

ASIA-PACIFIC FORESTRY SECTOR OUTLOOK STUDY
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**CHALLENGES AND OPPORTUNITIES: POLICY
OPTIONS FOR THE FORESTRY SECTOR
IN THE ASIA-PACIFIC REGION**

by



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information note on asia-pacific forestry sector outlook study

At its sixteenth session held in Yangon, Myanmar, in January 1996, the Asia-Pacific Forestry Commission, which has membership open to all governments in the Asia-Pacific region, decided to carry out an outlook study for forestry with horizon year 2010. The study is being coordinated by FAO through its regional office in Bangkok and its Headquarters in Rome, but is being implemented in close partnership with governments, many of which have nominated national focal points.

The scope of the study is to look at the main external and sectoral developments in policies, programmes and institutions that will affect the forestry sector and to assess from this the likely direction of its evolution and to present its likely situation in 2010. The study involves assessment of current status but also of trends from the past and the main forces which are shaping those trends and then builds on this to explore future prospects.

Working papers have been contributed or commissioned on a wide range of topics. They fall under the following categories: country profiles, selected in-depth country or sub-regional studies and thematic studies. Working papers are prepared by individual authors or groups of authors on their own professional responsibility; therefore, the opinions expressed in them do not necessarily reflect the views of their employers, the governments of the Asia-Pacific Forestry Commission or of the Food and Agriculture Organization. In preparing the substantive report to be presented at the next session of the Asia-Pacific Forestry Commission early in 1998, material from these working papers will be an important element but will be blended and interpreted alongside a lot of other material.

Working papers are being produced and issued as they arrive. Some effort at uniformity of presentation is being attempted but the contents are only minimally edited for style or clarity. FAO welcomes from readers any information which they feel would be useful to the study on the subject of any of the working papers or on any other subject that has importance for the Asia-Pacific forestry sector. Such material can be mailed to the contacts given below from whom further copies of these working papers, as well as more information on the Asia-Pacific Forestry Sector Study, can be obtained:

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PREFACE

It is extremely difficult to summarize the major policy issues, opportunities and challenges across such a vast and populous region, from Pakistan to the International Dateline, from Mongolia, China and Japan in the North to the Pacific Islands, Australia and New Zealand in the South. This region includes almost half the people of the world, and their per capita incomes and living standards range from amongst the highest in the world, to some of the lowest. Yet we believe that there are some general themes that recur throughout all the Asia-Pacific countries. Even within regional groupings like ASEAN, South Asian Association for Regional Cooperation (SAARC) and the South Pacific Forum, member countries have different pasts, presents and future prospects.

We will attempt to understand why this is so, and what can be learnt from others' experience. This paper is a broad-brush tour of the policy landscape in which the forestry sector is embedded, and aims to identify major changes on the horizon, and consider how these might affect forests and people whose incomes and lifestyles depend on forests.

As a global independent scientific research institute applying the best of science to resolving the problems of tropical forests and the people who depend on them, CIFOR hopes to present an innovative and slightly different view of the processes and future options. It is our hope that this will be useful to those directly and intimately involved in policy formulation and implementation.

Commenting on a policy inevitably reveals something about the author - the questions one considers important, the priorities, whether we focus on institutions, laws, processes or people. This paper focuses on economic behaviour of people, industry and government, rather than on legal or technical/silvicultural issues or the options for technological change. This is not to imply those are unimportant - rather it reflects our expertise and interests, and where we believe the greatest potential gains may be found at present.

Whether or not an agenda for policy reform or policy research emerges from these Outlook Studies for the Asia Pacific Forestry Commission, we suggest that there could be great benefit from impartial critical evaluation of forestry policies and policies which affect forests, even if that means questioning some long-held presumptions about Forestry.

This paper is primarily based on current CIFOR research across the region, and prior analyses and experience of CIFOR staff. It has also drawn on Country Papers presented in 1996 at Asia Pacific Forestry Commission and FAO's Committee on Forestry (COFO) as well as other FAO studies, especially FAO Forestry Paper #115 published in 1993.

EXECUTIVE SUMMARY

The objectives of this paper are:

- to summarize the major policy issues and opportunities confronting many of the governments in the Asia-Pacific region, in trying to achieve sustainable and equitable use and management of their forests. There are significant pressures on governments, and by governments, to exercise much greater control over what happens within forests;
- to help identify trends in the forestry sector, and their broader underlying economic, demographic and social causes, particularly in regard to who will manage which forests in the future, for what objectives. These include pressures for decentralization, corporatization, privatization and devolution to local community groups, as part of widespread moves to smaller governments “who concentrate on steering the boat, rather than rowing it”;
- to indicate the current social and economic significance of forests to the people who live in/near tropical forests in the Asia-Pacific region, and to suggest possibilities for improving the current social, economic and environmental conditions concerning forests and the people who live in/near them;
- to examine some of the development opportunities in the forestry sector, and the possible long-term trade-offs between economic, social and environmental objectives and needs, and also the potential for negotiating “win-win” outcomes; and
- to look for options for possible policy and institutional reforms, particularly by national governments in the Asia Pacific region to achieve preferred outcomes in 2010 and beyond, and how these might also be supported and reinforced by international efforts.

Major Trends of the 1970s-1990s

Economic: Globalization of product markets has been fostered by trade liberalization, the General Agreement on Tariffs and Trade (GATT) leading eventually to the establishment of the World Trade Organization, and stable or declining real prices of transport. Integration and greater international mobility of capital in global markets has been facilitated by technological innovations in information flows - the Internet, satellite telephone communications etc. that mean that financial markets and stock exchanges are open to global players, somewhere in the world every hour of the day.

These are reflected in rapid expansion of industries, the financial-communications sector and agribusiness. Production of export crops and primary commodities is likely to both expand in area and intensify yields/hectare in existing areas. Rapid economic growth, and rising affluence especially in the urban areas across the region, moderate increases in incomes across the production zones of farms, factories and industrial forests, but to a much lesser extent in remote rural areas (where most remaining natural forest areas are located). Increased emphasis on trade and industrialization, to maximize domestic employment generation and value added, especially for exports of primary products. Dis-investment and depletion of natural forests to finance investments in other sectors. The need to increase production and decrease unit costs stimulates plantation development, in the higher income countries with relatively cheap land, or developing countries with cheap land and labour. In remote hinterlands, forests are frontiers

for the conversion to large- or small-scale agriculture, and/or valued by traditional societies for NTFPs, cultural and localized environmental benefits.

Environmental: Increasing environmental awareness, including biodiversity conservation and threats of global climate change, but also “green consumerism” sometimes also with emphasis on social issues. Environmental concerns across the region tend to be local/national, rather than global, and more the concern of affluent/educated urban groups or traditional societies adversely affected by economic developments. Increasing pressures (both internally and externally, for example, through the Convention on Biological Diversity) for environmental protection and conservation. Forests will increasingly be seen as much more than “wood-producing factories or tree-farms”.

Political: Deregulation; smaller governments; the expanding role of the private sector, and “civil society”, especially the non-governmental (voluntary) sector - privatization and devolution. Increasing co-ordination and regional action, especially APEC but also with the expanded (10-member) ASEAN (particularly the preparations for abolition of internal tariffs by 2005) and to a lesser extent, SAARC and SPC/Forum. Increasing recognition of the significance of forests to local people’s livelihoods throughout the region, and conversely, the influence/importance of local people on whether or not the protection and management of forests (whether natural or plantation) will be successful. The combination of these two considerations, especially in conjunction with the more general trends summarized above, has led to numerous policy experiments with devolving more management responsibility to forest-local communities. While this is widely believed to be compatible with the environmental trend above, it seems to be quite inconsistent with trends regarding trade and utilization. The role of the State is changing, from active commercial production, to supervising and stimulating private sector, civil society and NGO activities.

Alternative Scenarios

***Status Quo* policies, accompanied by increasing affluence in the region**

Economic growth and trade liberalization will stimulate markets and trade within the region (with exports to North America and Europe becoming relatively less important). It is quite likely throughout Asia, especially in the economies with relatively high economic growth and slower population growth, that the rural population will be much less than today.

The forestry sector can contribute to the economic development of many countries of the region, but in most, it will not be THE driving factor behind rapid economic growth. Even in countries where Forestry has been a very major contributor (like Indonesia) its relative share will decline as other sectors expand much more rapidly. This may lead to changing emphasis within the forestry sector, if forests become less critical for job-creation and foreign-exchange earnings, and conservation values become higher priority to more affluent (and urban) populations.

To stop forest conversion and achieve conservation, it may not be necessary to stop logging outright, or to stop logging in all new areas, but rather to reform the policies that presently make forest colonization attractive. This might include the pull factors (how to reduce the profitability of illegally clearing forests, or of speculating in land that was supposed to be kept

as forest) or the push factors (how to increase the limited employment or livelihood options outside of forests). The evidence from the rapid economic growth of Asian tiger economies is that as employment and income prospects outside the agriculture sector improve, fewer people want to undertake the dangerous, illegal, difficult and often unprofitable activities of temporary agriculture in forest lands. However, if the new land use is very profitable (e.g. growing cocoa, coffee, cinnamon, rubber, fruit trees) and the potential capital gains from “capturing” some real estate from the government forests are high, rapid forest conversion may continue.

Forests will be permitted to remain when the people deciding the forests’ fate conclude that the continued existence of forests generates higher incomes (or cultural or social values) than their removal. If not, forests are cleared. Some remaining natural forests are not worth exploiting as they lack commercially valuable species, are remote or inaccessible. Since it would cost more to exploit them than their current commercial value, it is more economic to leave them (for now!) People living in such remote forest areas may be permitted to enjoy the many traditional, non-commercial benefits of forests, but may be denied access to many modern goods and services by the very inaccessibility that protects their forest.

Modifying Policies to maximize the potential contribution from the Forestry Sector

Land use planning will attempt to set aside enough of all forest types to meet the diverse and continuously evolving demands of society. Many more natural forest areas are likely to be managed for amenity, conservation, recreation and landscape values expressed by affluent urban populations, or as indigenous peoples’ homes, in association with production of NTFPs, environmental values and cultural values.

“How much land is enough for production forestry?” depends on the nature and substitutability of the demands for the products, and changes in productivity. Technology will increase tree growth in plantations; improved management will enable greater production from natural forests with fewer adverse impacts, and wastage in extraction and processing will continue to decline as technologies and management improve.

INTRODUCTION

Tropical forests of Asia-Pacific have been over-exploited and under-managed. Hence, far too often, like the temperate forests of the region before them, they are disappearing or being degraded. Although forests still make very substantial contributions to the economies and social well-being of many countries of the region, there is ample evidence that the **potential** contribution is much greater. The good news is that there are real opportunities for improvement.

To start considering the challenges and possibilities for forests (especially the tropical forests of the region) and whether there is a need for new policies or institutions, a comprehensive synthesis is needed:

- How successful have past efforts in forest management been?
- What is currently known about the reasons behind ineffective or counter-productive efforts at forest management and conservation?
- Have the potential economic development opportunities really been grasped, and have the income- and employment-generating benefits been equitably spread through society?
- What is causing inappropriate deforestation, that makes it so hard to prevent?

An assessment of these processes will reveal where the underlying forces are coming from, and what can be done to redress the situation. At the same time, we can explore new opportunities to substantially increase the contribution of sustainable forest use and management to the alleviation of rural poverty, job-creation and improving the livelihoods of forest-dependent communities.

As "statements of good intent" all the national forestry policies across the region could barely be challenged. It is obvious that much careful thought has gone into setting national ideals for the forestry sector –all the goals are worthy, even unassailable. As the Malaysian paper in FAO (1993) states succinctly, no government would ever knowingly choose policy objectives that were not socially ideal. However, as the Pakistan paper in the same volume also points out,

Policy is what is implemented on the ground. It is not what is preserved and decorated on the shelf. The taste of the pudding lies in eating it, and the test of policy lies in its implementation. There is no use in formulating a policy if it cannot be implemented.

The major criticism of forest policies is in their implementation and their relevance.

This paper examines:

- how societies and economies are rapidly changing throughout the region. The number and the political or commercial influence of different interest groups are changing rapidly, as are the values, aspirations and priorities within specific social groups;
- whether the balance of goods and services derived from forests, between production and conservation, between commercial, subsistence, environmental and social benefits, still accords with our dynamic societies' ever-changing priorities;

- who is likely to be managing which forests for what purposes in the future, and what sort of policy, institutional, commercial or legal reforms might be required to permit these transitions; and
- whether the implementation of past policy intentions has been effective and whether there have been any unexpected or undesirable consequences of how policies have been implemented, which might provide lessons for reforms presently being considered.

Thus much of the controversy is NOT about ultimate goals, but about the efficiency and equity of specific strategies and policy instruments to achieve those goals. Thus we must assess the impacts, effectiveness, equity and efficiency of alternative policy instruments; and analyse why apparently sound policies are sometimes implemented poorly, or not implemented at all. Not only have some policy tools failed to achieve their goals, but in some cases, they may have made matters worse in some unexpected ways. In other instances, the small gains made by good forestry policies have been overwhelmed by negative effects from agricultural, energy, international trade or transport policies, for example.

National Forest Policy should be based on a realistic assessment of the current situation **as it exists on the ground**. Do the areas to be managed or protected as forests actually still exist as forests today? Do they have a resident population? Should we declare a Class I watershed, in which no habitation or cultivation is allowed, if it is known that there are 500,000 people living there, with no other place to go and no other way to survive? Should we assume that the State Forests and the Forest Department will be responsible for supplying the national requirement for timber and fuelwood, if in fact three-quarters is already coming from the household gardens and from farmers' plots, as in Bangladesh? Should we assume that small farmers will grow trees, if their land tenure is still insecure, if the markets for the trees/products are uncertain, or if there are administrative impediments (like having to get a permit to harvest a crop of trees which the farmer's family planted)?

The **process** of making policies is important: this paper will argue that getting good results in practice, depends not only on having realistic, rational, consistent and efficient policies but also on the process by which the policy and subsequent strategies are formulated. Most National Forest Policy statements are generated and advocated by foresters – they generally arise through the national forestry agency and so tend to reflect the concerns, aspirations and professional views of the agency's staff. This can give a pre-occupation with the agency's functions, its concerns and the territory under its control, with perhaps less emphasis on what the “general public” thinks about their forests.

In comparison, this paper will summarize trends towards a broadly-based participatory process where all the interested stakeholders have an opportunity to express their interest, concerns, ideas and energy.¹ Social conflicts have arisen world-wide where government forest services

¹ Although Stakeholder Theory was developed for the successful management of private corporations, it offers valuable insights into the management of any large complex structure, even national governance. Survival and success depend not only on how well managers perform in furthering shareholders' or owners' interests, but on how well managers can balance the competing, legitimate claims of **all** the stakeholders in the process.

have recognized few stakeholders other than wood-processing industries.² Receiving input and active participation across a wider range of stakeholders (such as other agencies, companies, communities, NGOs and environmental groups) could encourage:

- a) **better-informed, more realistic policies:** There should be much less chance of pursuing policies which are out of tune with people's real needs and aspirations, or which are based on faulty premises or data, if all the issues and options have been widely discussed before reaching a decision (though not always a consensus). Stakeholders' different perceptions can bring new insights into what is possible, or potential problems.
- b) **continuous feedback on the effectiveness of policy measures:** and if certain groups of people are not complying with particular policies, are there specific problems which could be remedied?
- c) **greater commitment** by all parties to seeing the policy successfully implemented. Voluntary compliance of local communities in forestry programs may be higher when they have been involved in the formulation of those programs. One frequently cited obstacle to effective policy implementation is a lack of political will or support, but involvement of stakeholders in the formulation process/discussions is an effective means of getting widespread popular support.
- d) **clarification of all the actors and their roles.** Forestry agencies and the timber industry are not the only ones involved in the forestry sector; the other stakeholders are now being heard – not only what they want, but what they could contribute (skills, knowledge, labour) and what support or assistance (if any) they would need, in order to do so.

