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FORESTS FOR THE NEXT GENERATION

B. C. Y. Freezailah

Executive Director, The International Tropical Timber Organizations (ITTO), International Organizations Center, 5th Floor, Pacifico-Yokohama, 1-1-1 Minato-Mirai, Nishi-Ku, Yokohama, 220 Japan

The concern and care for our forests for human welfare and well-being have brought us together at this Public Forum today, thanks to the initiative of CIFOR, the Bogor-based Centre which is making valuable contributions to better forestry through research and development activities. The honour of being invited to address this Public Forum, at its Concluding Session, is both special and significant to me and I wish to thank the sponsor of this Forum, CIFOR, and other collaborators, the Japanese Ministry of Foreign Affairs, the United Nations University (UNU) and the Forestry and Forest Products Research Institute (FFPRI), for according me this privilege. Earlier today, we heard an excellent keynote address from H.E. Mr. Wisber Loeis, Indonesia's Ambassador to Japan followed by five thought-provoking presentations on Globalisation, Social Equity, Forest Peoples, Biodiversity and Sustainability; issues which are at the heart of the on-going dialogue on forestry — a topic which has been high on the international agenda since the historic Earth Summit in Rio de Janeiro in 1992, when world leaders adopted Agenda 21 in which forest and forest-related issues are prominent. Ever since the important commitments made in Rio, the whole world seems to be in a brain-storming session, through any number of meetings and initiatives to conserve, sustainably manage and rationally utilise forest resources. But the forest problematique has so far defied our efforts prompting Dr. David Harcharik, the then Assistant Director-General of the FAO Forestry Department during the Eleventh World Forestry Congress in 1997, to ask some probing questions:

- "Why is it that some 13.7 million ha of the world's forests are still being cleared for other forms of land use every year and overwhelmingly in an unplanned and destructive manner? ..... Have we done enough to optimise and sustain the economic potential of our forests?"
- "Why is it that some 840 million people still do not have access to adequate food and nutrition? ..... Addressing the social aspects of forestry development could enable us to improve this contribution".

These are important questions and should always be in our minds as we examine and try to understand the underlying problems of forestry.

Address presented at the CIFOR Public Forum, 10 April 1998, Tokyo, Japan.

In 1995, forests covered an estimated area of more than 3.4 billion ha or about 26.6 percent of our planet. About 57 percent of the world's forests were in developing countries. Seven countries, the Russian Federation, Brazil, Canada, the United States, China, Indonesia and the former Zaire, account for two-thirds of the world's forest cover. By way of introduction and to put the economic aspects in perspective, let me quote some statistics on the international trade in forest products which has been consistently increasing but influenced, of course, by periods of economic crisis. The annual value of global trade in forest products is about US$130 billion. This amounts to about 18 percent of the estimated total value of output of forests worldwide. The global trade in forest products is dominated by developed countries. Exports from tropical countries amount to only US$15 billion or 11 percent of the total. Although in this forum there is no special presentation on trade of forest products, I do believe this is a crucial element; there must be an economic basis and foundation for the sustainable management of forests. Let us also be aware that for our continued progress and development, we need raw materials. Substitutes for wood such as aluminium, iron, concrete and plastic are either non-renewable or need large quantities of energy for their processing or both and hence, environmentally very unfriendly compared to wood. In addition, let us not forget the important function of forests as a carbon sink, which I believe is extremely important because of global warming and the dire consequences, which, according to some experts, we are already beginning to experience such as the frequent occurrences and severity of the El Niño phenomenon.

For purposes of discussion and as a simplification, the world's forests may be grouped into two more or less equal halves; tropical forests occurring in developing countries and temperate and boreal forests found mainly in developed countries. Although they perform similar biological and other functions, the situation of tropical forests is different from temperate and boreal forests not unlike the north-south divide in many critical aspects.

- Tropical forests are complex ecosystems composed of a bewildering number of plant and animal species compared with temperate and boreal forests.
- Due to the spatial stratification of trees and vegetation and an annual growing season of 365 days, tropical forests are highly efficient in total biomass production, but their productivity in terms of commercial timber is relatively low.
- Tropical forests are subjected to poverty problems and population pressures, particularly from inhabitants living in and around the forests. Shifting cultivation and fuel wood collection cause destruction and traditional lifestyles are threatened due to shrinking forest areas.
- Tropical forsts are indeed a storehouse of the world's genetic resources and medicinal plants some of which are still unknown to science, in addition to their function in carbon sequestration to combat global warming. However, these values are currently largely non-marketable.

