the Sabah Forestry Department (SFD) will continue to render assistance to all the SFMLA concessionaires and strive to offer better financial incentives such as:

- Tax deduction at source for income/profit invested in SFM;
- The purchase of essential equipment, e.g. a skyline yarder, is exempt from duties;
- Proceeds and sales from sustainably produced timber are exempt from taxes in the first five years; and
- Tax exemption for cost of planning, i.e. preparation of plans, field inventory etc.

The State of Sarawak also provides incentives for the private sector to establish forest plantations on a commercial scale. These incentives are:

- The state government will lease the land for up to 60 years and will allow 20 percent of the area approved for forest plantation with oil palm or agricultural crops for a period not exceeding 25 years;
- A low annual fee of \$M0.10/ha, annual rent of \$M5/ha and a premium rate of \$M300/ha; and
- After expiry of the 60-year period, the company group can apply for an extension from the state government.

Related policies

Forestry is dynamic and involves cross-sectoral participation while the issues affecting forestry are cross-cutting. Many decisions taken outside the forest and the forestry sector have far-reaching effects on the sustainability of the forest and the long-term development of the forestry sector. In this regard, several recent developments in forestry and environmentally related sectors necessitate further action to realize the objectives of both the National Forestry Policy and other related policies in the field of SFM. Amongst these recent developments are:

Third National Agriculture Policy (1998-2010)

The Third National Agriculture Policy, adopted in 1998, sets out the strategic directions for agricultural and forestry development up to 2010. The prime objective of the policy is to ensure that the agricultural and forestry sectors remain strategically important as a provider of food and raw materials for agro- and resource-based industrial development. It focuses on new approaches to increase productivity and competitiveness, cross-sectoral linkages, venturing into new frontier areas as well as utilizing natural resources on a sustainable basis. These emphases are in consonance with those of the National Forestry Policy.

The Third Agriculture Policy outlines that SFM will remain the underlying basis of forest management. Efforts will be undertaken to enhance several key areas, namely to:

- Increase the marketability of lesser-used species and small-diameter logs;
- Explore the prospects and value of non-timber forest products and services such as bamboo, rattan and ecotourism;
- Maintain and enhance the forest base through conversion of state land forest into PFEs;
- Conduct applied forestry research;
- Establish high-value timber plantations by the private sector;
- Develop product differentiation and innovative marketing in niche markets; and
- Enhance the participation of smallholders and farmers in agroforestry.

Action will be necessary to streamline and enhance the provision of similar areas in the National Forestry Policy. One of the areas that will be given priority is the promotion of agroforestry. In addition, appropriate programs and projects will need to be developed for implementation to complement and operationalize the new priority areas.

National Policy on Biological Diversity

The National Policy on Biological Diversity was adopted in 1998, as a follow-up action to the nation's commitment to operationalize the Convention on Biological Diversity. Malaysia was among 158 countries that were signatories to the convention and subsequently ratified it on 24 June 1994. The adopted National Policy on Biological Diversity outlines Malaysia's commitment to conserve biodiversity and utilize its components in a sustainable manner for the continued progress of the nation's socio-economic development. The policy, which contains 11 principles and six objectives, aims to provide the direction for the nation to implement strategies, action plans and programs on biodiversity.

In brief, the objectives of the policy are to:

- Optimize economic benefits from the sustainable utilization of the components of biodiversity;
- Ensure long-term food security for the nation;
- Maintain and improve environmental stability for the proper functioning of ecological systems;
- Ensure preservation of the unique biological heritage of the nation for the benefit of present and future generations;
- Enhance scientific and technological knowledge, and the educational, social, cultural and aesthetic values of biodiversity; and
- Optimize biosafety considerations in the development and application of biotechnology.

The adoption of the National Policy on Biological Diversity affirmed the nation's aspiration and commitment to achieve sustainability in bioresource management and utilization. It represents details of the action needed to achieve the objectives of the National Forestry Policy. Hence, in implementing the provision of biodiversity in the National Forestry Policy, the various strategies and workplans outlined in the National Policy on Biological Diversity will be given due recognition so that a holistic and complementary approach can be undertaken in implementing the two related policies.

