

"THE forest is a peculiar organism of unlimited kindness and benevolence that makes no demands for its sustenance and extends generously the products of its life activity; it affords protection to all beings, offering shade even to the axeman who destroys it" — Lord Buddha said over 2,500 years ago when forests formed a predominant part of the environment and the man was still in a stage of harmony with nature.

Why Are Forests and Trees Important ?

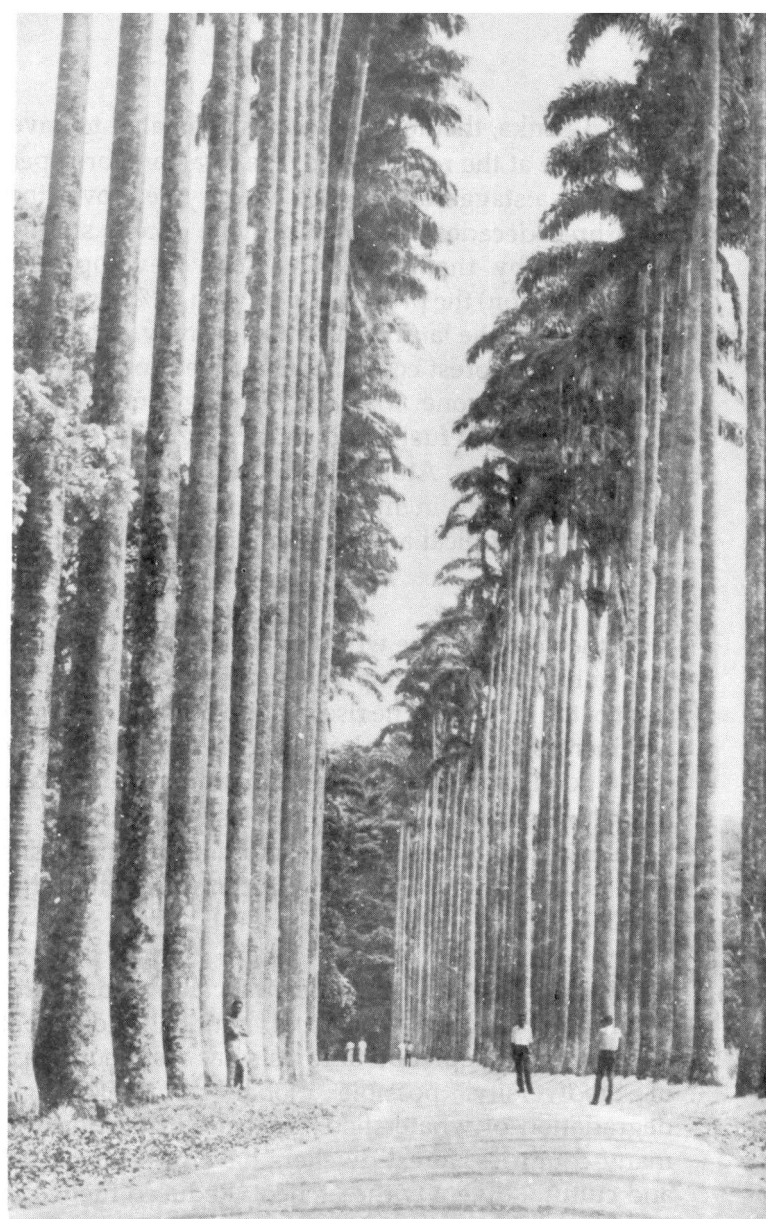
Forests account for almost 30 percent of the earth's total land area. People throughout the world are increasingly recognising the importance of forests and trees in improving human welfare — Both natural and man-made forests have economic, social and environmental benefits, and forests play an important role in economic development-providing employment, income, and foreign exchange.

