

The establishment of the Bentong Model Forest is seen as a commitment by Malaysia, and in particular the state of Pahang, to be more transparent and accountable in its commitments towards sustainable forest management. Unfortunately, however, the implementation of this project has been deferred by the authorities concerned.

## **7.0 MANAGEMENT ISSUES AND CHALLENGES IN FORESTRY**

It is envisaged that more intensive forest management will be carried out in the coming years, particularly with increasing emphasis now being placed on topical forest with regard to its sustainability, conservation and development. This is in line with Malaysia's stand as a member of producer countries where it is required that all trade in tropical timber follow the decisions agreed in UNCED which was held in Rio de Janeiro, Brazil in June, 1992. There the "Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests" was agreed and the "Convention on Biological Diversity" by the European Economic Community and 153 countries, including Malaysia, was signed. Malaysia ratified the convention on Biological Diversity on 2 June, 1994.

Efforts will also be taken by Malaysia to facilitate the full implementation of this UNCED statement on forestry and the obligations as required under the convention on Biological Diversity. Malaysia will be examining closely and identifying, in particular, the areas under agenda 21, especially Chapter 11 (Combating Deforestation) and Chapter 15 (Conservation of Biological Diversity), where financial assistance and the transfer of environmentally-sound technologies are required to ensure their successful implementation.

In 1992, Malaysia and United Kingdom conducted a wide-ranging programme for the biodiversity conservation, management and development of Malaysian forest resources. This programme also conducted research into these imaginative concepts ??? as it has a prodigious diversity of plant and animal life, and large areas of the permanent forest estate. The programme was divided into two sub-programmes, A and B, concerning 'upstream' basic research and 'downstream' developments dealing with industrial and commercial aspects, respectively. Sub-programme A for the research activities taken place in readily accessible 'Demonstration and Development Areas', was intended to be show-cases for learning and training in suitable forest management, while sub-programme B focused on the valuation of costs and benefits of non-timber forest products and services.

The Development of Indirect Values for forest recreational areas in Peninsular Malaysia was also carried out between Malaysia and United Kingdom (ODA – Overseas Development Agency) for the purpose of developing a method to determine the indirect values of forest recreational areas. In 1995, analysed data from 20 study areas were computerised and a training workshop was conducted on the methodology of the study methods, concepts, use of the data and its applications.

Malaysia will redouble its effort towards achieving sustainable forest management in the overall context of sustainable development. In this regard, Malaysia will operate the "ITTO Guidelines for the Sustainable Management of Tropical Forest Management" and its "Criteria for the Measurement of Sustainable Tropical Forest Management" in managing its natural

forest. Efforts will be made to ensure that the establishment and development of forest plantations are also consistent with the "ITTO Guidelines on the conservation of Biological Diversity in Tropical Production Forest" and the "ITTO Guidelines for the Establishment and Sustainable Management of Planted Tropical Forests".

Currently, the economic valuation of the forest resource on the basis of the monetary costs of extraction and distribution has often resulted in inadequate incentives for sustainable resource use. In future the introduction of incentives and penalties will be re-examined and re-oriented to fully reflect the full costs of forest products, including environmental costs. The internalisation of environmental costs will dispel the assumption that the environment is a free good.

Moreover, widely-used economic indicators, such as the gross national product, do not reflect the sustainability of the forest resource in the overall development processes. Thus, it is imperative that national policy and development projects should take full account of their effects on their environment and include the costs of natural resource depletion, particularly forest, in the valuation of environmental quality in national accounting systems. This will bring about fundamental changes in the integration and accounting of the environment as well as the development of forest resource in decision-making. This will also facilitate the shift from a 'post factor' approach to an anticipatory approach in addressing forest resources used, and environmental degradation at their roots.

The potential of biodiversity contribution to human health and welfare, through new and improved food crops, the development of pharmaceutical products and the improvement of biotechnological processes cannot be over-emphasised (Thang, 1993). Every effort should be made to nurture this potential, as suggested subsequently.

1. An inventory should be made to appraise genetic resources of the forests to enable the formulation of nationally agreed bio-geographic areas for the conservation of biodiversity in Malaysia, ensuring completeness of representations of the various forest ecosystems.
2. The cost of protecting and managing existing biological reserves in implementing *in situ* conservation should be quantified.
3. Economic values to the natural biological resources utilised by rural people should be ascribed.
4. An effective joint management mechanism in the conservation of biodiversity between the conservators and users should be developed to ensure equitable returns to both parties.