In parallel, action will also be taken to:

- Develop appropriate inventory methodologies for the complete appraisal of forest genetic resources to enable the formulation of a biogeographic area strategy for the conservation of biodiversity within Malaysia and to ensure that the various ecosystems are represented completely;

- Quantify the cost of protecting and managing the existing biological reserves and the opportunity cost foregone in implementing *in-situ* conservation of biological diversity and its potential use in light of advances in biotechnology for using these resources;
- Ascribe economic values to the natural biological resources *vis-à-vis* biological species with special emphasis on traditional forest resources that are utilized by indigenous and rural people; and
- Develop an effective joint management mechanism in the conservation of biodiversity between the conservers and users (industries) to ensure equitable return to both parties.

National Plan on Eco-tourism

Currently ecotourism development is guided by the National Plan on Eco-tourism. The plan outlines 25 guidelines and identifies 21 plans and 52 projects for the growth and development of the ecotourism industry. In addition, the plan provides an official definition of ecotourism based on that of The World Conservation Union (IUCN) – “environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features, both past and present) that promotes conservation, has low visitor impact, and provides for beneficial active socio-economic involvement of local populations”.

Although the National Forestry Policy contains a statement that deals with ecotourism, it does not provide a clear direction on how ecotourism should be promoted and implemented in the context of SFM and development. However, forest recreation has been given greater emphasis since the 1960s. A total of 84 forest recreational areas located strategically throughout the country have been established. The objective is to provide outdoor recreational facilities to city dwellers.

The plan is complementary to the objective of the National Forestry Policy. Another aspect that warrants consideration is the enhancement of the National Forestry Act to better protect important, unique and scenic recreational and archeological sites such as caves, large trees and waterfalls, including the setting up of buffer zones for forested areas of sufficient size.

Second Industrial Master Plan (IMP2)

The Industrial Master Plan, formulated to chart the country’s long-term industrialization path, was first drawn up in 1985. The first plan, spanning 1986 to 1995, was reviewed and IMP2 was formulated covering 1996 to 2005. The wood-based sector, under the resource-based industry, was identified as one of the eight key industrial groups targeted for further development.

In general, the IMP2 focuses on two key elements, namely, the concept of manufacturing “plus plus” and cluster-based industrial development. Manufacturing plus plus focuses on moving beyond manufacturing operations to include R&D, design capability and the development of integrated supporting industries, packaging, distribution and marketing activities. The cluster-based industrial development approach, on the other hand, provides the basis for the achievement of a broad-based, resilient and internationally competitive industrial sector.

In analysing the various targeted growth sectors, specific strategies for individual sectors were identified under the plan. For the wood-based sector, three key strategies were suggested:

Globalization strategy: The strategy recommends creating a new incentive scheme for forest plantation development and outsourcing raw and semi-processed material; developing a program to support local brand marketing; and establishing a holding company to acquire leading design and distribution channels in key markets.

Knowledge-driven strategy: To propose increasing public sector R&D infrastructure (and related network institutions), strengthening the R&D capability of the Forest Research Institute Malaysia (FRIM) and the Rubber Research Institute of Malaysia (RRIM); and strengthening private sector R&D activities.

Strengthen cluster-based development: The strategy entails the introduction of special programs for Sabah and Sarawak, which could include improving timber supply for downstream processing, improving facilities in designated industrial parks for wood-based firms, establishing a specialized wood-based technology institute, and furniture parks. The strategy also recommends the provision of additional infrastructural support such as timber depots to facilitate the supply of raw materials.

IMP2 is complementary to the objective of the National Forestry Policy. It has outlined the direction of the timber industry and concerted efforts by both the private and public sectors are essential to ensure the successful implementation of the plan.

Institutional framework

Under the Malaysian Constitution land is defined as a state matter and is thus within the jurisdiction of the respective state governments, as provided for under Article 74 (2). Nevertheless, Article 94 (1), Ninth Schedule, empowers the federal government to formulate such forest legislation as may be necessary to promote uniformity among the states. Each state is empowered to enact laws on forestry and to formulate forest policy independently. The executive authority of the federal government only extends to the provision of advice and technical assistance to the states, training and research, and in the maintenance of experimental and demonstration stations.