- There is a need for more transparency in policy development and decision making in the forestry sector through meaningful participation of all interested parties particularly in tropical countries with forest-dependent communities.
- Trade in tropical timber is mainly in the form of logs, rough sawn lumber and plywood, accounting for only about 11 percent of the global trade in forest products in value terms.
- Infrastructure in many tropical countries is poor. Enforcement and research capacities are particularly weak in the forestry sector.
- Most tropical countries are experiencing severe economic and financial constraints thus leaving little if any resources for investment in the forestry sector.
- Current problems concerning disastrous forest fires in the Southeast Asian countries, Brazil and other tropical countries compound the problems they face to implement sustainable forest management.

Because of the differences between tropical and temperate and boreal forests that I have enumerated and because of the concern and scrutiny by the international community and relevant organisations, may I be allowed to focus my statement today on tropical forests? Also, my experience has been with tropical forestry issues based on my work in Malaysia and the operations of the ITTO which I have the honour of serving. This Public Forum is on "Forests for the Next Generation" and I have been asked to present a concluding statement on "The Way Forward: Beyond 2000". It is a subject of vital importance in view of the earlier statements we heard today and, at the same time full of controversies. I can only attempt to raise some issues which I feel are important for us to ponder and reflect if we wish to contribute to save the forests of the world and in particular tropical forests.

Sustainable management of natural tropical forests for timber and non-timber products and the development of related industries have been recognised as the best way of conserving such forests, given the twin pressures of population growth and poverty facing many tropical countries. As markets for non-timber tropical forest products are small or undeveloped, sustainable timber production from tropical forests is the most feasible way of generating sustainable revenue, employment and other social benefits from such forests while retaining them in perpetuity. It is equally well recognised that tropical timbers from natural forests are increasingly facing competition with timbers from temperate forests against which tropical timber from sustainably managed natural forests is at a distinct disadvantage. Let us consider some basic data which I have compiled from various sources.

- Firstly, the production of commercial timber from natural tropical forests is only about 0.5–3.0 m^3 $ha^{-1}y^{-1}$ compared to 4.0–10.0 m^3 ha^{-1} y^{-1} from temperate forests.

- Secondly, extraction and sustainable management costs of natural tropical forests are in the range of US$50–200 m^{-3} compared to only US$15–30 m^{-3} for temperate forests.
- Thirdly, prices. The average price (CIF) paid in Japan for utility grade tropical logs (Papua New Guinea Mixed Light Hardwood) during 1996 was US$175 m^{-3} compared to US$90 m^{-3} for plantation-grown radiata pine logs from Chile. It is only the higher quality timbers (e.g. seraya vs. Douglas fir) that prices are more evenly matched, but tropical logs remain at a competitive disadvantage due to higher extraction and management costs.

Table 1. The challenge for tropical timber from natural forests

Forest type	Tropical		Temperate	
	Natural	Plantation	Natural	Plantation
Productivity (m^3 ha^{-1} y^{-1})	0.5 – 3.0	5 – 40	4 – 10	3.5 – 35
Extraction and management cost (US$ m^{-3})	50 – 200	10 – 40	15 – 30	15 – 25
Log price (US$ m^{-3}, Japan mill, 1996)	175 – 200	-	-	90 – 270

From these vital statistics, it is quite clear that any further increase in the management costs for tropical timber due to a rigid definition for the sustainable management of natural tropical forests, timber certification and other costs, will render it increasingly uncompetitive with the large quantities of commodity timbers becoming available especially from plantation-grown timbers from temperate countries. Chile's production of plantation radiata pine, for example, will increase by about one-third from current levels, to nearly 28 million m^3 y^{-1} by 2010 and New Zealand will almost double the amount of wood from plantations to 30 million m^3 y^{-1} within the same time-frame. Scientists in New Zealand have also developed a pressure treatment called "indurite" that gives softwoods some of the desirable wood characteristics of hardwoods. The future of tropical timber based on the sustainable management of natural tropical forests is, regretfully, more than bleak. It is in forest plantations that tropical countries have certain comparative advantages.

The implementation of sustainable management of natural tropical forests and the enforcement of the various regulations will necessitate strengthening institutional infrastructure, skilled man-power and substantial additional costs. ITTO's study in 1997 estimated that enforcement of basic regulations would require about US$2230 million over the next four years with an additional amount of more than US$600 million to implement minimum standards of sustainable forest management during the same period for ITTO's tropical producer countries. Under prevailing economic conditions, developing countries could not be expected to make such investments. But this responsibility, as agreed at the Rio Summit, is to be shared with developed countries who have agreed to provide new and additional financial resources to assist in such efforts. After all some the benefits are global. But with ODA falling, developments after the Rio Summit do not give much optimism

for developing countries to secure the level of assistance necessary to achieve the sustainability of their forests.