Countries as diverse as China, the Philippines, Nepal and New Zealand are each exploring and implementing new perceptions on how forestry activities can be undertaken – Who should do what, and what reforms are needed to make it work? They have recognized that government forestry cannot, and need not, do everything in the sector, and so responsibility and authority is being devolved to others: farmers, community groups, NGOs or companies.

New institutions are emerging to redress the balance between all segments of society who claim an interest in the future use of forests.³ The 1988 Indian Forest Policy reflects political and institutional changes to incorporate environmental and NGO stakeholders. Yet there are potentially serious problems in arriving at a participatory consensus on forest policy: not all stakeholders have equal or similar information or power to negotiate - local communities may be

² For example, India's 1878 Forest Act really only recognized the Forest Department and the timber industry as having legitimate interest in forests (for industrial, urban and military use). Traditional users and uses were prohibited or heavily restricted. By defining collection of leaves and deadwood, or "Minor Forest Produce" as privileges (not a right) local people were excluded from any say in forest management and denied any traditional powers to regulate who used forests when and for what. Customary management of forests was replaced by an open-access regime (Saxena, 1997). This is also true for many other countries.

³ For example, some traditional Forest Services are being subsumed into mega-Departments of Environment, Natural Resources, Conservation &/or Land Management in a number of Australian States; responsibility for all natural forests in New Zealand now lies with the Ministry of Environment and the plantation forests have been privatized; the NZ Forest Service has almost disappeared; the Philippines has DENR; the Indian Forest Service is now with the Ministry of Environment.

disadvantaged; major stakeholders could be cabinet ministers or generals who also hold logging concessions; Who is responsible for co-ordinating stakeholders' interests.⁴

Major recurring, common concerns across the Region include:

- Finding the right balance between production and environmental protection - this is just as serious and difficult in Australia as it is in Indonesia or Pakistan. Of course the actual balance will be very different depending on a specific country's resources, population, incomes etc, but the process of "how to go about finding the right balance" concerns most countries, and it seems unlikely that any has found a general "formula" for doing this.
- Developing effective strategies to deal with population pressure, encroachment and shifting cultivation is a concern in many countries of South and Southeast Asia, though apparently much less so in the Pacific Island states and in the industrialized countries.
- Industrial forestry, forest industries, investment, markets and trade are still beacons attracting optimism, especially in the face of steady increases in global demand, rapid increases in regional demands for forest products, and only moderate expansions in supply from temperate and tropical plantations of the region.
- Devolution of management to user groups and communities – community forestry – particularly based on extraction of NTFPs is a world-wide phenomenon, especially where local people have fewer opportunities for industrial employment.
- Recognition of and support for farm forestry and agroforestry: the potential to achieve both production and conservation outside conventional Reserves. This is not just a "tropical developing country" phenomenon - it is also increasingly relevant in Australia and New Zealand.

The following sections attempt to address each of these, with particular regard to the impacts, effectiveness and unintended consequences of the existing policies; and the possibility for evolution of new policies, new instruments and/or new institutional arrangements. Although the *status quo* has imperfections, it is often strongly entrenched. Perhaps examining those countries where changes are under way, will reveal more about the process, as well as the content, of policy reform. Frequently the issues that arise in implementation, have their roots in how the policies were formulated, and by whom.

As the World Bank (1992) clearly shows, most of the major environmental problems in developing countries are not due to the pursuit of economic development, but rather they seem to be due to inadequate institutions or incorrect economic policies: poorly-defined property rights; under-pricing of resources; state allocations and subsidies; and neglect of non-marketed social benefits. Instead of trying to devise new policies to stop further resource and environmental deterioration while promoting real development, perhaps we should first try to eliminate those (legal, social, political and institutional) factors that cause or exacerbate the problems.

The pursuit of another sector's goals has frequently had unintended negative effects on the forestry sector. Good intentions to protect and conserve forests have been swept aside in the face of imperatives to grow more food and provide more irrigation (as in India) or to generate more

⁴ If governments want to ensure real public participation in policy formulation and implementation, they may need to enable community groups and NGOs to participate, e.g. by providing grants to enable them to prepare submissions, to take time from daily work to participate.

foreign exchange, from cassava exports in Thailand or from log exports in PNG and the Solomon Islands. Only 20 years ago the Australian and Queensland governments were subsidizing deforestation in the name of economic development, to clear land for farming, to increase revenues from export crops (the Brigalow “Development” Scheme). Roads constructed for military or “national security” reasons have often played a part in accelerating deforestation and unsustainable agriculture in marginal areas

Yet the pursuit of development in other sectors may not be bad, in the long term, despite negative effects on forests in the short term. It will be argued here that *the general, wide-spread consequences of economic development may hold the key to improved forestry sector outcomes in the region over the next one to two decades.*

For these reasons, it seems essential to examine the long-term underlying economic, social and demographic trends, and the interactions between other sectors, before reviewing in detail what has happened to the forestry sector of countries in the region. We will then be better positioned to assess alternative futures. It seems to us that very few of the trends identified within forestry in the region, were initiated within the forestry sector – on the contrary, what is happening in forestry is a reflection, sometimes belatedly, of much more powerful and widespread forces that are re-shaping whole societies. Forestry in some ways is being carried along like a log floating in a very strong current. We turn now to consider that current, and where it might be taking forestry.

GLOBAL AND REGIONAL PATTERNS AND TRENDS 1970S-1990S

Global trends

Economic: The obvious economic trends have been the globalization of product markets, trade liberalization, (e.g. the establishment of the World Trade Organization). This has been accompanied by integration and greater international mobility of capital in global markets. These trends are in turn reflected in rapid expansion of industries, the financial-communications sector and agribusiness. Production of export crops and primary commodities has expanded in area and intensified (i.e. higher yields/hectare in existing areas).

Political: Deregulation; smaller governments; the expanding role of the private sector, and “civil society”, especially the non-governmental (voluntary) sector - privatization and devolution - have been the hallmarks of this period.

Environmental: Increasing environmental awareness, including biodiversity conservation and threats of global climate change, but also “green consumerism” sometimes also with emphasis on social issues. The moves towards, and then the consequences of, the UNCED conventions, especially the Convention on Biological Diversity, and the continuing debates about a legally-binding global Forests Convention, have heightened awareness of forestry issues world-wide. The debates of the Intergovernmental panel on Forests in 1995-97 builds upon a short but intense history of international forestry-environmental negotiations.

Regional trends

Economic: Rapid economic growth, and rising affluence especially in the urban areas across the region, moderate increases in incomes across the production zones of farms, factories and industrial forests, but to a much lesser extent in remote rural areas (where most remaining natural forest areas are located). This has intensified differentials in wealth both within and between countries.

Political: Increasing co-ordination and regional action, especially the expanded (10-member) ASEAN (particularly the preparations for abolition of internal tariffs by 2005) and to a lesser extent, APEC, SAARC and the South Pacific Commission and Forum.

Environmental: Environmental concerns across the region tend to be more with local/national issues, rather than global. The latter tend to be more the concern of affluent/educated urban groups while the former are of particular concern for traditional societies adversely affected by industrial developments.

Forestry Sector trends

Economic: Many governments have continuously emphasized trade and industrialization, to maximize domestic employment generation and value added, especially through exports of processed primary products. In many places, there has been significant dis-investment and depletion of natural forests to finance investments in other sectors. The need to increase production and decrease unit costs stimulates plantation development, in the higher income countries with relatively cheap land, or developing countries with cheap land and labour. In remote hinterlands, forests are frontiers for the conversion to large- or small-scale agriculture, and/or valued by traditional societies for NTFPs, cultural and localized environmental benefits.

Environmental: Increasing pressures are being exerted (both internally and externally, for example through the Convention on Biological Diversity) for environmental protection and conservation. Forests are increasingly seen as much more than “wood-producing factories or tree-farms”.

Political/social: The past 2 decades has seen increasing recognition of the significance of forests to local people’s livelihoods throughout the region, and conversely, the influence/importance of local people on whether or not the protection and management of forests (whether natural or plantation) will be successful. The combination of these two considerations, especially in conjunction with the more general trends summarized above, has led to numerous policy experiments with devolving more management responsibility to forest-local communities. While this is widely believed to be compatible with the environmental trend above, it seems to be quite inconsistent with trends regarding trade and utilization. As will be documented below, the role of the State is changing, from being actively engaged in commercial production, to supervising and stimulating private sector, civil society and NGO activities.

The Asia Pacific region has consistently been the most economically and socially dynamic region in the world over the past three decades! We have witnessed **very rapid increase in GNPs** (from 4 to 10 % per annum) **and disposable incomes** across the region, (See Tables 1 and 2) and there is no basis to expect this trend to stop, or even slow. It may actually accelerate with recent macro-economic and political reforms in China, India and Indonesia – the emergent super-economies of the region and the World.

The most striking and significant trend from the 1970s to the 1990s has been the very rapid spread of the **market economy**. In particular we have witnessed the integration of the rural economies of Asia-Pacific countries into the global economy and so gradual integration of even the more remote rural/forest villages into the market system. Globalization of both capital markets and product markets, and of information flows (the so-called “Information Superhighway”) has already led to socio-economic stratification and differentiation:

- a) there are booming enclaves, based on information, finance, global communications, high technology and service industries; the residents are characterized by high incomes and education and high levels of consumption but with increasing environmental consciousness. For example, it has been estimated that in Asia there are now over 750 million “first-worlders” - not just most Japanese, Australians, and Singaporeans, and

perhaps 70% of Malaysia's population but over a million Jakartans, a few million Thais, as well as millions in places like Shanghai, Bombay, Manila, Bangalore etc. It is also reported that this year, there will be more new cars sold in Asia than in all of Europe and North America combined.⁵ Abolfathi (1997) observes that "middle-upper classes in the developing world are growing more than 5% per year".

- b) there are production areas – the farms, forests, factories, mines and fisheries which supply the booming urban areas; where technology is in most instances leading to intensification (more output per unit input or per unit area) although in some countries, the production zone is still expanding into previously marginal areas which were forested. The people of these areas live well, generally, but much less so than in the booming enclaves. Thus many people from these areas aspire to migrate to the boom areas, with their better schools, shops and healthcare. The technological intensification also reduces the labour demand in these areas, adding a push-factor to the pull-factor in migration.
- c) finally however, there is evidence that remote, poor rural forest villages are being left behind: most have experienced very low income growth, if any. In each country these “left-behind” enclaves usually have people with little formal education, limited access to or control over valuable resources and poor transport and communications infrastructure, who struggle to maintain traditional living standards. Generally, they have little that is desired for consumption by the more affluent strata.

This differentiation has many consequences, including:

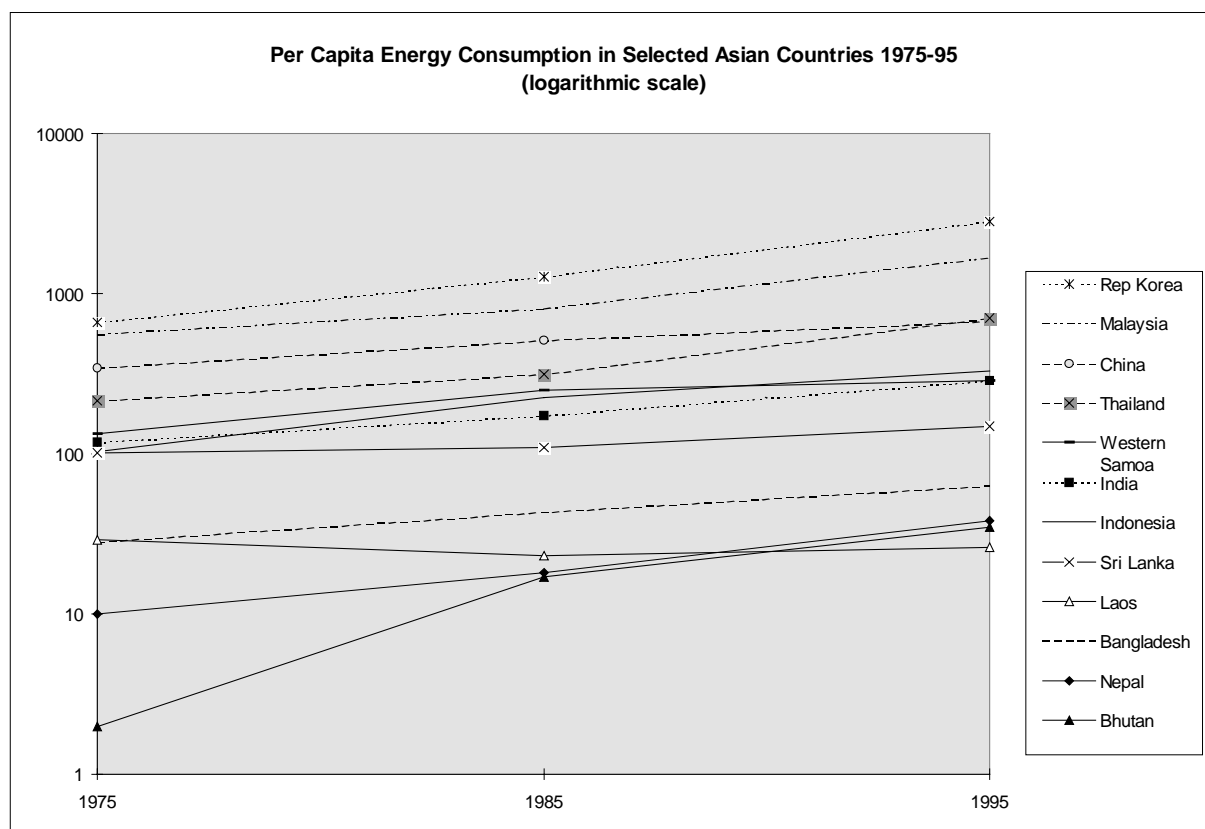
- In cities and towns, industries and the service sector are booming as prosperous enclaves like Singapore and Sydney, Shanghai and Bangalore, in parts of Vietnam, China, Indonesia, India and Thailand, even Fiji and PNG, but NOT for forest-people. Poor rural people have been able to participate in booming economies mainly by migrating (at least temporarily) to the cities and ports - contributing to rapid urbanization. Successful producers who move to the cities can join the elite, but people from the backwaters frequently remain part of an urban underclass doing the least attractive jobs (but at least they have employment).
- new road construction and the expansion of logging activity open up previously remote areas (whether for export or for domestic industries and markets)
- those remaining in the villages and forests often feel deprived economically and socially. One of the few assets that they can draw upon, to try to gain some incomes and "consumer goods" or even to pay for their children's health care and education, is Non-Timber Forest Products. (Another is illegal logging on government forests.) A result of this trend may be greater harvesting pressures. Urban populations, with their expanding size, wealth and purchasing power, can increasingly afford to pay much more for the NTFP they desire, which is often the already rare and endangered! Increasing commercialization of NTFPs leads to increasing harvesting pressures, in many places throughout the region and for many specific products; The forest population are more willing to sell, to hunt/collect; they feel a need to earn more cash incomes. If the prices they receive are low, they may well increase the volumes harvested, to earn the desired or required incomes!