In Malaysia, the national forest program is part and parcel of the national sustainable development strategy, as well as an integral component of the national integrated land management strategy. Effective mechanisms are in place to harmonize cross-sectoral policies related to forests through the formation of consultative councils. To facilitate the adoption of a coordinated and common approach to forestry, the NFC was established in 1971 by the NLC. The NLC is empowered under the Malaysian Constitution to formulate a national policy for the promotion and control of utilization of land for forestry, agriculture and mining. The NFC serves as a forum for the federal and the state governments to discuss and resolve common problems and issues relating to forestry policy, administration and management. The NFC is the highest forestry policy formulating body in the country and is chaired by the Deputy Prime Minister. It comprises the Chief Ministers of the 13 Malaysian states and ministers from relevant ministries as members, as well as the Director-General of Forestry, Peninsular Malaysia and directors of forestry for Sabah and Sarawak. The decisions of the NFC have to be endorsed by the NLC. The responsibility for implementing the decisions of the NFC lies with the state governments unless it is within the authority of the federal government. In 1977, the National Forestry Policy was accepted by the NFC and endorsed by the NLC on 19 April 1978. The acceptance of this policy is a major breakthrough to strengthen the institutional base and enhances the cooperation and understanding between the federal and state governments in the field of forestry sector development; it is consistent with the progress and aspirations of the nation.

Administratively, the Forestry Department at both the federal and state levels is responsible for the management and planning of forest resources in Malaysia. In this context, the Forestry Department's headquarters in Kuala Lumpur is responsible for forestry sector planning, forest management, development and forest operation studies, the provision of technical advice and services, and staff training in Peninsular Malaysia. The state forestry departments, including those of Sabah and Sarawak, are responsible for administration, management and development of the forest resources, regulation of forest exploitation, forest revenue collection, and planning and coordination of the development of wood-based industries in the states. In Peninsular Malaysia, at the state level, each forestry department is headed by a director supported by professional and sub-professional foresters who are federal officers on secondment serving in the state. The uniformed staff, which includes forest rangers and foresters are state employees. For management and administrative purposes, the state is divided into districts, ranges and beats.

A number of complementary agencies specialize in specific areas of forestry research, trade regulations and promotions. The Malaysian Timber Industry Board (MTIB) is responsible for initiating appropriate development in the various sectors of the timber industry and for providing the necessary assistance to ensure its continued growth as a modern and thriving sector of the economy. The Forest Research Institute Malaysia (FRIM), which was established as a statutory body in 1985, is responsible for the implementation of research on all aspects of forestry and forest products. The Universiti Putra Malaysia (UPM) plays a training role by supplying professional and semi-professional foresters. The Malaysian Timber Council (MTC) was established to promote the development of the timber-based industry in Peninsular Malaysia with special emphasis on the marketing of timber products, augmenting raw material supply to the timber-processing industries, disseminating information and improving its technology level. The Malaysian Timber Certification Council (MTCC) was established in October 1998 to plan and operate a voluntary national timber certification scheme to provide assurance to buyers of Malaysian timber products that the products have been sourced from sustainably managed forests.

The MTIB and FRIM are responsible to, monitored closely and coordinated by the Ministry of Primary Industries. The Forestry Department sits on both boards of directors of the MTIB and FRIM. Although the UPM is under the Ministry of Education, it has established a close working relationship with the forestry institutions.

Forestry policy implementation and impacts

Strategies and programs

In line with the National Forestry Policy, strategies applied in Malaysia include:

- Ensuring the management of the PFE follows the MC&I for SFM;
- Evaluating the status of wood and non-wood forest resources;
- Ensuring the implementation of silvicultural treatment and reforestation in logged-over PFE;
- Enhancing the public's awareness on the roles of forests;
- Encouraging the establishment of forest plantations by individuals or private companies;
- Identifying the biodiversity in the PFE;
- Preparing and implementing a biodiversity management system;
- Formulating an agroforestry system that is economical for individuals or the private sector;
- Developing an ecotourism program, a forestry museum and the provision of infrastructural and educational facilities in the forest recreation areas;
- Developing information technology (IT) and knowledge-forestry (K-forestry) in line with the Information Technology Strategic Plan of the Forestry Department;
- Optimizing the use of wood and non-wood forest resources;
- Preparing the needed physical infrastructure;
- Enhancing surveillance and prevention of illegal logging and illegal settlements in forests, especially in the PFE;
- Studying and strengthening the provisions contained in the National Forestry Act and the Wood-Based Industries Act; and
- Providing adequate training for the staff and private sector involved in SFM activities.