On another front, there has been a great deal of hope for investment in the sustainable management of natural tropical forests from the private sector. Though "privatisation" has been a success story in many sectors of the economy, I do not believe that "privatisation" will provide the answer for us. As I pointed out earlier, the productivity of natural tropical forests is relatively low, concessions are often of short duration, and in many cases there are unpredictable and unquantifiable social and other costs. Even the definition of sustainable management is still being debated. To the private sector, the investment needed is high and risky. Hence we have not seen many satisfactory cases of sustainable management of natural tropical forests by the private sector.

You will recall that earlier in my presentation, I emphasised that tropical forest products account for only 11 percent of the global trade amounting to some US$130 billion annually in total. Such trade is based mainly in the form of logs, plywood or rough sawn lumber. These statistics indicate the potential for further and increased processing of tropical timber into finished and semi-finished products thus enhancing their value-added so that tropical countries may enjoy greater social and economic benefits in terms of foreign exchange earnings and employment opportunities. The establishment of wood industries for further processing call for investment, technology transfer, training and, of course, market access for such finished wood products. Talking about wood products raises the issue of timber certification which is both important and necessary in due course to contribute to sustainable forest management. But anyone aware of the status and forestry situation in tropical countries would know that many countries, though committed to the ITTO Year 2000 objective and embarked on the process of achieving sustainability of their forests, are confronted with many daunting problems some of which have been elaborated in my presentation. Although we should continue various initiatives on timber certification, let us spend more of our limited resources to implement sustainable forest management at this point in time. Let us fully appreciate the importance of international trade not only to give value to forests but also as a means and leverage to influence policies and practices in tropical countries. To introduce bans, boycotts and restriction in trade and other measures prematurely will only kill trade in tropical timber with dire consequences. We shall then be our own worst enemies!

At and after the Earth Summit, there has been considerable debate on a forest convention to coordinate and harmonise international efforts on caring for the world's forests. This debate continues in the UN under the Intergovernmental Forum on Forests (IFF). Currently there is only one convention dealing directly with forests and that is the International Tropical Timber Agreement (ITTA), 1994, being the successor agreement to the ITTA, 1983. However, the mandate of this agreement covers only tropical forests representing only about one half of the world's forests. In some sense the need for total coverage by a convention is implied as when the ITTA, 1994, was adopted on 10 January 1994, consumer countries with

world's temperate and boreal forests made a formal statement committing them to the conservation, management and sustainable development of their forests. Equally the 1992 Earth Summit in Rio adopted the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests. The issue of a Global Forest Convention is very much on the IFF agenda and I personally believe that a convention is necessary. How should such a convention be structured as it will cover a vast and complex subject dealing with tropical, temperate and boreal forests? There are similarities and dissimilarities between these forest types, the major one being that forestry in tropical forests is very much a development issue unlike most temperate and boreal forests. Administration of a single Global Forest Convention will be most cumbersome and complicated. Perhaps we may think of two separate conventions, one for tropical forests whilst the other is for temperate and boreal forests with a formal mechanism of coordination for both conventions. In other words, we may think of a federation, rather than a union of the two major forest types of the world for purposes of a global forest convention.

For the various reasons I have stated earlier, regretfully, the emerging scenario for timber production from natural tropical forests is more than bleak. Even now there are still people debating on an operational definition of the management of natural tropical forests. Some of these definitions are loaded with a long array of technical, environmental, ecological and socio-economic criteria, further compounding the sustainable management of such a complex and bewildering ecosystem with a productivity of less than 3 m^3 ha^{-1} y^{-1} in spite of the more than 100 years of research. Yet the whole world is calling for the sustainable management of the natural tropical forests for timber production. What is the answer? Obviously we need a paradigm shift. In view of the many intractable problems of natural tropical forest management and many examples of the management of other renewable resources, particularly in agriculture, we are so to speak on a mission impossible to expect the bulk of tropical timbers to continue to be produced from natural or wild populations. The fact that the human race continues to be able to feed itself, despite regular predictions of impending doom since the time of Malthus, is a cogent reminder of how intensive management and breeding have turned forecast shortages into surpluses. Data analysed by the World Bank shows that food production in the world has in fact grown by over 20 percent per head since 1961; with real prices falling some 40 percent since then, due largely to plantation crops selected for rapid growth, higher yields and disease resistance (Figure 1). There is also compelling illustration of the potential gains from genetic selection and improved management, showing the remarkable increase in latex yields brought about over the past 70 years through work by the Rubber Research Institute of Malaysia where yields have been increased more than five-fold when compared to latex production from rubber trees in the wild (Figure 2). Tropical forestry must follow these examples, focusing on wood production from intensively managed plantations of species selected for timber production. In New Zealand and Chile, radiata pine plantations yield more than 20 m^3 ha^{-1} y^{-1} whilst eucalyptus plantations in