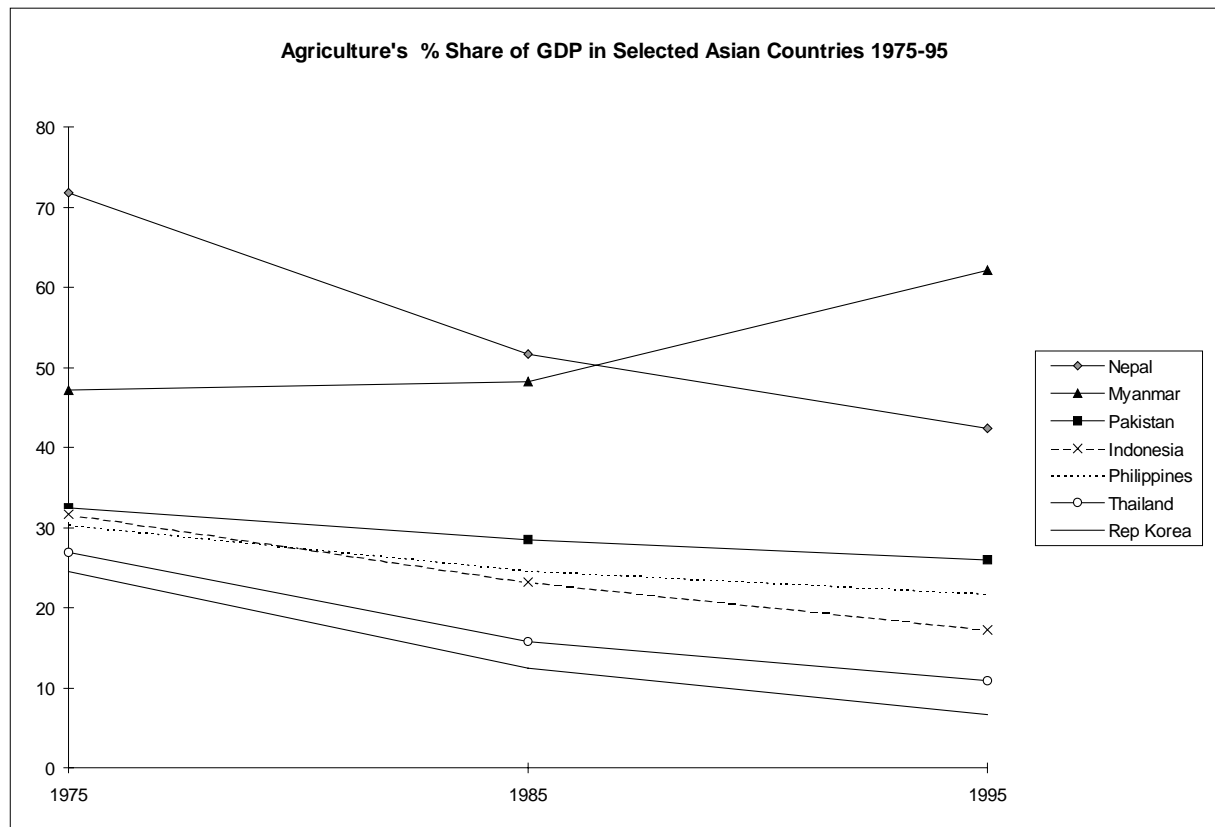
⁵ The International Telecommunications Union reports that Asia Pacific posted 84% growth in cellular phone subscribers in 1996, rising from 40 million in 1990. Erikson Telecommunications estimates there are now more mobile phones in Asia than in North America (AFP, "Asians use mobile phones more than Americans" Jakarta Post, 8 June 1997 p.8)

- accompanying this we often observe the collapse or, at best, weakening of traditional management and regulatory systems, customary laws, taboos, social controls. This can lead to the erosion of traditional social structures which often had a (successful) forest management component. Numerous examples could be cited from most countries, but especially India, Laos, Northern Thailand, Nepal, Indonesia and the Philippines.

De-regulation and “re-inventing” smaller more efficient, more competitive governments has been accompanied by expanding the role of the private sector – privatization of government-owned assets and trading enterprises – and shedding community welfare functions to “civil society”, especially the non-governmental (or voluntary) sector. This has been reflected in the **devolution of forest management**. Moves towards **local community based management** are based on recognition of traditional management systems, which centred on NTFP, mainly for subsistence or local village markets. There have been popular assertions that such devolution will necessarily lead to sustainable and equitable forest management by traditional groups. But is this really the way of the future? Is this compatible with the other trends outlined above?

The past two decades have also seen very rapid **expansion of communications** (TV parabolas in the forests!). Forest people are becoming increasingly aware of the affluence of others; their aspirations for much greater material wealth, from dayaks in Sarawak (for example Lian, 1993) to hill tribes in Thailand or cultural minorities in Yunnan.





Technological change and adoption/adaptation to **new technologies** has been extremely rapid (as with cellular phones, satellite TV, new agricultural crops and technologies, including new technologies for the forestry sector). New production technologies outside the forest sector may contribute to sustainable forest management by reducing pressure for conversion of forest lands to other uses, by modifying demand for forest products and by increasing options available to forest managers. Developments applied to the wood-processing industries may contribute to greater efficiency and less waste in both the factory and the forest. Technology may enable the utilization of a greater range of tree sizes and species, in turn creating new silvicultural opportunities for forest management. These may allow both commercial and environmental objectives to be realized with fewer compromises.

There has been much debate about whether aggregate demand for wood products in or from the region will rise, and if so, by how much. But even reductions in per capita wood consumption need not imply a reduction in consumer satisfaction. Technology may reduce demand for wood without inconveniencing consumers by, for example,

- supplementing or replacing wood fibres (e.g., packaging) with agricultural by-products (e.g., straw);
- providing alternative energy sources (e.g., solar hot water, more efficient stoves); or
- increasing re-use and recycling (more material, more cycles, greater recovery).

A focus on technologies within the forestry sector could contribute to more sustainable forest management, by satisfying the increasing consumer demands from smaller forest areas, with less disturbance. But the pace of other technological changes, and social, demographic, political and economic changes are likely to dwarf initiatives from within the forestry sector.



FORESTRY SECTOR TRENDS

Land-Use Pressures, People and Trees

Table 2 presents information of areas of forests and woodlands, rural populations and forest areas per (rural) capita in Asian countries. Forest policy concerns tend to reflect socio-economic priorities that are **fundamentally** different, between those countries with larger forest resources/capita (Indonesia .89 ha/rural person, Malaysia 2.41 ha/ rural person, Myanmar and Laos, for example) and those with very low ratios (e.g. Bangladesh, China, India, Nepal, Pakistan and the Philippines). For some developing countries in the region, the area of forests and woodland per rural person has only declined marginally (from already low levels) over the past two decades, but in Nepal, Laos, Kampuchea Myanmar, Indonesia, Thailand and PNG for example, the decline has been substantial. The major exception is, not surprisingly, Republic of Korea, where the forest area expanded slightly, but the rural population declined dramatically with increased industrialization and urbanization.

Another way of grouping the countries of the region might be whether the remaining forests are principally seen as commercial/industrial resources, or for local use by large numbers of forest people,⁶ or as an environmental amenity for affluent (mainly urban) populations. Westoby (1987) argued that ultimately, the purpose of all forestry is socio-economic. He differentiated between Industrial Forestry (well-suited for relatively resource-rich countries to contribute to economic development, employment creation, foreign exchange earnings) and Social Forestry (to maintain rural welfare or "to stop it deteriorating further" through provision of basic needs). Environmental or Protection Forestry (including watershed and wildlife management) can be equally important to both, but not all societies can afford to cater for this widespread demand.

National Forestry Policies nearly always have recognized all three elements, but the relative emphasis or balance keeps changing. Most societies would like more of all three types of forest benefit, but governments have many other priorities and do not have unlimited budgets. Is it possible to get some more of all types of benefits simultaneously, through greater skills, technology or efficiency, or through different management institutions, rather than trade-off one against another?

While some Asia Pacific countries are struggling to provide basic needs from their forests, others have ample resources for economic development and export industries. Fast-growing fuelwood or industrial plantations may complement either strategy: to move from deficiency to self-sufficiency to exportable surplus; or to compensate for the progressive phasing out of logging in natural forests. Within the larger countries, all three trends occur simultaneously in different districts. At the risk of over-generalization, we might consider a spectrum where the relative emphasis changes as follows:

Social Forestry, Extension,	Fast Growing	Extraction from relatively abundant
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⁶ We review below the evidence for the belief that the importance of NTTPs to local people is inversely related to their level of economic development.

	Devolution of management for remnant forests	Industrial Plantations	natural forests
Bangladesh, Nepal	XXXX	X	-
Philippines	XXXX	X	-
Pakistan, India	XXXX	XX	
China	XXX	XX	
Thailand	XXX	XX	-
Viet Nam	XXX	XX	X
Fiji	XX	XXX	X
Laos	X	-	XX
PNG	X	X	XXX
Indonesia	X	XX	XXXX
Malaysia	-	XXX	XXX
Australia, New Zealand	X	XXX	X

Concerns for protection of the local environment, for subsistence use of NTFPs, or for global issues like biodiversity conservation or climate change, may be felt across all countries in the region. But the priority they receive varies, as does the extent to which a particular country has the financial and staff capacity to address such concerns. It is important to stress that this is not simply a question of population size or density relative to areas of forests, but **too many people without decent alternative livelihoods**. In many parts of the Philippines, India, Bangladesh, Vietnam, China and Thailand, the economy has not grown fast enough and in a way that creates enough employment opportunities (Cruz, 1992). Being a forest encroacher, eking out a marginal and illegal existence is not an attractive occupation, but a strategy of last resort when no better options exist. Perhaps the opposite better illustrates the point. In Malaysia, with rapid industrialization, rural people are moving out of the villages to work in urban industry. In fact there are shortages of rural labour in particular times/places. Malaysia's forests are now relatively safe from encroachment for the same reason as in the USA, Japan or Australia – most people have more secure, more profitable and less dangerous ways of making a living. Economic development, including industrialization based on sustainable harvesting of forests, can be an effective means of reducing pressures for destructive land clearing.

For example, although the Terai is being cleared, forests in Nepal's Middle Hills are actually starting to expand, in both area and density. As alternative occupations in the market economy appear, basic agriculture in the nearby areas of the Hills has become less attractive. Also, as people migrate to the Terai, population pressure on the Hill forests is decreasing. A dramatic decline in livestock numbers greatly reduced the demand for forest fodder. Terraced land that had been cultivated for many years is being allowed or encouraged to revert to forest. So in terms of the three socio-economic strata, the urban service sector is expanding, the surrounding farming areas are contributing to, and being affected by, that growth, while remote rural areas remain much as before.

It may be correct, but too simplistic, to observe that forests have disappeared because of population growth, increasing pressure for land for agriculture and settlement, for timber and fuel, and "inadequate protection and inadequate afforestation". Why could the pressures not be accommodated? Why were past efforts "inadequate"? The whole question of the behaviour of poor rural households, in their production, consumption, livelihood and migration decisions,

deserves better appreciation. Some Foresters seem to think that small and marginal farmers are “a plague of locusts” bent on destroying trees and forests but, in many cases, these people are actually major producers of trees, even supplying towns with their excess fuelwood from their own household trees.

Many government forest departments have legal responsibility and rights over the forests, but have difficulties in effectively enforcing such rights. It was suggested (FAO, 1993) that because Malaysia has no National Landuse Plan "the Permanent Forest Estate may be vulnerable to excision and conversion". In Thailand and Indonesia, it seems that land-use planning is difficult; even when done it may not be enforceable, or is easily overturned, and depletion and degradation is often facilitated, even encouraged by other Ministries, despite the National Forest Policy.

Forestry officials have concentrated on managing large government estates as raw materials sources for large-scale industry. Much less political priority, and hence much less time and effort was given to:

- managing the public goods and downstream social-environmental benefits from forests;
- involving local people in the management of government (or communal or private) forests; or
- mediating with Agriculture, Environment, Transport, Public Works etc. regarding land-use allocation.

Accounting procedures, in both the industrialized and developing countries of the region, have not stressed efficient management of valuable natural assets on behalf of the whole society, or even towards profitable marketing of commodities. Typically foresters have tried to maximize physical outputs, rather than net social benefits.

To generate effective policies for socio-economic development based upon sustainable forest management, it is essential to understand the causes of deforestation. But this is far from simple, as shown by the following two examples:

"The major causes of deforestation are timber and fuelwood extraction, including wood for charcoal, and clearing for farming by an ever-increasing rural population, already present or moving into the forest zones." (Coulter, 1992)

"...the main causes have largely been unintended: increasing numbers of rural poor in desperate search for land for their immediate survival, decreasing yields and exhaustion of agricultural lands, inadequate land ownership and tenure systems, lack of sound land-use planning, unsustainable forest management practices, lack of alternatives to fuelwood and charcoal for energy supplies, etc." (Lanly et al., 1991)

CIFOR has been examining the great range of contexts in which tropical deforestation occurs, the diversity of actors involved, and the various stimuli to which they respond. We believe it will be possible to clearly identify how to modify those underlying forces through reform of existing policies and/or institutions, or through international monitoring linked to compensatory arrangements, to achieve mutually agreed, socially and environmentally preferred outcomes.

Not all deforestation is undesirable - indeed for many countries, past and present, converting some forest lands to agricultural, infrastructural, industrial and urban uses is a sign of economic development and “progress”. There is no basis to assume that the extent and location of forest that happens to exist today is the ideal, and that now it should be fixed forever. No-one should deny the right, or even the obligation in a few instances, to modify land uses in the long-term social interest, but we focus here on conversion to unsustainable land uses, and on serious degradation of tropical forests. Common contexts include:

- a) **Migration, colonization and land grabs:** The creation of permanent or temporary agriculture (legally or illegally) through spontaneous migration or under sponsored, official schemes, predominate in many parts of Asia. Often, the traditional swidden agriculture or “forest farming” activities of small numbers of indigenous forest people are included in this category (though it is argued below that usually they have very little in common except that foresters often consider both to be illegal). Why is it that in some countries, many people are moving to the forest frontiers to clear land to create new farms, while in other countries nearby, people are leaving the forests for the cities and the ports, as fast as they can? We speculate that it depends on the non-rural alternatives and the relative profitability of agriculture (which in turn is affected by road construction policies, land titling laws, agricultural pricing policies, etc.) (Byron and Ruiz Pérez, 1996).
- b) **Alternative land uses at landscape level:** Ranching, pasture development, plantation agriculture or tree-crops (rubber, cocoa, oil-palm, etc.), or even exotic timber plantations (e.g. *Acacia mangium*, *Eucalyptus camaldulensis* are also common in parts of South and South-east Asia).
- c) **Significant industrial logging** for the international tropical timber trade now occurs only in seven developing countries of the region⁷, although most still have commercial logging operations for domestic markets (which are very large in China, India and Indonesia).
- d) **Fuelwood gathering** may be a predominant contributor in drier or high-altitude parts of Asia (e.g. in parts of Nepal, China, Pakistan and Eastern Indonesia but much less so than in public perceptions, based on images from the drier parts of Africa).
- e) **Other causes** such as fires (which are frequently man-made and related to the other agencies of forest destruction listed above such as settlement, logging or plantation establishment).

Definitions are important

Much of the current debate has been hindered and obscured by lack of clarity of definitions. Many environmental NGOs use “deforestation” as a synonym for any disturbance, particularly logging activity, while to most foresters, deforestation means a *permanent* change of land use. Thus according to the foresters’ perspective and definitions, even clear-felling is not “deforestation” if the site is promptly re-occupied by a new, fast-growing, healthy young forest. They certainly do not equate light selective logging with deforestation. Similarly, from the perspective of some conservation biologists, any (non-trivial) harvesting of forest products (whether timber or otherwise; for commercial, industrial or subsistence use) *degrades* the biodiversity and conservation status of the forest. At the

⁷ Specifically, Indonesia, Malaysia, Myanmar, Cambodia, Laos, Papua New Guinea and the Solomon Islands (and to a small extent, in a few others).

opposite extreme, some foresters believe that they are not degrading, but rather “improving” the forest, by eliminating “weeds” and increasing the occurrence of more commercially valuable species, (even if they are exotic). Clearly there is great potential for misunderstanding and conflict if protagonists in a debate use the same words for very different ideas or actions.

By “**deforestation**” we mean a permanent change of land use. If one hectare of secondary forest is cleared by swidden cultivators, and allowed to re-grow after one or two years of cropping, we consider that as disturbance; it may be degradation, but is not deforestation.