Hence, the forestry programs, projects and activities undertaken in Malaysia include:

- Formulation and implementation of the Forest Management Plan that takes into account the negative impact of management activities on the environment and the forest ecosystem, and meets the changing societal needs. In this regard, a National Forest Inventory is carried out for all forested lands in a 10-yearly cycle to determine the status and composition of forest resources for more effective forest management planning;
- Implementation of the MC&I for SFM;

- Assessment of the implementation of the proposals for action of the IPF and the IFF;
- A continuous Forest Inventory that is carried out on permanent and temporary plots on a yearly basis; this will supplement and update the information collected in the National Forest Inventory, to enhance management planning further;
- A Pre-Felling Inventory in all areas of the PFE earmarked for harvesting; this will enable the determination of the most effective forest management and silvicultural systems to be applied, as well as allowing natural regeneration through the retention of adequate residuals of advanced growth;
- Growth and yield studies for the refinement of the growth and mortality rates of forests harvested under the various cutting regimes;
- Forest mapping using geographic information systems (GIS) and remote sensing techniques;
- Using remote sensing techniques to monitor changes that occur within the forests and their surrounding areas as well as classifying forest and vegetation strata; and
- Resource capability classification to refine the existing forest classification for enhancing SFM practices; establishing forest plantations to reduce the over-harvesting of the natural forest.

The contribution of the National Forestry Policy

The significance of the contribution of the National Forestry Policy can be evaluated best by identifying its achievements.

The establishment of the PFE

One of the most significant achievements of the National Forestry Policy is the identification and establishment of the PFE in Malaysia. Having a defined and stable resource base is fundamental to the attainment of SFM and development. In this context, the policy contains the following clauses:

- To dedicate as Permanent Reserved Forest sufficient areas strategically located throughout the country in accordance with the concept of rational land use. The Permanent Reserved Forest will be managed and classified according to four major functions:
 - (a) **Protection Forest** for ensuring favourable climatic and physical conditions of the country, safeguarding of water resources, soil fertility, environmental quality, conservation of biodiversity and the minimization of damage by floods and erosion to rivers and agricultural land.
 - (b) **Production Forest** for supply in perpetuity, at reasonable rates, of all forms of forest produce that can be produced economically within the country and is required for agricultural, domestic and industrial purposes, as well as for export.
 - (c) **Amenity Forest** for the conservation of adequate forest areas for recreation, ecotourism and for promoting public awareness of forestry.
 - (d) **Research and Education Forest** for conducting research, education and conservation of biodiversity.
- To manage the Permanent Reserved Forest in order to maximize social, economic and environmental benefits for the nation in accordance with the principles of sustainable management.

Section 7 of the National Forestry Act 1984 provides the provision to achieve this purpose. This section provides the power of the state authority to constitute any land as PFE by notification in the *Gazette*. Since its adoption and implementation, the PFE in Malaysia increased by 13.4 percent from 12.74 million ha in 1990 to 14.45 million ha in 2001.

Formulation and enforcement of the National Forestry Act (1984)

Constitutionally, each state is empowered to enact forestry laws and to formulate forest policy independently, with the earliest Forestry Enactment and Ordinance formulated and enforced in 1908. Through the adoption of the National Forestry Policy these laws have been streamlined and strengthened in the areas of forest management planning and forest renewal operations with the endorsement of the National Forestry Act and the Wood-Based Industries Act by an act of parliament in 1984 to ensure more effective forest management planning and implementation.

In line with the revised National Forestry Policy and to further safeguard forest resources from illegal encroachment and timber theft, the National Forestry Act 1984 was amended in 1993 to provide for more stringent penalties for forest offences. Currently, action is being undertaken to revise the Wood-Based Industries Act of 1984.

Establishment of forest development funds

The availability of adequate funds to support forest development is critical to ensure the sustainability of the forest resource. The policy clearly outlines this importance through the following clauses:

- A planned program for forest development through forest regeneration and rehabilitation operations shall be undertaken in accordance with appropriate silvicultural practices.
- A coordinated program for forest development through regeneration and rehabilitation operations shall be undertaken in accordance with appropriate silvicultural practices in order to achieve maximum productivity from the PFE.
- Investment in forest development should be increased substantially to be commensurate with progress in forest development.

Recognizing the need for adequate funds, the Forest Development Fund was promulgated under the provision of the National Forestry Act. As enshrined under Section 58 of the Act, the fund shall be used for the following purposes:

- The preparation of state forest management plans;
- The preparation and implementation of reforestation programs;
- The reviewing of state forest management plans and reforestation programs;
- The preparation and implementation of programs relating to amenity forests; and
- Any expenses incurred by the state authority in effecting a reforestation program.