Forests represent capital when converted to desirable forms of shelter and infrastructure; forests also provide land for food production. They contribute to the economy by providing commercial products (sawnwood, veneer logs, gums, fibre, latex, bush meat, and palms.) Forests also provide materials for agricultural, industrial and medicinal uses. The economic benefits arising from the use of nonwood products on a sustainable basis can be substantial. Forests are also an important source of food, fibre and energy for indigenous population and local communities. Nearly half of the world's population, mainly in developing countries, depend to some extent on forests for consumption goods.

Forests are also an integral component of the biosphere, helping to stabilize natural systems. Forests contribute to biological diversity and help maintain air, water and soil quality. They influence biogeochemical processes, regulate run-off and groundwater, control soil erosion, influence local climate, and reduce downstream sedimentation and flooding. As carbon sinks, forests sequester carbon dioxide from the atmosphere, thus reducing the greenhouse effect. They have aesthetic value and offer recreational opportunities. Forests have "nonuse" or "existence" value as well, because people value forests even when they make no direct use of the resource now. The loss of environmental benefits from depletion of forests can be considerable in economic terms (especially when the effect is irreversible), but these costs are difficult to quantify.

What is the problem ?

People everywhere are concerned about the rate at which forests are being depleted and the extent of destructive deforestation. In recent decades the pace of



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deforestation has been increasing because there are strong incentives to exploit forests.

Deforestation in the tropics is now estimated at nearly 20 million hectares annually, an area almost equivalent to Britain or Uganda. Many of the deserts too are man-made, like the Gobi of China, the dust bowls of south-west U.S.A., deserts in western India and so on. In Sudan, the desert is said to be marching at the rate of 50 miles an year even at the present day.

In Sri Lanka, the deforestation is estimated to have taken place at the rate of 1% of the total land area per annum or a staggering 65,000h.a. every year over the past three decades. According to a recent survey conducted by the ODA (Overseas Development Administration) the present cover (with 75% coverage) is only 20% of the land area. In the heavily populated wet zone, the forest cover has dwindled to 7% of the land area of the zone. Many developing countries face acute shortages of fuel wood, fodder, timber and other forest products. Atmospheric pollution threatens temperate forests in many industrialized countries, while many tropical and temperate areas lack forests altogether.

By the year 2000 the world population will increase by 1 billion, with developing countries accounting for most of the increase. The rise in population and income will increase demand for both market and non-market forest goods and services—and that demand will put more pressure on existing forests, particularly in developing countries. Deforestation in the tropics is expected to continue to be significant throughout the 1990's.

Misuse of forests has significant social, economic and environmental costs with local, national and global implications. Depletion of forests has resulted in loss of biodiversity, possible global climate change, degradation of watersheds, and desertification. In many countries, forest-dwellers have been displaced and cultural diversity threatened. Reduced fuelwood supplies have significantly influenced how women and children (the primary fuelwood gatherers) spend their time. Deforestation, together with land degradation, exacerbates the problem of poverty in rural areas. Besides having adverse environmental and social consequences, wasteful deforestation generates economic losses, including the permanent depletion of a renewable resource, loss of genetic diversity, and reduction of agricultural productivity.

What are the causes of the problems ?

Economic activities, such as agriculture, cattle ranching, fuelwood gathering, commercial logging, and infrastructure development, are perceived as direct causes of deforestation. But these causal factors are driven by economic, social, and political forces in a broader context of political economy. These forces manifest themselves through market and policy failures, population pressures, and poverty. The relative importance of these direct and underlying causes of deforestation varies significantly among countries.

Social factors (e.g., culture, values, traditional practices, and property rights) influence people's interaction with forests, their access of forests and their valuation of forest. Economic factors (e.g., the market, incentives, and trade) influence the production of forest goods and services, the role of the forest sector in the national economy, and the distribution of income resulting from forest activities. Political factors (e.g., the political system and the political process of decision making, government ownership of natural resources, and public policies) affect the degree of intervention in the pricing and extraction of forest products, the extension of favorable treatment to interest groups, and the selective provision of forest output as public goods. External factors (e.g., the demand of foreign countries for local resources and products) also influence economic and political considerations in forest use. The dynamic interaction of these social, economic, and political factors creates competing demands for forest goods and services and forest lands, which result in either sustainable use of forests or destructive deforestation.