Brazil produce an average of 45 m^3 ha^{-1} y^{-1}. The best clones under experimental conditions have been reported to produce a staggering 80 m^3 ha^{-1} y^{-1}. And compare these statistics with commercial productivity of natural tropical forests of less than 3 m^3 ha^{-1} y^{-1}. In view of these potentials, the projected demand for timber, and in order to remain competitive in world timber markets, and the need to conserve the natural tropical forests for biodiversity and environmental values, I believe that tropical countries may meet these challenges by delineating their forests and forest lands into five categories managed under different regimes. The distribution and extent of each category will depend on a judicious consideration of various factors including ecological, economic, social and site.

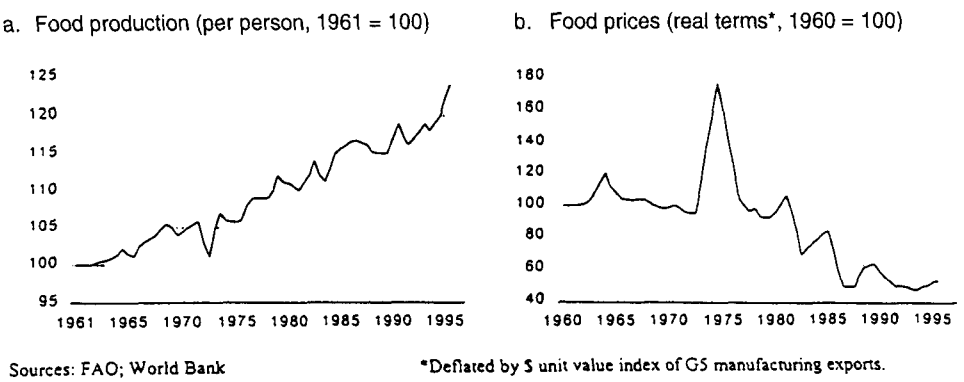

Figure 1. Food production and prices in the last decades

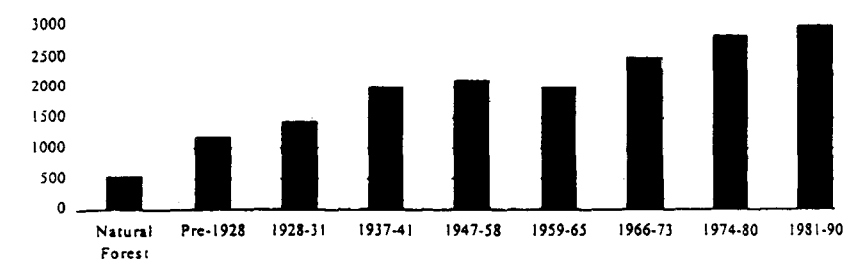

Figure 2. Latex yields from various series of *Hevea* clones in Malaysia (kg ha^{-1} y^{-1})

- The first category is BIOSPHERE RESERVES to include all areas which are totally protected for biodiversity conservation, catchment protection, and other ecological considerations;

- The second category would allow EXTENSIVE MANAGEMENT of areas of natural forest sustainably managed for the production of high-valued tropical hardwoods and other products and services to meet the needs of niche markets. Under a sustainable management regime as prescribed by ITTO's Guidelines, such areas would also contribute to biodiversity conservation and other ecological benefits and can also act as buffer zones for BIOSPHERE RESERVES indicated earlier;
- The third category would be areas under a management regime with emphasis on ENRICHMENT PLANTING with valuable timber and other species both indigenous and exotic; and
- The fourth category would be intensively managed WOOD PRODUCTION PLANTATIONS to provide the bulk of industrial commodity timber from high yielding timber species. The establishment and management of such plantations may be based on ITTO's Plantation Guidelines.
- The last category deals with the management of forests with forest dwellers or forest dependent local communities. The sustainable management of such areas must take into account the special development needs of these communities. In this context, it is a pleasure for me to inform the Forum that ITTO is collaborating with CIFOR in the Bulungan Model Forest in Indonesia entitled "Forests, Science and Sustainability".

Let me conclude by thanking CIFOR and other collaborators of this Forum for inviting me to speak and to all of you for spending time to share with me some of my thoughts on Forests for the Next Generation and The Way Forward: Beyond 2000. Whatever it is, it is only through international understanding, cooperation and sacrifices that we can bring about a new World Environmental Order in which forests play a vital role to restore the ecological health of our endangered planet earth for our common future.