The sustainable management of the forest resources in Malaysia may further be enhanced through careful implementation of policy and the recognised forest management system. The following actions should be considered to achieve this.

1. Harvesting and reforestation technologies must be refined through operational studies to achieve higher efficiency and cost-effectiveness.

2. Reforestation and diversification of forest plantation programmes should be expanded to produce higher-value speciality timbers and raw materials for specialised, as well as small-scale, industries.
3. Fiscal and monetary incentives should be provided for the establishment of forest plantations by private sectors to make them both financially and economically attractive and viable. Public investments in agricultural development should be encouraged to include large-scale forest plantation establishment for timber production without affecting environmental quality.
4. Computerised forest information system should be operationalised, based on timely and comprehensive data to improve the effectiveness of forest practices.
5. Integrated operational research of forest management, including genetic tree improvement, fertilisation and other silvicultural practices, should be strengthened.
6. Preparation of forest management plans, harvesting plans and reforestation plans should be in consultation with the state governments and the relevant concessionaires so as to ensure their effective implementation.
7. Forestry with agriculture could also be integrated in rural development to expand employment opportunities and supplement income-earning, and to help solve the practice and problem of shifting cultivation in Sabah and Sarawak.

The rate of forest harvesting could be reduced and forest resources conserved if actions are taken to:

- (i) reduce the high level of losses due to felling breakage, high stumps and short logs left in the forest after harvesting. The harvesting losses in Malaysia can be as high as 45% or more of the total utilisable volume;
- (ii) increase efficiency and recovery of existing mills with greater emphasis on the processing of small-sized timber and the under-utilised timber species;
- (iii) export only value-added forest products to encourage greater conservation and utilisation of raw timber;
- (iv) promote optimal use of lesser-known timber species and processing them into value-added products;
- (v) encourage establishment and development of secondary and tertiary wood-processing industries with a view to achieving greater value-added products;
- (vi) promote small-scale rural based industries using other forest produces such as rattan and bamboo to enhance socio-economic development of rural areas;
- (vii) promote fuller utilisation of timber from trees other than those from the natural forests such as rubberwood logs which are readily available.

Furthermore, it is imperative that a practical and workable scheme in certifying timber emanating from sustainable managed forests be developed and that such timber should be provided with greater market accessibility and financial returns. Besides, timber also emanates from planned and controlled conversion of forested land to non-forestry uses, such as in the establishment of agricultural tree crops and in meeting the need for infrastructure development. It is, therefore, critical to provide better conservation and management of these renewable forest resources for long-term benefits, to promote economic growth and development. In this light, future emphasis should focus on:

- (i) development of methodologies for the valuation of non-wood forest resources as well as the environmental cost incurred in forest harvesting;
- (ii) quantification of cost of forest depletion and its integration into the national accounting system;
- (iii) development of techniques for the complete appraisal of all forest genetic resources and ascribing economic values to them;
- (iv) improvement of harvesting techniques which are environment-friendly so as to reduce the current high level of harvesting losses, while promoting the utilisation of the under-utilised timber species;
- (v) identification of appropriate species for the rehabilitation of areas degraded by shifting cultivation.
- (vi) increment of the utilisation of other lignocellulosic materials, especially those from perennial agricultural crops through the development of appropriate industrial processes.

## **8.0 RESEARCH AND DEVELOPMENT ON FOREST MANAGEMENT PRACTICES**

Forestry research in Malaysia dates back to the beginning of the century with the establishment of the Forest Research Institute in Kepong, near Kuala Lumpur as a research unit of the Forestry Department. In October 1985, the Institute became a statutory body, and is now known as the Forest Research Institute of Malaysia (FRIM). FRIM is responsible for research on all aspects of forestry and forest products. Research in ecology (Figure 13) and silviculture is carried out with the objective of developing suitable management and silvicultural techniques for the forest in Malaysia. Studies conducted in these areas are aimed at providing information to enhance the knowledge and understanding of the ecology and dynamics of these forests and their response to logging and other disturbances. Research in forest plantation is geared towards the fuller utilisation of wood properties, growth characteristics and species suitability. Forest products research is directed towards a more efficient and diversified utilisation of the nation's forest resource with the aim of promoting higher operational efficiency in existing production systems by introducing innovative technological systems, thereby reducing wood waste and encouraging fuller utilisation of the currently under-utilised timber species.