Interest groups have an important role in the exploitation of forests, influencing policy decisions and management of forest resources. At the local level, where the concern is for improving human welfare, people use forests for commercial and subsistence purposes, and they clear forest areas for farming and ranching. At the national level, forests often represent



an important source of foreign exchange, employment, government revenue, and land for agriculture, mining or industry. In response to social and political pressures, national interests frequently favor exploitation of forests for short-term economic gains. At the global level, people demand forest products but also seek to preserve forests because of their role in climate and biodiversity. Because of their competing aims and values, local, national and global interests often conflict. Furthermore, within each level there are competing interest groups. At the local level, for instance, forest dwellers farmers, landless people, commercial entrepreneurs, and local government compete for the use of forests.

The market does not value all the environmental goods and services that have characteristics similar to those of pure public goods. This market failure creates conditions for inefficient use of forest resources. Because environmental costs are not internalized, private and social costs diverge. Moreover, the conflict between the time horizon of people now living and the needs of future generations creates a bias in favour of exploiting forests more rapidly. The use of high discount rates in investment decisions discourages conservation and environmental protection projects that have long gestation periods for generating net benefits. Also, the lack of clearly defined property rights creates market distortions and makes forests vulnerable to pressures from rapid population growth and poverty. Finally, benefits and costs are often not directly related to the use of forests. Although some benefits from the use of forests (e.g., harvesting of forest for wood products), can accrue directly to some people today, environmental costs (e.g., downstream effects in the form of flooding and soil erosion) may be borne by others in distant places and over time. This situation inhibits individuals and governments from taking costly measures that have intangible benefits.

Public policies seldom provide adequate incentives for sustainable management of forests or promotion of reforestation. By distorting the true cost or price of forest resources, perverse public policies have encouraged short-term exploitation of forests. Experience in many countries shows that agricultural incentive policies, resettlement, taxation, and trade policies are frequently more influential in determining land use than forest-sector policies. Existing agricultural and credit policies and tenurial incentives often encourage expansion of the agricultural frontier at the expense of forests. Inadequate government response to increasing land scarcity provides incentives to people, especially in densely populated regions, to move into forest areas.



Inefficient fuelwood policies (pricing, concession policy, and subsidies) have made fuelwood scarce in many areas, leading to depletion of forests.

Severe underpricing of tropical timber through deficient royalty and concession policies leads to serious waste of resources. Underpricing also implies that the owners of the resources are not capturing a significant portion of timber rents. Countries reduce benefits from commercial forestry by maintaining an unstable macroeconomic environment, keeping wood artificially cheap, and directing investments toward inefficient processing industries. Other negative consequences include unsustainable management of natural forests, low levels of reforestation, inadequate use of processing capacity, and even the loss of forests. Finally, weak enforcement of existing regulations and concession agreements also has encouraged unsustainable use of forests.

In the many countries where the government is the principal holder of forest property rights, traditional systems of providing access to forests and allocating common property resources to local people have broken down. The government's disregard of traditional rights of local communities and tribal groups makes forests more vulnerable to open-access problems. More-

over, in many instances, governments lack the capacity to manage forests effectively and to control access to forest land under public ownership. Local people also lack the technology and the legal and institutional framework to manage forests sustainably.

Forests are undervalued because many of their non-commercial products, as well as their environmental goods and services, are not taken into account. Therefore in many countries the contributions of the forest sector to the economy (computed in terms of gross domestic product) is less than the contribution of other productive activities such as agriculture and industry. As a result governments tend to assign a low priority to the forest sector and to make relatively low investments in forest management, research and plantation programs. And because of a general lack of knowledge about the ecological effects of human interaction with forests, governments and the effects of human interaction with forests, governments and the private sector often ignore the environmental benefits derived from forests and the environmental cost associated with destructive deforestation. Even though a society may place a high value on environmental services, if the goods and services do not generate a monetary return, forests may still be undervalued by the market, the private sector, or the government.