“**Degradation**” means a substantial decrease in the ability of the forest to supply particular *specified* benefits, so the term needs to be qualified whenever it is used; e.g.. degraded with respect to timber production potential, or for watershed protection, or for conservation of biodiversity. Plantation monocultures may be considered as “degradation” compared to the ecological values of natural forests, but an “improvement” compared to barren eroding soil. The benchmark for comparison should be explicit. Also, as Downton (1995) notes, “Degradation is more extensive and more difficult to quantify than deforestation, because the changes are gradual and difficult to detect in satellite images”.

Most lists of causes of deforestation (including those prepared for the UN’s Inter-governmental Panel on Forests) are like this. Uneven land distribution, civil unrest, infrastructural development, industrialization and urbanization are sometimes mentioned. Population growth (as discussed already) has received particular attention and is often claimed as the major force resulting in increased pressure on the natural resource base which, in turn, leads to land use conversion from forest to exploitative and unsustainable agriculture. One possible (and often described) result in Asia, is *imperata* grasslands; another is desertification, afflicting significant areas of China, India, Pakistan, Australia and the Central Asian republics.

The extent to which these forces are controllable by governments, or respond to signals intentionally or unintentionally given by governments, varies considerably between countries, and even **within** countries. An accurate diagnosis of the immediate and the underlying causes of inappropriate deforestation is essential to the formulation of alternative policies that might correct and reverse these actions. It is an over-simplification to concentrate only on the readily visible single proximate cause, and neglecting underlying situations (Dorner and Thiesenhusen, 1992). They concluded that the fundamental problems causing deforestation often develop far away from the areas where deforestation occurs. In many cases, they continued, the wealthier members of the society may be more destructive of forest resources, and gain more from forest destruction, than poor peasants. Many Indian and Indonesian NGOs also stress this point "about whether to blame the poor and landless for deforestation, or the industrialists and affluent western consumers - as the distinguished Indian scientist M.S. Swaminathan said, apportioning blame between the "needy" and the "greedy".

In many situations, causes are inter-related and one activity affecting the forest resource is followed by one or more others. A striking example is road construction during logging operations or, more generally, for infrastructural purposes. Clear-cut answers on “who is to blame” for most situations are not available (World Bank, 1991). Trying to attach blame and find scapegoats is also unproductive for conflict resolution. Finding the underlying causes that need to be resolved will remain contentious as long as the problem is investigated by people who see themselves (knowingly or subconsciously) as representatives of one of the stakeholders.

"The lack of knowledge, finance, and necessary tools encourage the hill tribes to engage in the primitive slash and burn agriculture which is the main cause of forest destruction." (Malee Hutacharoen, 1987)

"But where does misinformation about destruction come from? Hill tribes use axes for felling trees not the powerful tools which others bring, such as electric saws, tractors, elephants and money to employ labour. Is it really true that there is less water in the highlands because there are fewer trees? If it is so, then responsibility cannot be pinned solely on the hill tribes, certainly not on the Karen. It is certainly not an outcome that they want. If it is true, they are the first to suffer." (Pravit Phothiant, 1989)

As the two examples from Northern Thailand indicate, the question of whether the indigenous farmers are at fault because they are clearing small areas for agricultural purposes or whether they are the victims of a socio-economic system which has made their access to land and other resources difficult, has no easy answers. They also raise the issue of whether the technical and administrative fixes – creation of national parks, reforestation of degraded land, community or agroforestry schemes – are the way to reduce the deforestation rate, or reverse the trends of recent decades, and whether the problems of forest-dependent communities can be solved without considering such contentious areas as population movements, economic growth, land reform or the levels and distribution of income.

Indigenous “shifting cultivators” are widely blamed by governments and industry throughout Asia⁸ as the major cause of forest destruction. Yet recent analyses⁹ have concluded that these accusations are unjustified; the numbers of such forest-dwelling people are so small, the scale of their forest interventions is so small, and they typically possess a considerable amount of indigenous ecological knowledge about how to produce their subsistence needs with minimal environmental impact.

On the other hand, NGOs representing forest minorities point to the activities of the logging industry or government-funded infrastructure construction. Each of these groups can, in turn, point to the actions of the migrants and “shifted cultivators” – typically landless people looking for somewhere to cultivate (although sometimes they are actually sponsored by wealthy “patrons”).

The loggers and shifted cultivators have attracted much of the attention. However, if it is true that most forests are disappearing because of conversion to alternative land uses, clearly the converters should be the focus of attention. Indigenous swidden cultivators are rarely (if ever) a major force in deforestation (and often the victims). Poffenberger (1990a) has argued that, for South-east Asia, the gradually intensifying conflict between **State** land management policies and locally operating forest use systems is a major cause of deforestation and mismanagement of forest resources in the tropical and sub-tropical world. If this is so, a synthesis of the ways governments, foresters, indigenous forest dwellers, migrant farmers, and loggers have perceived and managed forest resources is essential for defining agendas for reform of forest policies.

⁸ But notably not in South Pacific island nations where the shifting cultivators are the ethnic and political majority.

⁹ For example, Warner (1991), Cramb (1993), Dove (1993) and Colfer *et al.* (1995).

Trees and forests can be managed in many ways and numerous possible institutional arrangements exist in the Asian region (e.g. ownership of forests; responsibility for their management; responsibility for harvesting; and responsibility for processing and utilization can all be by the State, private or communal). The appropriate form of forestry, the appropriate structure of production, the question of who is responsible for what in the forestry sector, cannot be isolated from national macro-economic and historical factors. There can be no single "correct" system, but we may learn from analysing the performance and implications of systems in use. Table 3 outlines some of the attributes of two contrasting systems. Characteristics of a particular system depend on who is managing it; the attributes within each system are intimately and intrinsically related to each other.

The production system of "State Forestry" i.e. what the Forest Services have done, is now almost synonymous with "Forestry". A number of national Forest Policies state that all forest lands belong to the State, and/or that all forest plantations shall be under the control of the Forestry authority. It is this position – that the State necessarily has the major role in managing and protecting forests, or in producing timber or non-timber products – which is now being challenged across the region with general moves to privatization or community management.

The whole concept of "Who was to do what, where and why", **may** have been inappropriate to the reality of Asia, right from the outset of "State Forestry". The Philippines is handing management control back to local communities. Nepal is transferring management responsibility to traditional user groups. China will rely on the commercial activities of millions of farmers (many of whom will associate as shareholder companies) to produce plantation timber. India has Joint Forest Management, based on the natural linkages between Forest Protection Committees in villages, degraded Forest lands, and NTFP usufruct. Pakistan does not have vast areas of reserved forests to protect, so Pakistani forestry has gone out into the farmlands in successful collaborative arrangements to benefit farmers, the society and the environment. Trends to smaller government (or "catalytic government"¹⁰) are changing the conventional wisdom about the role of the State in forestry. As D'Silva and Apanah (1993) concluded

"in the 21st century, forestry departments might be required to confine themselves to policy-making, regulatory and monitoring roles; other tasks could possibly be performed by the private sector, community organizations, NGOs, consulting firms and so forth, on a contract basis."

What are the roles and importance of non-timber forest products to forest people; How does that affect the way they look after the forests to sustain the benefits they get from forests; and how are both these changing, with increasing economic and social integration?

The Importance of Non-Industrial Forest Products to Traditional Societies

¹⁰ "Steering the boat, not rowing it!" (Osbourne and Gaebler, 1992)

Although the importance of forest products to rural people is obvious to many, it is very difficult to assemble the evidence, in a comprehensive way. Official statistics provide little assistance in these analyses. Because most of this production, consumption and marketing is outside the “formal” sectors, governments have rarely collected statistics. The studies have been local or one-off surveys (sometimes conducted by aid projects) resulting in numerous localized snapshots of widely diverse situations, but with limited general thematic understanding.

There are published estimates of the number of “forest-dependent people” ranging from 12 million to almost 1 billion, but often the definitions are obscure or missing! An obvious question is “What is a forest-dependent household (or community)?” Some studies seem to include any household that makes use of forest products (occasionally) while the strictest definitions would exclude everyone except those who survive solely from forests (and do not engage in any agricultural production, even shifting cultivation). While there are probably very few of the latter (the estimate of 12 million world-wide, mainly Amerindians, pygmies and certain Borneo dayaks or Indian tribal groups), if we accept the former definition, then probably most of the rural populations of Africa, Asia and Latin America should be counted.

One of the most reliable summaries is Table 4 from Arnold (1994) precisely because he has qualified the numbers (to the extent possible from the primary data sources). Despite data limitations, one can accept for now, that perhaps 200 - 300 million people world-wide earn much of their subsistence and/or incomes, from non-industrial forest products, through collection, marketing or simple processing activities such as handicrafts, furniture making or food-processing. While most of these people are in rural India, Bangladesh, Pakistan, south-western China and the outer Islands of Indonesia, such people do exist in virtually every developing country in the region.

The past emphasis on timber harvesting has tended to obscure the extent to which management is already practised in many systems. There has been little work on smallholder forest management systems, most on only the first few years of swidden-fallow management; longer-term management of more mature forest is largely unstudied. In practice, existing smallholder management systems tend to be sophisticated, widespread, both short-term and long-term, and they integrate agriculture and forestry temporally and spatially. Despite this, they are generally not well-known outside their specific areas.

Forests are also of extreme cultural significance to many indigenous communities throughout the region, illustrated by the Sacred Groves of India, and very conservative management practices of many cultural minorities in Yunnan or the Philippines, Dayaks in Borneo, and many peoples throughout Melanesia.¹¹

Both upland and lowland populations benefit from watershed management and catchment protection functions of all forests. These and other amenity values are explicitly recognized by societies and governments in such diverse contexts as the Indian Himalayas, northern Thailand and the Philippines. This has even led to logging bans in the latter two countries¹²

¹¹ “Forests, particularly in developing countries, are intimately interwoven with the lives of hundreds of millions of people with bonds that are equally social and economic.” Statement by Indian Minister of Forests, Kamal Nath, to Ministerial Meeting of the FAO Committee on Forestry, Rome, March 16, 1995.

¹² “A ban on logging operations in the old growth or virgin forests and shift of timber harvesting to second growth or residual forests have already been effected. All virgin forests are now considered part of the Integrated Protected Area System

and severe local restrictions in most,¹³ in order to protect highly valued (but non-monetary) benefits from retaining forests in catchments.

The cultural importance, the critical environmental-protection function and the subsistence-commercial importance of collection, growing, processing and marketing of NTFPs from local forests, all provide an ethical basis for local users to have a strong voice in management of such forests, including Protected Areas. Evidence that indigenous management systems exist in many countries (e.g. Fisher 1989, 1990 from Nepal) has revealed that local community management can indeed be “sustainable,¹⁴ productive and equitable” under certain conditions.

Having established the extreme importance of forests to the livelihoods of many of the Region’s poorest rural people, we now consider the current status and trends in the management of forests. The industrial focus on wood products and the management of forests by governments have tended to neglect traditional forest uses for timber and non-wood forest products as well as the need for more land for agricultural production for growing populations. The past interest of many governments in population growth and the more recent focus on growth of agriculture, commerce and industry, and on securing national borders has led to land-use changes **despite** forest policy efforts at resource conservation. As a result, the pressure to clear forests has increased with a subsequent increase in the area of degraded forests and lands unsuitable for permanent agricultural production. As many researchers have already shown, this process of resource degradation was made even worse by restricting peoples' secure rights to land and neglecting their traditional uses as well as their capacities to preserve forests.

Notwithstanding that forest policies are slowly changing, the predominant focus even today is on production and protection forestry, though it is obvious that, for a variety of reasons, forest industries and particularly logging operators have rarely been controlled adequately. Where forest resources and particularly timber are still relatively abundant, existing policies and regulations focusing on their industrial and wood product use are sometimes inadequate or not enforced, even though they are constantly under review and adjusted, and have been the subject of considerable policy research (e.g. Repetto and Gillis, 1988).

It is commonly argued that logging causes deforestation in Asia, if not directly, then because the roads that are constructed open up new areas for spontaneous colonization. It is popularly argued that the greatest threats to remaining forests may come through roads which create access (Bryant et al, 1997; Dudley et al 1996). For example, the highest rate of population

and shall be managed for Biodiversity conservation Simultaneously, buffer zone areas are also being established to prevent people from encroaching into NIPAS while limited production forests within proclaimed watersheds are being introduced to provide alternative livelihood opportunities to people already occupying these areas. Statement by Philippines Minister of Environment and Natural Resources, to Ministerial Meeting of the FAO Committee on Forestry, Rome, March 16, 1995.

¹³ “At the 25th South Pacific Forum meeting, Australia, New Zealand, Fiji, Papua New Guinea, Solomon Islands and Vanuatu agreed to have a common code of conduct governing logging of indigenous forests to which companies operating in these countries have to adhere.” Statement by Fiji Minister of Agriculture & Forests, to Ministerial Meeting of the FAO Committee on Forestry, Rome, March 16, 1995.

¹⁴ To assess the "sustainability" of a given activity it is necessary to specify: for whom, for how long, at what economic/social level, with what level of benefits. One must also specify realistic time frames over which to expect management and conservation systems to last. There appears to have been greater human success at harvesting plants sustainably, than harvesting animals sustainably from tropical forests. (Ruiz Pérez and Arnold, 1996)

increase in the Philippine uplands was in the municipalities with logging concessions (Cruz & Zosa-Feranil, 1988; in Garrity et al., 1993). But the direction of causality is sometimes the reverse. Prospective farmers see their best opportunity as clearing/converting some forest to another crop. They pressure municipalities and governments to construct roads because they intend to deforest. The commercial removal of some of the existing trees may be merely coincidental, or reduce the costs of subsequent clearing of the forests.

We can suggest that *logging will lead to increased forest conversion by an influx of migrants, if* the following conditions all apply simultaneously:

1. roads that open up new areas;
2. very poor enforcement of forest boundaries by government agencies (e.g. Forest Service or National Parks Service) and an institutional or legal context in which people can expect that land which they occupy, claim or “stake out”, will eventually be recognized, even legalized by the government (i.e. an open-access “frontier”);
3. a large pool of unemployed or landless people, or with very low incomes and prospects who constitute potential migrants. We may hypothesize that the pace of colonization might be related to the difference between current incomes of potential migrants and the amount they expect to earn by colonizing forest areas; and
4. the non-forest land-use is much more profitable than retaining forests.

All of the instances of which we are aware in Asia, where rapid forest clearance by “squatters” has occurred, appear to be consistent with this scenario. Conversely, where these conditions do not apply, forests can be logged, but subsequently remain under management and not cleared or seriously degraded (e.g. Peninsula Malaysia).

This assessment, if correct, suggests that the answer to the forest conversion issue is not to stop logging per se, or to stop logging in all new areas, but rather to reform those policies and institutions that at present make forest colonization seem more attractive than the potential migrants’ current activities. This might include the pull factors (how to reduce the profitability of illegally clearing forests or of speculating in land that was supposed to be kept as forest), or the push factors (how to increase the limited livelihood options outside of forests). ***The evidence from the rapid economic growth of Asian tiger economies is that as employment and income prospects outside the agriculture sector improve, fewer people want to undertake the illegal dangerous, difficult and often unprofitable activities of temporary agriculture in forest lands.*** However, if the new land use is very profitable (e.g. growing cocoa, cinnamon, rubber or fruit trees) and the potential capital gains from “capturing” some real estate from the government forests are high, it might prove very difficult to slow the rate of forest conversion by this group of people.

Large-scale or corporate deforestation tends to be legally sanctioned, not because it is less environmentally destructive, but simply because it is very difficult to conceal. Given the political will, it would be technically very easy to monitor and control the actions of less than 100 concessionaires or agro-industry corporations. It is far more complex to monitor and control the behaviour and activities of millions of spontaneous migrants and small farmers in and around the forests, particularly when the government’s own actions negate any incentives or traditions that these people may have had to look after the forests.