Since its inception in 1984, some \$M593 million had been collected by the end of 2000. Out of this, a total of \$M476 million has been spent to support forest development work in various states.

Formulation of relevant forest management systems

Since the turn of the twentieth century, several forest management systems have been developed and implemented. They include the Regeneration Improvement Felling (RIF) in 1910 and the Malayan Uniform System (MUS) in 1948. In 1978, the Selective Management System (SMS) was introduced. The switch from the MUS to the SMS was attributable to:

- The more difficult terrain;
- Uneven stocking;
- Lack of regeneration before logging;
- Uncertain regeneration after logging (caused by irregular seeding);
- Danger of erosion on steep slopes; and
- Infestation of stemless palms (*Eugeissona triste*) and other secondary growth encouraged by drastic opening of the canopy in the hill forests.

The formulation and application of the SMS had the following benefits:

- The flexibility to manage highly variable forest conditions and changes in the socio-economic environment.
- A rational basis for identifying inherent characteristics of the forest and prevailing socio-economic conditions.
- Allowance for the optimization of forest management goals: (a) an economic cut, (b) the sustainability of the forest and (c) minimum costs for forest development.

The formulation of forest management systems and their subsequent improvement are in line with and guided by the objective of the National Forestry Policy, which states that:

- The PFE should be utilized based on the inherent capability of the forest, its optimal use and on comprehensive forestland use.
- For the sustainability of forest resources, the log flow will be regulated based on a careful balance of supply and demand, and maximum utilization. Optimal forest management regimes will be applied to the production forest formulated on the basis of information generated by systematic and integrated forest management and operations' research.

In addition, the National Forestry Act under Sections 20 and 24 elaborates on the need to prepare forest management and reforestation plans. Complementing the National Forestry Act are the Forest Rules (1984), which spell out the format for preparing management and reforestation plans.

Development of forest and wood-based industries

Until recently, the forest industries in Malaysia were driven primarily by resource supply advantages. The availability of raw material at competitive prices, relatively low labour costs and favourable international prices created positive conditions for its growth. However, this development also resulted in excess capacity especially in the sawmilling and plywood/veneer sub-sectors. This problem is aggravated by the declining supply of raw material, both locally as well as from abroad. Hence, the survival and sustainability of these sectors greatly depend on their ability to overcome log supply shortages: adoption of new and state-of-the-art technologies, utilization of smaller diameter logs and lesser-known species and the restructuring of the industry itself. In addition, with the evolution of technologies, reconstituted wood products such as fibreboard, oriented strandboard, blockboard and particleboard are expected to become more acceptable and dominant in the market. The policy clearly outlines this importance through the following clauses:

- Encouraging wider utilization of under-utilized timber, lesser-known species, low-grade logs and all forms of logging and mill residues for manufacturing value-added products.
- Encouraging downstream processing through the establishment of integrated processing complexes to take advantage of common facilities, technology transfer, intra-industry linkages and to create an integrated production base that is needed for export and growth.

In recent years, the forest industries have been moving away rapidly from the manufacture of low-value products. This is in line with the national objectives and priority where the development of secondary and tertiary wood-processing industries is being promoted to achieve greater utilization of the resource base and to generate higher value-added products. Moreover, realizing the role of forest industries in improving the socio-economic level of the rural population, steps are being taken to encourage the establishment of small-scale rural-based enterprises using forest produce such as rattan and bamboo as raw materials.

Monitoring and evaluation

In ensuring the effective monitoring and evaluation of the National Forestry Policy implementation, a National Committee on Sustainable Forest Management in Malaysia was established in 1994 to coordinate activities. In this regard, Malaysia has developed the MC&I at the national and forest management unit levels to assess and monitor progress. The MC&I cover various aspects including forest resource security, continuity of the flow of forest products and services, socio-economic effects, community consultation and an acceptable level of environmental impacts, including the conservation of biodiversity. The MC&I are used as a tool for monitoring and reporting the progress of SFM to international organizations, especially ITTO. They contribute to policy development by identifying specific forestry activities and research needs that are crucial for SFM at the international level; those developed at the FMU level are used to assess SFM practices at the operational level.