Many forests, conservation and development programs suffer from weak legal and institutional support. Forestry institutions such as forestry departments usually operate within a larger framework in which overlapping jurisdictions and policy objectives lead to conflict over forest land use. Revenue-earning, development, and conservation priorities conflict. Forestry institutions are frequently pressured to support some objectives to the neglect of others. Governments have also failed to include local communities, tribal groups, and the private sector in the long-term management of forests.

Finally, intact forests, especially primary tropical moist forests, are increasingly viewed as a global environmental good because of their biodiversity and their influence on climate. But the world community has neither the institutional and legal framework nor a special global fund to impose guidelines and "best practice" behaviour on countries to ensure the preservation of forests. Each nation retains the sovereign right to manage its forest resources as it wishes, and there is as yet no consensus in the world community on sustainable use of forests.

How should this problem be addressed ?

The world community and independent nations face two forest-related challenges: to manage existing natural forests (both temperate and tropical) sustainably and to expand forest resources through reforestation and afforestation. Plantations in tropical and temperate areas, restoration of degraded forests, and trees planted outside forest areas (e.g., farms and urban areas) should provide more forest products and environmental services. Appropriate local, national and global actions are needed to meet these challenges. A participatory approach, which takes into account local needs and national priorities and is based on international cooperation, is vital.

In the transition to sustainable development of forests, trade-offs between short-term economic gains and long-term development must be made. By balancing conservation and development goals, sustainable development protects the interests of current and future generations in the use of forest resources and links consumption to the needs of the society. Sustainable development also requires reducing population growth and poverty, particularly in areas where natural resources and the environment are already under stress.

As countries try to stabilize existing forests and increase forest resources, they face many important questions: How much forest should be maintained to meet the desired economic, social conservation, and environmental objectives? How should these resources be classified and managed to reflect both the productive and the protective functions of forests (forest reserves, national parks; protective forests; forests for timber production; wildlife preserves; forests for recreational purposes, and forest areas for mixed cropping, tree crops, agroforestry, and nonwood product extraction)? To what extent should global concerns be reflected in these decisions?

Answers to these questions go beyond the scope of economics or the market. Important ecological, ethical and sociopolitical considerations are involved as well. Economic reasoning and improved scientific information will be helpful, but ultimately each country must decide how much forest to maintain to accommodate current and future needs. Ideally, all remaining natural forests should remain intact, but preserving them all intact would be unrealistic given the needs of many developing countries for social and economic development. Most countries will opt for a second-best solution by considering intact forests for multiple uses, balancing conservation and development objectives.