Industrial Forestry and Forest Industries

After World War II, many South-east Asian countries encouraged increased exploitation of their natural forests as a source of foreign exchange to finance national development. Market demand progressively expanded. The allocation and pricing of timber rights is commonly recognized as a major issue by outside commentators. Economists like Gillis and Repetto argued that developing country governments have consistently failed to collect the full potential value of the timber (or bamboo or rattan) being sold to industry, especially for exports. Some countries (including Canada and New Zealand) made a deliberate trade-off, foregoing potential stumpage revenue, to attract and foster new private industries. It does work but it is not economically efficient or cost effective. New Zealand has abandoned this practice. In other circumstances, governments deliberately forego potential revenue to achieve greater control over environmental impacts of logging (coupe design, road standards, species, girth limits, etc.).

We now examine aspects of industrial forestry and forest industries common to the region, particularly whether government policies have set out a clear framework to provide the appropriate incentives, disincentives and regulatory mechanisms to achieve sustainable, efficient and equitable results, and how these frameworks might evolve over the next ten to twenty years.

In assigning rights to the private sector to harvest from government or communal forests, many options exist, with regard to:

scale of operations: For example, in Indonesia, the average size of concessions is 104,000 ha,¹⁵ presenting difficulties in supervision by both the Ministry and the concessionaires. The issuance of 500 concessions in Thailand by 1968, covering 50 percent of the country, opened up vast new areas for encroachment and official agricultural development.

duration of license: Short-term licenses do not encourage long-term stewardship of forests, but even 25-year licenses are less than many cutting cycles, destroying any motivation to nurture regrowth. "Cleaning operations" every 5-10 years can be observed. Even with very long term licenses, concessionaires may behave as if their tenure is insecure, because of uncertainty about political changes.

harvesting methods to be used: Reports from Thailand, the Philippines and Indonesia refer to deficiencies in the various Selection Systems as practised. Low volumes/ha from selection logging necessitate greater areas logged for a given output, at higher extraction costs. Damage to residual trees is often unacceptable. Rather than trying to prescribe and regulate logging methods, a system could be devised whereby the government specifies what outcomes are required and allows operators' commercial self-interest to align with sustainable forest management. A change from a regulatory-prescriptive approach to an outcomes-oriented approach has occurred in Australia and New Zealand.

quantity, grades and sizes to be removed: Most countries report concerns about "high-grading", or failure to take less commercially desirable species, and/or illicit removal of

¹⁵ The largest owners are now believed to control between 2 and 5 million ha.

under-sized logs. Again, rather than trying to devise and enforce rules for every feasible technique, governments might consider a framework that specifies the required results but then leaves it to the individual operators to devise the most efficient means to meet those standards.

prices, fees and charges: There are many instances of stumpages, fees and charges being extremely low. As noted above, it was often to attract new investment or to capture other social benefits like infrastructure and employment. For example, the Bangladesh Forest Industries Development Corporation made only notional payments for areas, logs and bamboo for many years. The Hindustan Paper Corporation in Kerala paid Rupee 11 (\$0.50) per ton of eucalypt pulpwood compared to production costs of R 500. When stumpages were increased to realistic levels, industry contracted leaving excess capacity and demands for more plantations and more logging of natural forests. Subsidizing log input prices seems a very inefficient way of creating additional employment,¹⁶ and discourages intensive recovery in mills. The very low Concession License Fee (less than \$2/ha) and Land & Improvement Tax (\$0.50/ha of unlogged concession) in Indonesia encourages large concession areas.

whether reforestation and silvicultural treatment (culling) is required: Clearly the more the logger is required to pay (for reforestation, roads or infrastructure), the less is available as log purchase price, *ceteris paribus*. The question is whether the logging concessionaire is the best one to undertake these activities? If so, should it be by explicit payment rather than by lowering the official sale price of logs, which will distort subsequent decisions.

whether performance bonds are imposed: Performance bonds designed to induce reforestation, have had mixed results in Indonesia. Many companies still find it cheaper to forfeit the reforestation deposit than to replant, considering relative costs, inflation and administrative costs. The incentive effect clearly depends on the level of the bond, relative to other costs.

transferability/sale of licenses/rights: In many countries, the logging rights are not transferable, reducing the incentive to manage the forests to maintain a high residual value. Transferability may impose penalties for not looking after the forest and provide financial rewards (as higher transfer prices) for those who have not high-graded, who have protected advanced growth, and installed good infrastructure. Systems like "Evergreen Licenses" as in British Columbia (Canada) with "claw-back" provisions may also be applicable in Asia.

whether export is permitted or some specified processing is required: As one form of indirect subsidy to local industry, countries have operated a two-price scheme, where logs for approved local processing are considerably cheaper than export logs. Accelerated industrialization has been accomplished in Indonesia and Malaysia, through policy measures linked to trade and tariff policies, tax incentives, log export restrictions, worker training programs etc. (de los Angeles and Idris, 1990). This is now also becoming a high priority for India, China and Viet Nam. Analysis of the methods and performance of accelerated industrialization in Indonesia and Malaysia, compared with the relative lack of success of PNG, the Solomon Islands and the Philippines, would be instructive - to address the whole rationale and the empirical performance of the suite of policies. Most independent studies

¹⁶ Manasan (1989) observed that in South-east Asian forest industries, only the Philippines offered a direct financial incentive to **employment**, via tax rebates, but that this was ineffective because of other tax concessions.

suggest the short-run economic cost to Indonesia has been extremely high. Log export bans are not intended as a conservation measure, but to encourage domestic processing, with employment generation and value-added, and hopefully higher net foreign exchange earnings. Almost invariably these have been scorned by economists for the serious distortions in resource allocation that they create.

All these conditions can interact, and trade-offs are possible – changing any one of them will probably affect potential economic rents and thus timber-prices. In choosing policy measures, the recurring question is *"What incentive effect is this condition likely to have on a typical private operator, and will it affect long-term sustainability of forestry, in an environmentally friendly but net benefit maximizing way?"*

While most logging and processing industries throughout the region are in the Private Sector, most countries still have at least one government corporation, e.g. Thailand's FIO, BFIDC in Bangladesh, Nepal Timber Corporation, Indonesia's Perum Perhutani and INHUTANI I to VII, Sabah Forest Industries, etc. Are they useful? profitable? more environmentally aware and cautious than private industries? Few of these corporations earn profits to pay dividends to the state, particularly if adjustment is made for the subsidized raw materials they get from state forests. Myanmar de-nationalized its forest industries in 1989, (except for the teak which remains a state monopoly under Myanmar Timber Enterprises).

It is important to differentiate within the commercial logging category:

- a) Some companies are interested in continuing, long-term production from the forests and, given suitable security of tenure and policy environment, they are likely to manage the forests in a reasonably sustainable way, now and in the future.
- b) Most of the problems arise from those who see the forest as merely a short-term liquidation opportunity, i.e. who have no commitment to the future of the forests and intend to make as much money as soon as possible, then leave. In many developing countries, this may be a dominant attitude and there are few legal, social or commercial forces at work that hold them responsible for the environmental damage they leave behind.

From an economic perspective, decisions by a concessionaire or logging company about whether or not to log "benignly" and then manage sustainably, basically depend on expectations of future returns. Those with secure tenure may decide to sustain, even improve, their forests if they are confident future benefits are greater than the alternatives. Unfortunately, in many countries, they think future forest values will be low, costs will increase, they fear political uncertainty and/or they have other financial options which are much more attractive. Some concessionaires deliberately degrade the forests or permit this to happen, to justify subsequent conversion of the land to timber, rubber or oil palm plantations). In these cases, the operator just wants the land under the forests, and happens to be using logging as a way to finance that, or defray costs, or further increase profits.

Byron and Ruiz Pérez (1996) and Sayer and Byron (1996) tried to anticipate how forestry practices may change in response to changing demands for forest products. They concluded that the "frontier-logging" of relatively remote areas in the tropics, which has been a prominent feature of the timber industry in the late 20th century, may become less important in the future. This assessment was based on the fact that the technological requirement for large diameter low-density hardwoods, common in many tropical forests, will decline at the

same time as the difficulties of exploiting the remaining stands of these forests increase. The technological problems which previously made the more diverse and higher-density timbers of Papua New Guinea, for example, less attractive have largely been solved. However, demand for the products of these forests is likely to be limited by the cost of extraction. Once the forests in more accessible areas (close to roads, rivers and ports) have been exploited, any cost advantage that these forests might have had will be rapidly eroded. They will be less able to compete with the outputs of the rapidly expanding plantation sector in the tropics and subtropics.

In contrast to rising costs and declining quality of logs from natural forests, the volume and quality of plantation material will continue to improve while technological advances in plantation silviculture and wood processing continue to lower unit production costs. In the short term, some specialist products (e.g., durable timbers for marine applications) may circumvent this trend, but in the longer term they are likely to be displaced by new

technologies.¹⁷ But even if these processes do not go into commercial production, other processes are in the pipeline, the search continues for technologies to make high value products out of cheaper and more readily available fibre. The case of rubber-wood in Malaysia is a classic example.

Industrial Plantations

At present about 15 percent of the world's industrial wood production comes from about 25 million hectares of fast growing plantations located in both tropical and warm temperate countries. High-yield forestry is a reality and the biological ability to shift most wood production to plantations exists and can be put into practice if prices of industrial wood rise high enough to justify it. In this context, the prime motivation for maintaining natural forests may be for amenity and environmental services in richer localities, and for non-timber forest products (NTFPs) and subsistence goods in poorer areas. However, logging of natural forest will not disappear completely. Even in the most developed economies, the existence of forest industries, the cost of transporting timber products, and the desire to maintain employment in rural areas leads to continued logging of natural forests even when these are also valued highly for environmental services and amenity values. There will be some areas of natural forests where the returns from logging are sufficiently high and costs low enough, for them to be competitive with the plantation industry.

Plantations may be established for site rehabilitation or local fuelwood supplies, but the major interest still is in industrial plantations, especially using tropical acacias and eucalypts for pulpwood (Southern China, Thailand, Vietnam, Malaysia, Indonesia and India).¹⁸ Malaysia's Compensatory Plantation project began in 1982 with the aim of establishing 188,200 ha of utility-grade species by 1995, to meet domestic timber needs. The main species are *Acacia mangium*, *Eucalyptus camaldulensis*, *Gmelina* and pine. For example Sabah now has over 50,000 ha, but the target area of plantation is:

Sabah Forest Development Authority:	100,000 ha by 1998;
Sabah Softwoods Sdn Bhd:	61,000 by 1990; and
Sabah Forest Industries Sdn Bhd:	60,000 ha.

This would produce at least 6 million cubic metres of logs per year, enough to satisfy all existing industries. No further new industries are planned, but the intention is to upgrade existing mills to produce higher value-added products. It seems inevitable that the mix of products and exports will change from indigenous species to plantation timbers. Conservationists point out that even if the plantations produce as much timber as native forests (or more) they are still not a substitute for the natural ecosystem, for wildlife and traditional uses by indigenous people. Economists note that countries are unlikely to receive

¹⁷ Scrimber and Valwood are processes to make large size, long-length timber out of small and defective logs - both operate at pilot scale in a few countries, but Plato expects to have over 100 plants operating world-wide by the year 2000. By heating timber under different humidity regimes, it plasticizes then "cures" the cell walls - the end result is that fast-grown, cheap plantation timbers like pine, poplar and eucalypts can be made as durable as teak, while still retaining their appearance, workability etc. It could radically change the demand for naturally durable timbers from natural forests, while greatly boosting the plantations sector.

¹⁸ The plantations of mahogany (*Swietenia macrophylla*) in Fiji for high-value sawlogs and veneer logs, are a notable exception.

the high prices currently paid for high-quality natural timbers like Dipterocarps, when they sell their "common" utility-grade plantation timbers.

Private sector involvement in plantations has generally been small, notwithstanding some examples from large Indian corporations and proposals in north-east Thailand. Oliva (1988: 60-1) commented on the general failure of attempts to get ASEAN-region licensees or concessionaires to effectively establish plantations. Despite threats and inducements, it is generally still not in their interests. Many countries are now actively interested in attracting private sector afforestation (as governments attempt to reduce their recurrent expenditures and wonder why "tree-farming" should be a governmental activity anyway).

Alternatives include contract reforestation, joint ventures and production-sharing in the Philippines and leasehold reforestation in the Philippines, Nepal, China and India. Even where plantation establishment by the private sector is sought, there are legal-institutional impediments like the restriction in some states of India (under land reforms regulations) on any individual or company owning more than approximately 20 ha. Although companies cannot buy and afforest land, they are contracting with small farmers, through buy-back arrangements, to ensure their future requirements of raw materials (while simultaneously providing a real financial incentive for tree-farming). Similarly, in China, some of the former forest co-operatives are being converted to equity/shareholder companies, which are then free to employ professional managers or advisors, and to sell their products at free-market prices to industries or the government.¹⁹ It had become very obvious in China as elsewhere, that paying people just to plant trees, without giving them a financial stake in the final produce, was often a waste of money. The model for commercial farm forestry and co-operative plantation establishment now evolving in China, is quite radical but potentially a very interesting precedent. In principle, it is similar to the sale of the rights to manage and harvest the plantations originally established by the NZ Forest Service.

The question of governments awarding financial incentives for private industrial plantations, is frequently raised. Chile's very obvious success in the international forest products markets, with industries based mainly on exotic plantations, is frequently cited as a justification for extensive government subsidies to plantations. Although private timber-plantation estates once benefited from modest tax concessions (applicable to most primary industries), there are now none in Australia or New Zealand - the classic "level playing field". Those industries claim to be internationally competitive and without need of government subsidy (and the governments would be most unlikely to extend subsidies or incentives in the current economic and political climate). Still, there is a great debate (not about their indisputable effectiveness) but about the need for, the great generosity of, and equity consequences of the Chilean schemes (which are still often advocated as a model to other developing countries). Economists question whether the incentives are really needed; whether it is worthwhile to have such an industry if it has to be subsidized, whether there are other less-costly ways to create additional employment, and who actually benefits from the subsidies. It is possible to devise schemes that favour small-woodlots over large industrial estates, or particular districts, or types of plantations, but the general argument is that it is more effective and sustainable to "get the basis policies and prices right" so that bureaucratically administered subsidies are not required to facilitate private tree-farming, on whatever scale and location.

¹⁹ See "Chinese Farmers versus the Forestry Stocksharing System - a study of Forestry Policy of China" by Li Lukang (in FAO, 1993)

The Multiple Benefits of Forests

Multi-purpose sustainable management of natural forests for non-wood forest products, and for non-consumptive uses (watersheds, biodiversity and sensitive priority areas) is on the agenda in most countries. The actions of many forestry agencies and companies, suggest wood production has been the priority, and the other values were tolerable to the extent that they do not interfere too much with wood production. Alternatively, minimum standards for the provision of these (non-timber production) benefits have been set, and thereafter commercial wood production could be maximized.

There is increasing evidence that the value of conservation, non-timber products and non-consumptive benefits may be greater than commercial logging profits, but are not readily captured. Benefits of commercial logging typically accrue to certain groups in society, and the costs to others. This suggests a need to more equitably resolve rights and responsibilities, and terms of tenure. Natural tropical forests have been exploited as if only two productive resources have value – the timber and the potential (often low-quality) agricultural land under it. A third has been consistently overlooked – the forests' capacity to generate income from hundreds of non-wood products. Repetto and Gillis (1988) estimated that the Net Present Value (NPV) of leaving an Indonesian forest intact was double the NPV of logging it; Hodgson and Dixon (1988) calculated the NPV of a Palawan logging operation as \$8.6 million, but the loss of revenues to fisheries and tourism was estimated as \$32 million. In brief, they argued that the forest was worth more as a living forest, than the value of the logs present - a theme developed by many other conservationists. The difference of course, is that the value of the logs accrues as cash in the hands of governments, industries and timber workers, while many of the estimated benefits from tourism are unpaid or “notional values”²⁰.

How can a process be set up for the formulation, implementation and monitoring of policies and strategies, which enables ALL the values of the forest to be recognized and, whenever possible, quantified so that if trade-offs have to be made, they are clear, deliberate and public?