Currently, each state is defined as an FMU in view of the following legal and administrative requirements:

- As referred to earlier, forestry is a state matter. The executive authority of the federal government only extends to the provision of advice and technical assistance to the states.
- The implementation of MC&I as well as management specifications is monitored and evaluated at the state level by federal agencies and bodies, such as the NFC.
- All the decisions regarding forest management, conservation and development in the states are made at the state level by the respective authorities.
- The allocation of annual allowable cuts (AAC) for the production forests of the PFE by the NFC is determined on a state basis.
- According to Section 4 of the National Forestry Act, each director of the state forestry department is responsible to the state authority for the preparation and implementation of state forest management plans, reforestation plans and programs related to amenity forests.

The MC&I identified a total of 64 indicators and 200 activities under the seven ITTO criteria at the national level for reporting progress towards SFM, while seven criteria, 56 indicators and 171 activities were formulated for monitoring and assessing SFM practices at the FMU level.

To ensure that the agreed activities in the MC&I are implemented in the field by the state forestry departments, a task force comprising representatives from the Ministry of Primary Industries; the forestry departments of Peninsular Malaysia, Sabah and Sarawak; FRIM; the Malaysian Timber Industry Board; the Malaysian Timber Council and the Faculty of Forestry, Universiti Putra Malaysia was established in May 1995. To complement this effort, Peninsular Malaysia also formed a Technical Monitoring Committee at the Forestry Department's headquarters in October 1995 to monitor the implementation of all the activities undertaken by the state forestry departments in Peninsular Malaysia.

The task force is developing an effective mechanism and procedures for the periodic monitoring and assessment of the implementation of all activities, and produces reports on their progress to the higher authorities in Malaysia for their information and further action. In this context, Malaysia has developed internal assessment procedures for monitoring, evaluating and reporting on sustainable management based on the MC&I. This was undertaken jointly with the support of the German Agency for Technical Cooperation (GTZ) in 1999 and is now fully operational.

In compliance with the government's decision that the civil service should implement the MS ISO 9000: 1994 standards by 2000, the Forestry Department of Peninsular Malaysia initiated the process in February 1997. A task force was formed at the department level to spearhead the formulation and implementation of MS ISO 9002: 1994 in forestry with technical assistance from central agencies, namely the Institute of Public Administration (INTAN) and the Malaysian Administrative Modernization and Management Planning Unit (MAMPU). The core process identified for the Forestry Department is sustainable timber production from the PFE while the major activities identified to ensure the achievement of this core process are boundary demarcation, pre-felling forest inventory, timber tagging, forest harvesting, post-felling forest

inventory and silvicultural treatments. Currently MS ISO 9002: 1994 documentation for the above six forestry activities has been completed and is being audited by internal assessors. In Sarawak, the Forestry Department was ISO certified in October 2000 in three core processes, namely royalty assessment, royalty billing and recovery of outstanding bills. In Sabah, the Forestry Department was ISO certified in July 2000, for assessment and royalty collection from commercial forest reserves for local processing in the district of Beluran.

The formulation and implementation of MS ISO 9002: 1994 in forestry is a step forward in the continuous process of creating a quality forestry service and in developing and rendering the best services in a consistent manner for the public. This MS ISO 9002: 1994 will ensure the effective monitoring and evaluation of the National Forestry Policy implementation.

Conclusion

Forestry has changed rapidly in recent years. Greater emphasis and attention at national and international levels have been focused on environmental protection and sustainable forest resource management. This is evident from the various conventions adopted at UNCED and the formulation and implementation of several initiatives related to criteria and indicators for SFM. The pressure to protect forest resources will increase further. Consequently, forest products from sustainably managed forest areas will be more acceptable by environmentally conscious and affluent consumers.

Malaysia is committed to the attainment of SFM and development. Over the years, ecologically and environmentally sound forest conservation and management policies have been formulated and implemented to ensure that its invaluable forest resources are managed for sustainable yield and ecological balances, as well as for safeguarding water resources and biodiversity.

The applicability and practicability of the National Forestry Policy will be reviewed on a continual basis to assess its adequacy. If necessary, the policy will be revised or amended to ensure that the forest resource is managed sustainably. Nevertheless, the National Forestry Policy cannot be implemented in isolation. On the contrary, the aspirations and concerns of related policies should be viewed and considered in perspective so that a holistic approach in resource management and development can be achieved. Ultimately, the long-term sustainability of this invaluable resource must address the needs of the economy, environment and ecology.