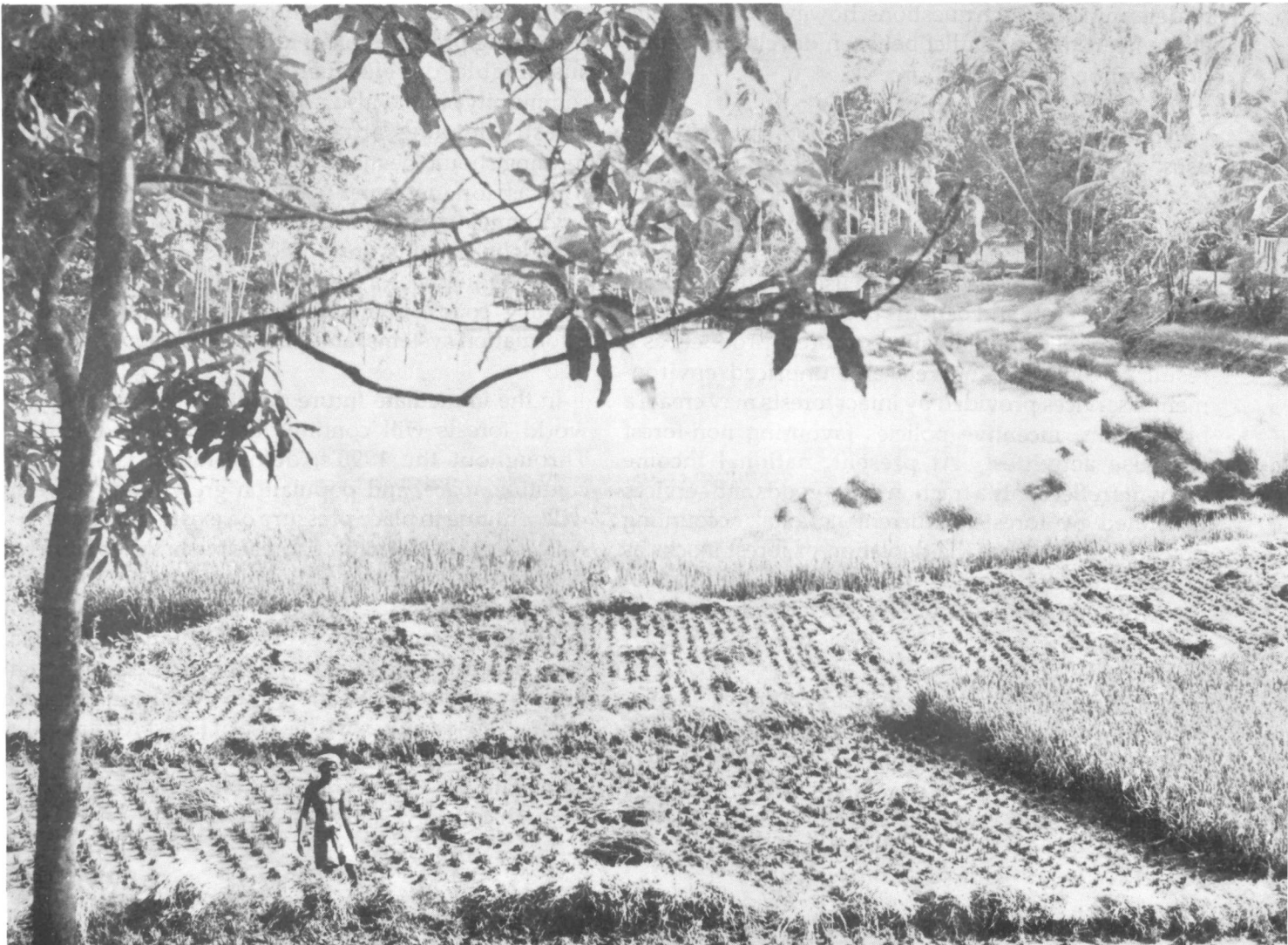
On ethical considerations, a "burden of proof" falls to each country to demonstrate that use of natural forests is necessary and ecologically sustainable.

Eventually each country must develop its own forest conservation and development program and create incentives for sustainable use of forest resources. Countries should take the values of conserving forests for the future, into account in decisions about land use and management of forest ecosystems for multiple uses, including commercial forestry. Strategies for more efficient use of forest resources should be developed in a larger context of natural resource management policy. Specifically, to establish incentives for sustainable use of forests, countries need to develop a comprehensive national land-use policy, strengthen forest management systems for single or multiple uses, enhance traditional restrictions on destructive resource use, create property rights and legal restrictions, correct market and policy failures, develop forestry institutions and human resources, involve local people and the private sector in forest management, adopt consumption of forest goods, and expand environmental education.

Correcting market and price distortions will

significantly improve the use and management of forest, but because of the opposition of interest groups, policy changes will be difficult, requiring strong public support and political will by decision makers. Furthermore, as noted earlier, many policies relating to the use of forests fall outside the forest sector, and the policies in other sectors support competing objectives with broader implications. Loss of forests, for example, is an unintended effect of some agricultural policies (such as pricing, taxation, and subsidies) designed to increase food production, income, and employment. Policy reforms could require the sacrifice of some benefits in the short term. For example, preservation of forests could prevent people who depend on the resource for their livelihood from having access to forests. In the absence of alternatives for generating employment and income, these people could fall deeper into poverty.