Large areas in the officially reserved forests in many countries of South and South-east Asia are actually treeless. In some cases, the land is in fact productive agricultural land, the illegal farms of people who "squatted" there many years ago. Some Reserved Forest boundaries have been drawn around areas of forest which indigenous people had consciously managed for centuries, before being displaced by colonial authorities, or labelled as encroachers. However, in many more cases, the land is barren, eroding "wastelands".²¹ A series of reports about "The Uncultivated Half of India" showed almost half the country was virtual wasteland, far below its potential productivity in any sense, and much of this was government-owned Forests, but treeless. Similar situations exist in other countries across the region.

²⁰ Even if the benefits from tourism could be in cash form, the question would arise of “who” gets such income and this would affect the commitment of various interest groups in sustainably managing the forest (editor).

²¹ We should be careful about the word "wastelands" as this may represent only the official view - local people may find them useful for some grazing, collection of medicinal plants and fuels, etc. Their production may be much below their potential, but not necessarily zero.

In Thailand, there are now 10 million ha of treeless, degraded and degrading lands which are not occupied or regularly used by anyone – the classic wasteland. A further 12 million ha of land, also under the legal control of the Royal Forest Department, is actually occupied and used by farmers. This is said to be illegal and "temporary" but there are houses, shops and roads, with electricity services.²² Some of these farmers grow trees, but not always of the type preferred by RFD e.g. mango, mulberry, kapok (*Bombax spp.*). Only 3.07 million ha of the 24.4 million ha being cultivated in Thailand has legal title - much of the remainder is actually "Forest Land" once used to grow cassava and corn for export.²³

Although there are officially 100,000 hectares of sal (*Shorea robusta*) forests in northern Bangladesh, which was the traditional home and source of livelihood of the Garot tribes, probably less than 20 percent of this area is still recognizable as (heavily degraded) forest. Most is farmland; illegal logging has continued steadily for twenty years after an official total ban on logging in these forests; the modest areas of plantation established on areas reclaimed from "encroachers" have generally failed, for technical reasons, and due to fires and deliberate vandalism.

In the Philippines, it is estimated that there are 6 million people living in the National Forests, and another 8 million on the forest fringes – among the poorest in the country with an average income under \$US 200/year. Of 15 million ha of "Forest Land", only 6.5 million ha is now actually forested, and less than 1 million ha of this is primary forest. Some barangays and towns in the Philippines (e.g. Quezon, Mt Makeling in Laguna, and in Misamis Occidental in Mindanao) are in the middle of Forest Reserves and National Parks. Within the Reserved Forests of Idukki District (Kerala, India) are hospitals, colleges, the District Headquarters and large shopping centres. In Indonesia, numerous towns (e.g. Bukit Soeharto) in Kalimantan Timur lie entirely within National park or Government forest. Over 12 million ha of Indonesia's Reserved Forest is reported to be treeless – much of it imperata grasslands.

Anyone familiar with European National Parks will not be surprised by towns and farms in the middle of forest reserves and parks, but there is a fundamental difference - many Asian countries retain the colonial concept of forests without people, and the "Yellowstone" model of National Parks without resident populations. Thus the people, farms and towns are not there legally - they are condemned by forestry as encroachers, not legitimate in the eyes of governments and banks - and so their actions and land-use practices are often temporary and unsustainable.

Stricter enforcement of the law has been tried in countries as diverse as India, Bangladesh, Burma, the Philippines, Vietnam, Indonesia and Thailand. In none of these countries has this approach been very successful. It is logistically impossible to protect so many hectares from so many people, day and night, even with the combined might of the police, army and forest service. Moreover, if people who have no other place to live and no alternative livelihood, are expelled from one part of a forest, they simply find another patch to settle in, and the process

²¹ They may pay taxes on these lands and receive extension services from other government departments, suggesting this use of the "Reserved Forest" is far from temporary. Their illegal land tenure could even be recognized by banks as collateral.

²² Phantumvanit (1990) calculated that a 10 percent increase in the world price of cassava led to a 16% increase in loss of forests (but not the reverse - if prices fall, the deforested land may just be abandoned - not restored). Panayotou (1987) reported that construction of a major highway in North-east Thailand was followed by logging and shifting agriculture, resulting in the loss of over 1 million ha (of what was continuous forests in 1973) in only four years.

continues. Yet a number of national forest services still call for harsher legislation and penalties, and more armed guards for enforcement!

If the neighbouring small and ex-farmers have no viable alternative than to degrade the land with short-term exploitative temporary agriculture, to steal logs, to collect fuelwood for sale in urban markets, then it is unlikely that any amount of coercion, extension or persuasion will alter their practices. Farmers use methods requiring little investment so that eviction is "affordable" – a possibility these encroachers must live with. This pattern has existed in Indonesia, Philippines, Vietnam, Sri Lanka, Thailand, India and Nepal.

However the devastation caused by these temporary agricultural practices of migrant squatters, does not negate our general argument of the small farmers can be competent professional land-managers, where they have secure land tenure. Experts and professionals frequently overlook small farmers' competence because their criteria and definitions are different, and because the farmers have been frequently denied secure access to land, through institutional land-denial mechanisms. In brief, small farmers and landless may be major instruments for forest destruction but they are not the underlying cause. Furthermore, given some innovative new institutional arrangements, it might be possible to harness their energies and skills for forest protection and management, rather than continuing destruction which is mutually damaging.

The influence of other government agencies frequently overwhelmed forest conservation. The "Grow More Food" campaign in India (and in China) boosted food production by expanding cultivated areas, not intensification (until the late 1960s). In India, 43 million ha of tree-cover were cleared 1951-76. This campaign also required irrigation, not only dams which flooded forests, but also power lines, new settlements. Displaced graziers were forced up the hills and into the forests. The expansion of mining industries has also helped destroy forests (e.g. the iron mines of Bastar District of Madhya Pradesh). Campaigns to eliminate malaria have been a contributing factor to deforestation in many countries, by making lowland forests habitable.

While forest policies are slowly changing, the predominant focus still is on production forestry and then on protection, though forest industries and particularly logging operators have rarely been controlled adequately (e.g. Repetto and Gillis, 1988). The industrial focus on wood products and the appropriation of forests by state governments, and neglect of traditional forest uses for timber and non-wood forest products led to land-use changes despite forest policy efforts aimed at resource conservation. The process of resource degradation was made worse by restricting peoples' rights to use land and neglecting their traditional uses as well as their capacities to preserve forests.

Attempts by national governments to "protect" forests of high conservation value from local people, without engaging them in the process and without ensuring that local populations actually benefit from such conservation, have frequently failed, or even had opposite effects. Many traditional systems of forest management that were productive, equitable and sustainable, were destroyed by colonialist impositions. A new approach to protected area management which actively engages local people in decisions and management for conservation, and which ensures they are not disadvantaged by conservation measures, is currently being evaluated in many parts of the Asia-Pacific region. Governments and their citizens need to jointly develop effective shared responsibilities for broad-scale forest conservation.

Devolution of Management to User Groups and Communities: Community Forestry

Conventional management systems (public ownership, logging concessions, "State Forestry") have certain limitations throughout the region. Major institutional changes seem imminent, and the Philippines and Nepal have pointed to a new radical direction.

In Nepal, indigenous and traditional forest management systems, by local "User Groups" are now recognized. The process is now well under way to devolve effective management responsibility back to those groups: what to cut, when, who, at what prices, what to do with the revenues, protection, regeneration, etc. In the Philippines and China, there are now major moves towards devolution of forest management responsibility and authority to local people, as individuals or as communities (assisted by experienced NGOs in the Philippines). Under the old Philippine legislation, local people were permitted to deliberately clear forest for settlement, but not to commercially utilize forests as a sustainable livelihood.

The directions of the Philippines, China, Nepal and to a lesser extent India, who are devolving "forestry" vigorously, contrasts with countries like Malaysia, where current conditions make such radical reforms unnecessary, or even unfeasible.

This shift has resulted in the limited handover of forests to local control, and the idea of poor people or rural communities having secure access to trees within forest boundaries is still generally considered "radical", though no longer the anathema described by Malla (1992, p. 265) for Nepal:

"Although government forest policy in Nepal has made provisions for community forestry some 15 years ago, there has hardly been any change in the attitudes of the majority of the foresters and in the traditional way of working in forestry organizations. Communications between forestry field staff and community members are still very poor, and indifferent attitudes and mistrust towards each other prevail."

However, the introduction of policy and legislative changes indicate a potential change in attitude and thinking. The implementation of Joint Forest Management in India seems to be part-way down this road, but there are still strict limits on which forests are eligible (only the severely degraded), the role of the community (mainly protection), their share of the benefits (low value NTFPs but not high-value logs), the effectiveness of their voice in management (they can do very little without the Forest Department's approval) and, finally, the Department can unilaterally cancel the agreement at any time, without specified reasons (Saxena, 1997).

Yet progress has been slow and often on only a limited scale; some local management is based on informal agreements but without formal sanctions. Many forest department staff find it difficult to accept rural communities as partners in forest management, and still think that rural people are incapable of forest management and tree growing. Significant socio-economic and institutional aspects still need to be clarified, if governments and their citizens are to jointly develop effective interventions and power sharing responsibilities.

The importance of collection, growing, processing and marketing of NTFPs from local forests provides a convincing ethical basis for the local users to have a strong voice in management of

such forests. However, many traditional systems generate products primarily for households' own-consumption. Are there viable examples of collective management²⁴ for cash incomes and employment generation, and do special conditions underlie their success?

A particular concern is the possible impact of commercialization on the community, if traditional management practices break down. There is some anecdotal evidence that traditional practices of sharing or rationing physical products from the forests (e.g. dead fuelwood, grass and leaf fodder), may not operate well when sharing relatively large amounts of cash. Furthermore, the increasing incorporation into the market economy may even reduce willingness to share products which become convertible to cash values. Colfer et al. (1996) have described how norms of sharing differ between societies, and some of the complications that can arise when subsistence goods become marketable.

There are therefore risks attached to the devolution of management to local communities, but in some cases it could hardly be less successful than the status quo. The origin of these reforms comes from a "people-centred" approach to forestry: concentration on the achievement of human development and welfare goals, rather than the measurement of inputs and outputs in the forest management process. But even from a forest-centred perspective, there is a pragmatic case for devolved community management: the most effective way to retain natural forests is through sustainable use of direct benefit to local people – if they do not derive any benefits, the forests are unlikely to survive. Such benefits do not come mainly through logging; other products may be more valuable per unit weight, more labour-intensive, more diverse and less environmentally destructive. However, this potential remains largely unproven. What are the prospects for generating rural incomes and employment through careful harvesting of the Non-Timber Forest Products (NTFPs)? Is there a danger that increased commercialization may threaten their existence, at least in the short run before their production becomes "domesticated"? If that happens, will there still be any demand for the wild materials collected from the forests by local people?

Integration of Conservation with Multiple Uses

Governments across the region have recognized a spectrum of forest uses ranging from:

- “Preservation” and complete protection (Protected Areas (PAs), National Parks etc.) often implicitly copying the “Yellowstone model” of the USA in the 19th century.
- “Protection Forests” (typically catchment areas in which collecting NTFPs, but very little or no logging or clearing, is permitted).
- “Production forests” (notionally for multiple use but where timber is usually the primary or only objective in practice).
- “Conversion forests” where clearing and colonization is permitted or even encouraged.

Forest conservation outside of formal reserves and PAs has not been a high priority. Pressures to convert some forest lands to agricultural, infrastructural, industrial and urban uses persist, as these are often considered signs of economic development and “progress” (although India

²⁴ "Management" can be defined as an activity that is purposeful, is directed and attempts to increase returns on targeted systems by redirecting flows of energy and nutrients towards the manager. (Ruiz-Pérez and Arnold, 1996)

has been extremely successful in stopping diversion of forest lands to other uses, through the Forestry legislation of 1990).

“Malaysia has expanded its permanent Forest Estate from 127 to 141 million hectares and dedicated 4.7 million ha representing 24% of the total forested area of 191 million hectares for the protection of the environment and conservation of biodiversity.”

“To maintain biological richness we (Indonesia) have set aside 496 million hectares of forests, or 25% of our land area as Totally Protected Areas (TPAs).”

“The Vietnamese Ministry of Forestry has carried out two big programs: a forest land allocation program to allocate at least 7 million hectares to the rural people to protect, to manage and to develop; and another program to re-green the bare land to increase the forest coverage from 28% to 40% by the year 2000 and to reduce poverty among the rural people.”

“All classified forest lands of Bangladesh will be included in a national protection system and be managed under a number of Multiple Use Management Areas This concept would introduce a systematic approach to forest land management with landuse designated according to land evaluation, land capability assessment and suitability assessment. The “core-buffer-multiple use zone strategy” could be used for the management of these Multiple Use Management Areas, from which the protection of Biodiversity could be accomplished while still gaining more social and economic benefits”²⁵

There clearly are moves away from the Yellowstone model of trying to achieve national conservation goals just through isolated areas designated as PAs and from which all human consumptive use is prevented; islands of “natural purity” surrounded by a sea where “anything goes”. Some of the moves to attach much higher emphasis to conservation outside of PAs are:

- promotion or requirement of Reduced Impact Logging techniques;
- certification of forest management units as “sustainably managed”; and
- engagement with local and indigenous peoples in forest management, including recognition of traditional knowledge and management systems, and the importance of NTFPs to their existence.

The experience with Integrated Conservation and Development Projects (ICDPs) in the region has been mixed (even within Indonesia the recent World Bank review found widely different outcomes and effectiveness) but generally disappointing. Recent policy experiments in Tonga and Fiji, where governments have leased lands from traditional-customary owners, to be used as National Parks, provide interesting possible models to how local people can directly benefit from forest conservation. These trials suggest that these people are very keen to retain their forests, and to continue enjoying their cultural, NTFP and amenity benefits, provided it does not cost them too much to do so. But as Lian (1993) argues, it is too glib to assert that indigenous, forest-dwelling people always “understand the forest and manage it sustainably”

²⁵ Statements by respective Ministers for Forests, to Ministerial Meeting of the FAO Committee of Forestry, Rome, March 16, 1995.

in contrast to migrants who destructively exploit forest resources without regard to future consequences.

Promotion of Farm Forestry

Promotion of farm forestry, agroforestry, trees to support and sustain agricultural productivity, and trees in household farming systems is definitely important throughout the region, particularly in Pakistan, India, Australia, the Philippines, Bangladesh, Nepal, India and China. Until recently, this has been a low priority in Indonesia and Malaysia, because of the abundant natural forests (in most but not all regions), their focus on industrial forestry and because, in Malaysia especially, fewer people wish to remain farmers, given the emergence of more lucrative or desirable options.

The viability of farm forestry to produce logs for sale, depends on log prices and farmers often have to compete with "State Forestry". Some governments seem unaware that under-pricing of the logs from state forests has serious negative consequences for private tree farming that they claim to promote. In many countries the extension strategy of assisting small farmers to grow their own forest produce is already failing visibly. Apart from deficiencies of the extension delivery system other reasons persuade households that tree-growing is simply not a viable alternative for them.

Farms are not charitable institutions. Telling farmers they should plant trees for "the national interest" to "save the environment" or to "stop global warming" is unlikely to be effective. However, where farmers see tree growing can fit in with their existing activities in a way that is not too risky or too expensive, and will generate real benefits for them, they generally adopt tree growing spontaneously. The benefits may be the profit from sale of timber, but it could be through the increased yields of crops and livestock as a result of shelter from winds, reduction in soil erosion, amelioration of soil salinity or acidity, etc. Groves of well-selected and well-maintained trees increase the capital value of a farm if it has to be sold. In richer countries, the major benefit that private forest owners seek may be aesthetic or recreational - in Japan, 95% of private forest owners rarely make commercial sales (FAO, 1993).

As discussed above concerning incentives for industrial plantations, it is debatable whether farmers "need" incentives for tree-growing, or whether government foresters really understand the types of incentives that farmers respond to. Many "incentive schemes" which offered subsidized seedlings have been ignored by farmers, who recognized other more serious constraints. Tax concessions are most attractive to those who have high tax liabilities, and worthless to small farmers who do not even pay income taxes. Low-interest loan schemes may be useful, but only to those who need to borrow investment capital for long terms.

Foresters have to understand farmers' and landowners' needs and how forestry and agriculture can be mutually beneficial. In agroforestry and tree-growing outside Reserved Forests farmers make the decisions about what to produce and how - government officials can support, permit or impede, but not do it. Most people respond rationally to opportunities and constraints, trying to maximize the well-being of their family (in some combination of the immediate, short and long term). We need to better understand the farmer or "encroacher" as a decision maker and his/her perspective; how decisions by governments affect the behaviour of those who are actually at the forest edge, with the axe, chain-saw or matches in their hands; under

what circumstances would they decide to retain, conserve, manage, and even regenerate the forests rather than removing them?

Assessment of the Status Quo

Summarizing the causes of deforestation, World Bank (1991) concluded that it occurs because somebody finds it profitable. We could make the same statement about development!

Accepting these rather broad statements means focusing attention on decision making about preferred economic strategies on various levels. *Why is it more profitable to over-exploit forest resources than to develop and manage them sustainably?*

A policy approach from below requires understanding decision making at the household and community level. If the evidence points to industry as the major contributor, we need to investigate how it responds to governmental and external pressures. But a focus on the micro-economics of rural forest users must not divert attention from the broader socio-economic bases of development or of deforestation and thereby mask the need for fundamental changes. On the contrary, the examination of micro-economic issues, and related cultural and social factors guiding decisions, should only be the initial step in developing policy interventions. A later step addresses the critical issue of practical political economy of "who gains and who loses" under alternative scenarios of management sharing.

While existing policies and regulations, if enforced properly, deal adequately with the trees in reserved forests, and with companies that harvest and/or plant trees, they have dealt very poorly with people. The fact is that most forests in most developing countries in Asia and the Pacific are surrounded or populated by people who use them.

The behaviour of these people responds to many "external forces" and these have proven to be much stronger than the policies and the policing of the Forestry Agency. Depending on these forces, ordinary household behaviour may be either constructive or destructive.

The industrial production or conservation policies of the Forestry Agency may become marginal or irrelevant, or even be directly contradicted, by policies outside the forestry sector (e.g. agricultural pricing and subsidies, population and employment policies, infrastructure developments, the spread of the market economy and hence all the impacts of macro-economic and international factors). National macro-economic policies which shape the pace and direction of economic development may ultimately have as much impact on forestry sector, through migration and livelihood/employment patterns, than micro-management decisions within forests.

"Forest policies" have often been focused primarily on the relationship between the Government Forestry Agency, the Reserved Forests directly under its control, and private or State companies engaged in industrial activities (timber extraction). These policies and related practices, while clearly not yet perfect, already are (on paper) quite reasonable in many cases, and have been the subject of considerable economic and policy research - but frequently poorly implemented on the ground.

Since decisions that may influence the fate of forests and trees are made by many different parties, at a hierarchy of levels, possible areas for policy reforms include:

i) International:

- World Trade Organization, trade policies and sanctions;
- International conventions, e.g. on Biodiversity, Climate Change, and possibly on Forests;
- Environmental, development and human rights NGOs;
- Donor agencies and multi-lateral lending institutions (including loan conditionality and IMF structural adjustment programs).

ii) National:

- Institutional arrangements - land tenure and land-use policies, including agrarian reform, especially forest-use rights for traditional forest users-managers;
- Macro-economic (trade, taxation and exchange rate) policies;
- Agriculture sector policies - including input subsidies for water, fertilizer, credit, etc., and price support schemes for agricultural products;
- Transport and access infrastructure and policies;
- Energy policies and pricing.

iii) Local and community:

Social attitudes, cohesion and peer support/pressure;
Local markets for inputs and outputs.

iv) Individuals and Households:

Why do many farmers choose to clear new (forested) land rather than intensify production on existing fields? Why are there such pronounced differences in this within Asia, and why do we sometimes witness expansion of farmlands (i.e. clearing forests) rather than intensification of agriculture? Are there social institutions or economic policies that encourage intensification in particular contexts, and other policies elsewhere that encourage extensification and clearing forests?

Understanding household and community level decision-making in response to changing national and international policies (not just forestry policies), demographic pressures, various degrees of environmental stress, modernization and marketization, is necessary to develop more effective policies. While policy changes at the international level have a role to play in conserving tropical forests, the most effective policy changes can be expected where resource users are directly involved.

Much of the international debate on tropical deforestation has centred on ways that international pressures can be brought to bear on national governments to achieve outcomes that are believed to be “better” in terms of global externalities - the classic examples being biodiversity and sequestration of carbon to help reduce the rate of global warming. By focusing on industrial logging and the international timber trade, many of the most important processes and actors in tropical deforestation and degradation have been overlooked. The concern about the negative effects of deforestation on global concerns, has frequently prevented us from seeing the damage to poor forest-dependent people and communities, and have stopped us from looking for ways of positively assisting the forest people in rural and often remote areas of tropical developing countries. The “North” has often been reluctant to accept the right and the imperative of countries of the South to use their forests as a platform for long-term development of their economies.

If many logged-over areas still remain as (disturbed) forests, and if the disappearance of forests is due to conversion to different land uses, then improving actions within the timber concessions may not be enough. Minor adjustments to timber industry policies is unlikely to significantly reduce the extent of deforestation or to improve the livelihoods of poor, forest-dependent people. It may reduce localized environmental impacts, enhance biodiversity slightly, generate some more incomes and employment for local workers, or capture more of the potential income and foreign exchange for government. These are all worthwhile objectives, but marginal gains if the greater threats to the continued existence of most tropical forests come from any direction other than legal, export-oriented, large-scale, industrial logging. We need to take a much wider view of the real threat to the tropical forests, if we are to devise effective solutions.

Many of the natural forests that still exist may be the classic residual land use - they lie beyond the current economic zone of supply, given existing technology, markets and access, for either commercial logging or agricultural cultivation. They still exist as forests because it

has been in no-one's financial interest to exploit them, yet. A new road or highway (even a small seasonal dirt track) will increase the probability that someone could earn a profit by either exploiting the timber in the forests, and/or the land beneath it - doing both is likely to be more profitable than just one.

In areas well within the economic production zone, particularly where there is reasonably secure individual or group tenure, we see individual or collective trees, forests, woodlots and agroforests, wherever people believe that the benefits of having those trees there outweigh the costs.

This line of argument tends to narrow the problem, to transition events in a transition zone: the area between close to consumers of goods and services (where intensive management, protection and reinvestment are warranted) and the far where virtually no activity or usage is really warranted. In the transition zone, exploitation is feasible and profitable, but (sustainable) management is not. The policy questions then become:

- What different form of institutional arrangements, social organization or economic relations could reduce the (perceived net) gains from removing the forests; or increase the net gains from retaining, regenerating or managing the forest?
- Are different institutional arrangements required for the market-oriented, economic production zones, compared to the remote or traditional (more subsistence-oriented) forest regions, and if so, how can the transition between the two be handled?

POLICY CHOICES – THE FUTURE DIRECTIONS FOR FORESTS

The aim of this section is to speculate on how the existing forestry sector might be affected by some plausible alternative futures. The first obvious point is that 2010 will NOT be like the present - that is simply not an option in this, the most dynamic region of the globe. No-one can know precisely what the changes will be, but changes will accelerate - political, economic, demographic, social and environmental.

Secondly, there will not be a uniform future across the diverse countries of this very complex region, but the fate on individual countries are increasingly likely to affect, and be affected by, neighbouring countries.

Thirdly, if national borders become less relevant in a global economy, we may expect both socio-economic zones which transcend national borders and on the other hand, very different zones within larger countries like China, India, Indonesia and Australia. National average statistics like GNP per capita will become less meaningful, when there are wide discrepancies between zones of a particular country, or where economic prosperity is tied to that of a neighbouring State.

A. Continuation of Current Policies and Institutions

The Asia Pacific region, especially East and Southeast Asia, continues as the fastest-growing regional economy in the world - rapidly expanding per capita incomes, education, urbanization and industrialization. This can have two principal effects:

- a) with increased incomes and more industrialized and urbanized lifestyles, increasing number of Asian citizens are likely to attach much higher values to environmental conservation - not only for recreation and aesthetics, catchment protection and wildlife, but for the more abstract "existence values".²⁶ Patterns that have already appeared in Japan, Korea, Australia, Singapore, Malaysia and New Zealand, may become more widespread as affluence spreads.
- b) The same changes will greatly reduce the pressures to derive marginal incomes by clearing or degrading forests and Protected Areas, as more people move to higher paid urban jobs. This trend was clearly demonstrated in Australia and Japan decades ago, and more recently in the Republic of Korea, Malaysia and on the eastern seaboard of China.

Although India achieved little economic growth from Independence to the 1980s, she has recently broken loose, with rapid development following liberalization policies. The consequence of these changes and rapid economic growth in urban areas will soon reach out to nearby villages, and profoundly affect how forests are used and by whom. Yet it

²⁶ "Demands for forests in Korea have diversified as our economic life improved along with accelerated industrialisation. The benefits of forests such as clean water, fresh air and recreation are now indispensable factors for enhancing the quality of life." Statement by Korean Forests Administrator to Ministerial Meeting of the FAO Committee on Forestry, Rome, March 16, 1995.

might still take generations before the global economic superhighway reaches remote villages, or even influences them.

What might this context mean for forest management and conservation?

Probably not much would change:

- forests will continue to be exploited, sometimes reasonably sometimes badly;
- adoption of reduced-impact logging techniques may spread slowly, reducing some of the damages to “production forests”;
- “conservation” will perhaps still be seen as just a matter of “refugia” - isolated areas set aside for conservation because they have no better use;
- forest industries will continue trying to maximize profits and shareholders’ wealth, but in so-doing, continue to come into conflicts with traditional rural societies and increasingly, with urban people suffering deteriorating environments, water quality, etc.
- competition for land, and conversion of forests to farms, will depend on the relative profitability of growing the additional crops required by more intensive Vs more extensive means. Governments can alter these relativities, by making intensive farming more attractive than clearing new lands to expand the area cultivated.
- perhaps conservation will receive more priority in natural forest areas, especially if fast-growing industrial plantations reduce the need for, or the commercial feasibility of, logging natural forests.

Even with continuing population growth, fewer people will seek to derive their incomes from forest exploitation - whether for timber or for non-timber products - and more opportunities are likely to emerge in eco-tourism and related service industries. Economic development may help achieve better forest conservation, sooner, than old-style “protection” based on trying to control or exclude people who had no other options.

What might be the impacts on traditional societies, the NTFP extractors?

One might expect that gradually more of these communities will be incorporated into the modern economy; if suitable employment opportunities arise and as many of their traditional products become less sought-after in the modern market-places. Is the “extractivist option” merely a short-term transition, pending modernization, or could it be a viable livelihood option in the long term? Part of the answer will depend on the future of green consumerism, both in Asia-Pacific and global markets, but there are at least three possibilities, which might co-exist for the next 20 years, in different countries or districts within countries:

- a) the demise of NTFP markets, of the forests that provide the NTFPs and impoverishment of forest people; most of the more valued, desirable species of flora and fauna will have been exploited to satisfy urban demands;
- b) niche markets where forests are well-maintained and well-managed - where local people prosper by retaining/protecting forests for sustainable NTFP activities. This could probably be accompanied by maintenance of social cohesion, and retention of strong

cultural values of forests. What sort of institutions would need to be in place to give this option a real chance of working?

- c) creation of new rural industries to produce NTFP which used to come from wild sources in the forests, but now are cultivated. This is happening a great deal in China (even bear bile) India and Indonesia (e.g. rattan plantations).

Which of these three paths will be followed, depends on the nature of the product, the nature of the market into which it is sold, and whether the product is one that becomes increasingly sought after as incomes rise (a luxury) or one whose demand falls as incomes rise (economically inferior goods). Will NTFP with real market potential be displaced by cultivated or synthesized substitutes? Will those which are not really valuable just be harvested from the wild until it becomes too expensive and time-consuming to find them, then be forgotten? Neither outlook bodes well for the long-term viability of local institutions to manage local forests for NTFP on a sustainable basis.

B. If Environmental Awareness is Sustained or Increased

The outcomes of increasing affluence with greater environmental consciousness in Asian societies for tropical forest conservation are likely to be revealed in many ways:

- Much more rapid adoption of (even more radical) low-impact logging techniques in production forests, e.g. greater use of helicopter or balloon logging. Unless very strict environmental protection standards can be attained, all logging in natural forests may even be banned;
- Simultaneously, forest industries would move to a plantation basis, but such plantations would be different from the current large-scale exotic monocultures, that is mixtures and/or mosaics of smaller patches of plantation forests interspersed with more natural landscapes and agriculture; more of the industrial timber supply might come from farm-forests. Whether large or small-scale, plantation forestry will be practised mainly by the private sector and in those countries or districts where there is a clear commercial competitive advantage (whether because of the relatively low costs of highly suitable lands, cheap and easy access to major markets or the availability of suitably skilled labour with no other more attractive employment options than in the forestry sector).
- More National Parks and Protected conservation areas, and much better protection of all such areas (both existing and new) in the field; but in addition much higher conservation standards would be expected outside of formal P.A.s, in the areas between them;
- Such protection is more likely to be with local people's assistance, rather than imposed upon them, at their expense, i.e. there would be even more convergence of the conservation and the social-human development objectives.
- International pressures and support for conservation in the region would bolster internal demands for enhanced conservation of forests, and may provide direct and indirect commercial support through, for example: certification and eco-labelling; eco-tourism; compensatory mechanisms under the Convention on Biological Diversity, the Framework Convention on Climate Change and other international treaties; conditional debt relief or debt-for-nature swaps.

C. If Economic Pressures Reduce Societies' Emphasis on Forest Conservation

Major international economic disruptions such as an economic recession with high unemployment, major trade struggles between powerful regional economic groupings, or the collapse of international tourism for some unanticipated reason, (e.g. aircraft high-jackings) could lead some countries to retreat from conservation measures, and pursue any ways to cut costs and increase commercial competitiveness. The outcomes of this scenario are basically the opposite to B) above:

- greater conversion of remaining natural forests to agriculture or timber estates; and
- continued failure to protect “priority conservation areas” against the onslaught of people (both the needy and the greedy) looking for lands to cultivate or resources to exploit.

There is ample evidence that small adjustments to forest industry/concession/trade policies is unlikely to significantly reduce the extent of forest clearance or enhance forest conservation significantly or to improve the livelihoods of poor, forest-dependent people. Industry subsidies, or exemptions from environmental protection measures, may affect localized environmental impacts, endanger more biodiversity slightly, generate some more incomes and employment for local workers, and forego more of the potential revenues, while increasing foreign exchange earnings for the government.

CONCLUSIONS – POTENTIAL FOR INSTITUTIONAL SUPPORT AND REFORM

There have been major movements in the past decade, away from 1950s thinking about the role and contribution of forestry in development, in some cases even from older colonial policies. Nevertheless, there will be a need for continuing policy reform as the future unfolds. But who should drive it and in what directions? The whole process of formulating Forest Policy could become more democratic, more broadly-based and multi-sectoral. The policy formulation process may take longer, but the result will probably be more realistic, effective and workable.