Policy changes will also be complex because of other considerations. Externality costs associated with forest use (such as replacement and environmental costs resulting from harvesting) may have regional and global consequences, but sovereign governments can be expected only to address domestic externalities need to be dealt with through international cooperation and, possibly, income transfers from rich countries to poor.



In addition, forest land is used by people with a wide variety of land tenure arrangements, including indigenous tribal groups with long-held customary rights, illegal squatters, communities managing common land, and freehold farmers with state-granted leases or titles. Customary tenure systems also vary considerably and can be much more complex than open-access systems. The rights that people have over forest lands significantly influence their response to particular incentive policies.

Moving toward conservation and sustainable use of forest resources also has significant cost implications. Because intact natural forests, especially primary tropical moist forests, are increasingly considered to be a global environmental good, the compelling questions relating to forest conservation on a large scale are those of cost and compensation. Who should pay for the cost of preserving forests for the benefit of the world community, now and in the future? Also, what proportion of the cost should be met nationally because benefits accrue locally? How should countries, and affected social groups within countries, be compensated for income forgone as a result of forest preservation that benefits everyone? And how should the compensation be determined? Such questions, however difficult, lie at the heart of the conflict between development and preservation of forest resources.

Proper valuation of forests to promote more efficient uses of forest resources needs special attention. Accurate valuation is essential for better allocation of resources and for improved design and appraisal of both forestry and non-forestry projects. Investment decisions among alternative land uses require accurate measures of costs and benefits of different forest goods and services. Undervaluation of forest products as a result of distorted markets and unpriced environmental services provided by intact forests may create a bias toward incentive policies favouring non-forest land-use activities. At present, national income accounts reflect only a fraction of the goods and services generated by forests. Current national accounting practices fail to treat the depletion of forest stocks as capital depreciation or to consider the degradation of the environmental services associated with forest destruction.

The world community can help countries stabilize natural forests and deal with global environmental concerns. That community also carries the "burden of responsibility" to support developing countries in their drive to use forest resources more efficiently. During

the past decade the world community has launched a number of important initiatives (such as the Global Environmental Facility, the Tropical Forestry Action Plan, and the establishment of the International Tropical Timber Association) that emphasize preservation and sustainable management of forests, but more needs to be done through international cooperation.

The world community urgently needs to develop a global strategy for forest management and to provide funding to help countries. All types of forests, not just primary tropical moist forests, need help; at present, too much attention is directed to the latter. The world community should also support research efforts to improve knowledge of the ecological, biological, and physical processes of tropical forest ecosystems. Additional research should focus on understanding the physical effects of human interventions in tropical forests and on creating sustainable management systems of tropical forests.

Funding for the preservation of ecologically diverse forest ecosystems and for reforestation must increase significantly during the 1990's. Because preservation of forests has worldwide benefits, the world community should contribute to the direct and indirect costs of expanding preservation of forests. In order to achieve sustainable development objectives, the donor community should also provide incentives by making forestry lending attractive. More concessionary funding should be made available for reforestation, as well as for investments in large conservation and environmental programs that have significant regional and global benefits. In addition, such funding could be made available for technical assistance, research, training completion of inventories, development of information systems, and pilot projects.

In the immediate future debate about the status of world forests will continue and perhaps intensify. Throughout the 1990's, deforestation is likely to continue apace, and population growth and poverty will continue to place pressure on existing forest areas. As the rapid loss of natural forests pushes the planet to the threshold of crises, people will respond more readily to this serious problem. Better management of forest ecosystems will evolve through incremental responses and adjustments, but the problem is enough to warrant special attention. Individual countries are taking steps to improve the use of forest resources for different purposes, but the world community can accelerate the transition to sustainable development through collective action.