Common underlying policy issues throughout the region include:

- a) the integration of national forestry sectors into the world market economy created problems where there were not already clearly defined and enforceable property rights over forests and forest lands. Where State ownership has been claimed but was not enforceable for technical or administrative reasons, land-use conflicts arose, which underlie some deforestation. Perhaps no-one (loggers, squatters, indigenous people or Forestry Agency) really has secure enforceable property rights and managerial responsibility, which prevents long-term stewardship of forests. If forestry agencies do not have the resources to use and protect the territory they claim, perhaps they should hand over lower priority areas and concentrate on managing a smaller area very well, or even setting the guidelines and limits for private sector activities.
- b) the divergence between excessive logging of forests (for commercial gain to both private and government sectors) and protection and sustainable management of forests for the longer-term public good. As the owner of National/state/public forests, some governments have acted as if commercial benefits are top priority - social benefits of watershed protection and the importance attached by indigenous peoples seem to be consistently underestimated. Log allocation and pricing, and industrialization subsidies have benefited private individuals at the expense of government revenues and the forest environments.
- c) "Forestry" has been seen as administration of large government estates as a raw material source for large-scale private processing industries. In practice, there has been less time and effort for:
 - managing social, environmental and off-site impacts, which should also be high priority;
 - involving local people in the management of government, private or communal forests; or
 - mediating with agriculture or environment agencies over land-use allocation.

Much could be learnt from the experience of the Philippines (see box) as there are strong reasons to expect this pattern will be repeated elsewhere in the Asia Pacific Region.

The preceding sections have argued that if policies and strategies are not soundly based, it will prove very difficult to implement them successfully. Moreover, if there is not broad public and political support, it will be very difficult to implement them successfully, even if the policies themselves are well-intentioned and well-reasoned.

Formulating, implementing and monitoring forestry policy is a dynamic process - subjected to extraneous and often unpredictable international and inter-sectoral events, as well as by local experiences in practice. Policy formulation and forestry sector planning can not be done only in the back rooms of the Ministry. Strengthening national capacity for forestry policy formulation and implementation, means more than technical and planning skills. While such people can certainly contribute analysis into the process, an urgent need now might be for a capacity to manage the consultative process that defines and formulates policy, gathers information and understanding, and indirectly provides public support for implementation.

The future is complex, as well as uncertain. Governments cannot know everything, but they need to monitor what is happening, seek reasons and explore alternatives - nothing taken for granted just because it is the status quo. Effective policy implementation cannot be separated from "management for results" and continuous monitoring. This requires all staff to be performance- and results-oriented, and internal management procedures must provide an appropriate incentive structure. The difficulties in attracting high-calibre staff, particularly with multi-disciplinary expertise, when salaries and/or status are relatively low, are well known. Yet some Forestry Departments fail to deploy their existing staff effectively, and to use all the talents and skills these people have. Pressures for change are likely to continue to grow.

"Good" results are impossible, if the whole policy framework is distorted. The present problems are more than just technical matters or a shortage of funds or of trained manpower, although of course these are important. To get the policies right requires improved understanding of how people and institutions behave. Many foresters, and bureaucracies in general, are accustomed to operating in a "command and control" mode, as if all parties involved will do what they are told, or exactly what the planners expect. Yet many of the parties involved are not under government control - and so planners need to better understand the incentives and disincentives people will voluntarily respond to. This also helps clarify the possible implications of the policies and measures proposed, as a check on unintended adverse effects.

Policies tend to be long-lived, but the socio-economic context can change quite rapidly for example in regard to NTFP demands, migration to or from forests, or local organizations to manage or protect forests. Occasionally policies are devised for situations which no longer exist. The type of forest and forest produce that people need, continually evolves and it is possible, to the extent that the market economy spreads, that remaining viable farmers may even prefer commercial timber trees than fuelwood and fodder species. We need to constantly monitor the direction of policies, as well as their effectiveness and results.

Historical Sketch of Forest Policy Changes in The Philippines

In 1908, 80% of the country was under dense forest of valuable species, under state ownership.

The denial of local involvement in forestry damaged traditional management practices and lost some important traditional ecological wisdom.

Being the first country into large-scale log exports, to earn much-needed foreign exchange, the Philippines created enormous market opportunities at a time when there were few traditional or modern controls. The major emphasis was on regulation rather than incentives (and disincentives) to achieve voluntary compliance.

Huge concessions were granted to the private sector at very low rents and stumpages, while the government assisted with infrastructure and forest inventories.

Despite the introduction later of long-term (25 year) tenures, in practice tenure was still insecure because of political uncertainty (so operators still behaved in very short-sighted ways).

The "command and control" approach extended to industrialization. Mandatory construction of mills by all concessionaires led to over-capacity, token mills, and generally a gross waste of scarce economic resources. This has been superseded by tax incentives and amendments to foreign investment laws.

Only certain stakeholders dominated - mainly industrial users. Within that group, the owners and the customers counted much more than the workers, the suppliers and local communities. The public at large, the traditional forest dwellers, and the migrants-settlers-squatters were typically ignored and received little benefit. Did government policies and enforcement fail to keep these people out of the forests, or did other government policies encourage or force them to go up into the forests?

Now a radical departure is underway:

- devolution of control, responsibility and authority, decentralized decision-making;
- recognition of indigenous knowledge of management and use of forests;
- community-based forest management often for non-timber outputs, and generally using simple labour-intensive techniques; and
- increased emphasis on collection of the revenues due to the State from commercial logging.

Similarly, policies have been suggested to ease the transition from shifting to (more sustainable) sedentary agriculture, yet the transition could be right out of agriculture!²⁷ It would be very naive to assume all these people will become settled farmers, especially with intensification and mechanization of agriculture. Trends in input costs and output prices will largely determine how many people can and do remain as farmers in future. It is quite likely throughout Asia, especially in the economies with relatively high economic growth and slower population growth, that the future number and percentage of farmers (or even rural population in total) will be much less than today.

²⁷ "Shifting Agriculture" has been used to cover a great range of different activities. Traditional or indigenous systems include: nomads; those who rotate their houses and gardens around defined territories; and those whose villages are fixed, but whose gardens rotate. Alternatively, temporary slash and burn agriculture is often practised by newcomers - squatters or lowland migrants, often with support from influential persons, to produce cash crops.

To stop forest conversion and achieve conservation, it is not necessary to stop logging, or to stop logging in all new areas, but rather to reform the policies that presently make forest colonization attractive. This might include the pull factors or the push factors. The evidence from the rapid economic growth of Asian tiger economies is that as employment and income prospects outside the agriculture sector improve, fewer people want to undertake the dangerous, illegal, difficult and often unprofitable activities of temporary agriculture in forest lands. However, if the new land use is very profitable (e.g. growing cocoa, coffee, cinnamon, rubber, fruit trees) and the potential capital gains from “capturing” some real estate from the government forests are high, it might be very difficult to slow the rate of forest conversion.

Forests will be permitted to remain when the people deciding the forests’ fate conclude that the continued existence of forests is more beneficial than their removal. If not, forests are cleared. Some natural forests remain because they are not worth exploiting as they lack commercially valuable species, are remote or inaccessible. In other words, it would cost more to exploit them than their current commercial value. People living in such remote (uneconomic) forest areas may be permitted to enjoy the many traditional, non-commercial benefits of forests, but may be denied access to many modern goods and services by the very inaccessibility that protects their forest.

Protection Forestry, Industrial Forestry and Social Forestry have all been tried throughout the region - each has generated some successes and some failures. All have a valid role in specific conditions. The challenge now is to analyse the policy measures that led to the results and to learn from that.

Radical reforms of forestry institutions (as in Philippines, India and Nepal) are imminent elsewhere. Forestry agencies’ assigned responsibilities are changing. New ways are being developed to deal with:

- setting the framework and guidelines for production, but much less active commercial involvement;
- protecting natural forests; and
- recovering for the public the full economic benefits from the careful management and use of those forests.

Areas for Further Research

The Convention on Biological Diversity calls for further research on *the equitable distribution of benefits & costs of forest conservation*. This is a pre-requisite to devising suitable international or intra-national compensatory schemes. But it also depends on the results of other research in documenting and measuring the *physical* relationships, e.g. measuring watershed outputs, soil erosion losses, quantifying biodiversity or the physical extent of carbon sequestration, which is still far from complete.

Any steps envisaged to slow the pace of tropical deforestation would benefit from much more information about trends in future supplies of both industrial and non-industrial products, the locations of forests, and the changing nature of societies’ demands upon forests. The corollary to stopping further clearance of forests, is the restoration of already degraded forests. Most aspects of decision making by households and groups about reforestation, whether on

degraded lands or productive lands, mirror studies on why deforestation occurs. The main difference with degraded lands is that there may be technical obstacles to overcome first, and that the likelihood of people choosing to plant trees on difficult sites is probably lower, because the potential benefits from all kinds of goods and services may be less.

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Table 1 - Selected basic statistics for Asia-Pacific countries

Country	GNP/Cap 1994 \$US	GNP Growth 1990-95 % pa	Urban Pop'n (%)	Per Capita Energy Consumption			Share of GDP- Agriculture %			Share of GDP - Services (%)		
				1975	1985	1995	1975	1985	1995	1975	1985	1995
South Asia												
Bangladesh	230	4.5	18.3	28	43	63	59.1	41.8		29.8	42.3	
Bhutan	400	5.9	6.4	2	17	35					28.4	
India	310	4.3	26.8	119	174	285	40.5	33		35.8	38.8	
Nepal	200	4.6	13.7	10	18	38	71.8	51.7	42.4	20.1	33.2	35.9
Pakistan	440	4.9	34.7	137	210	261	32.4	28.5	26	45.5	49	49.6
Sri Lanka	640	5.4	22.4	102	109	149	28	24.4		41.4	48.8	
China												
China	530	10.5	30.3	342	513	676		28.4	19.7		28.5	31.3
Rep Korea	8,220	7.9	81.3	665	1273	2801	24.5	12.5	6.6	42	46.5	49.8
ASEAN												
Indonesia	880	8.0	35.4	103	226	330	31.7	23.2	17.2	34.6	40.9	41.6
Kampuchea	240	5.2	20.7	2	19	19						
Laos	320	6.3	21.7	29	23	26		53.9	55.9		28.4	25.4
Malaysia	3,520	8.9	53.7	556	805	1,691						
Myanmar		5.4	26.2		57	40	47.1	48.2	62.1	42.2	38.7	28
Philippines	960	2.3	54.2	243	195	285	30.3	24.6	21.7	34.7	40.4	46.3
Thailand	2,210	8.9	20.0	215	314	705	26.9	15.8	10.9	47.3	52.3	49.2
Viet Nam	190	7.2	20.8		79	97		47.2	27.5		18.3	43.4
South Pacific												
Fiji	2,320	2.6	40.7		390	466					62.2	
Vanuatu	1,150	3.0	19.3	189	155	146					62.4	
Western Samoa	9,970	-5.2	21.0	134	250	285						
Papua New Guinea	1,160	6.2	16.0	189	219	193	29.6	33.3		43.2	40.1	

Source: Key Indicators of Developing Asian and Pacific Countries 1996 Asian Development Bank, Manila

Table 2 - Selected forest, cropland and urbanization statistics for Asia-Pacific countries

Country	Forest Area 1993 (1000 km2)	Forest Area 1975 (1000 km2)	Rural Pop 1995 (million)	Rural Pop 1975 (million)	For/capita 1995 (ha)	For/capita 1975 (ha)	Crop/cap 1995 (ha)	Crop/cap 1975 (ha)	Urban Pop'n (%)	Urban Grth 1970-95 (% pa)
<i>South Asia</i>	896.48	868.40	882.49	621.15	0.10	0.14				
Bangladesh	9.50	10.94	93.52	70.93	0.01	0.02	0.12	0.12	18.3	5.87
Bhutan	31.02	26.32	1.59	1.06	1.95	2.48	0.1	0.1	6.4	4.63
India	756.15	733.13	670.88	474.40	0.11	0.15		0.27	26.8	3.30
Nepal	45.06	52.10	17.78	11.97	0.25	0.44		0.18	13.7	7.47
Pakistan	33.44	27.86	84.76	52.26	0.04	0.05		0.27	34.7	4.40
Sri Lanka	21.32	18.04	13.97	10.53	0.15	0.17		0.14	22.4	1.73
<i>China</i>	1,449.15	1,343.58	839.82	769.52	0.17	0.17		0.11	30.3	3.40
Rep Korea	66.43	64.75	8.40	18.36	0.79	0.35		0.06	81.3	4.07
<i>South-east Asia</i>	2,258.40	2,567.84	317.99	247.98	0.71	1.04				
Indonesia	1,118.00	1,285.61	126.16	107.20	0.89	1.20		0.19	35.4	4.90
Kampuchea	118.92	135.21	8.09	6.41	1.47	2.11		0.3	20.7	3.43
Laos	128.35	145.63	3.68	3.00	3.49	4.85		0.22	21.7	5.93
Malaysia	223.93	225.58	9.31	7.54	2.41	2.99		0.38	53.7	4.37
Myanmar	333.56	331.06	32.99	22.75	1.01	1.45	0.23	0.33	26.2	2.90
Philippines	102.00	120.00	31.64	27.15	0.32	0.44	0.14	0.18	54.2	4.53
Thailand	135.46	186.77	47.52	35.19	0.29	0.53	0.36	0.4	20.0	3.60
Viet Nam	98.18	137.99	58.61	38.73	0.17	0.36		0.13	20.8	2.83
<i>Pacific Islands</i>	438.89	448.14	4.16	2.95	10.55	15.19				
Fiji	11.90	11.90	0.48	0.36	2.47	3.26		0.27	40.7	2.57
Vanuatu	9.15	9.10	0.10	0.08	8.97	11.09	0.89	0.99	19.3	4.30
Western Samoa	1.32	1.37	0.13	0.12	1.00	1.16	0.73	0.77	21.0	1.00
Papua New Guinea	416.52	425.78	3.44	2.39	12.09	17.84	0.1	0.13	16.0	4.50
ASIA-PACIFIC	5,109.35	5,292.71	2,052.86	1,659.96	0.25	0.32				

Table 3 - Two Forestry Production Systems

	State Forestry	Community Forestry, Tree Husbandry and Farm Forestry
Objectives	One dimensional, raw material for industry, protection.	Multipurpose and socio- economic objectives. Related to the consumer & producer. Self-reliance.
Technology	Imported, centralized, precedence over local technologies. Uniform and strictly adhered to	Varies. Indigenous, locally manageable. Imported technology must suit resources and needs.
Local Institutions	Unimportant as long as no encroachment.	Important. Used and supported as a resource.
Peoples Participation	Insignificant. People are target groups and consumers to be motivated, uplifted and/or employed.	A requirement for relevant production. People are a resource, an asset to be supported. Involvement and responsibility.
Role of People versus Experts	People are the problem experts the solution.	People are the solution and a resource . Experts support their development.
Local Solutions	Uniform	Diverse
Land	Government	Communal. Village, private.
Labour	Employed	Employed in the local system or self-employed.
Organization	Centralized "work order" system	Local, village production unit (e.g.. extended family).
Professional role	Segmentation	Integration with other farming activities.
Structure and Magnitude	Few large plantations with uniform management	A large number of small areas with diverse input requirements and production.
Legislation	Protective	Productive
Time Perspective	Long Term	Short term, or limited resources for delayed benefits.
Relation to other activities	Separate	Integrated in space and time in the small farmers' production system.

Source: Ohlsson and Byron (1989)

Table 4 - Estimates of employment in forest-based activities

Source (region)	Employment and Activity
Tewari, 1982 (India)	Tendu leaf collection provides part-time employment to 7.5 million people; a further 3 million people are employed in bidi processing; 3 million people are involved in lac (resin) production; 735,000 people earn income from sericulture; 550,000 people are employed in bamboo-based craft enterprises.
Jha & Jha, 1985 (India)	126,000 households are involved in Tassar silk cultivation.
Tandon, 1991 (India)	Match production by cottage industries employs 50,000.
Fisseha & Milimo, 1986 (Zambia)	25,000 are involved in the fuelwood trade.
Marks, 1984 (Zambia)	48,000 people are employed in charcoal production (36,000 of them are part-time charcoal producers and traders); 11,500 people are involved with bee-keeping; 96,000 households earn income from handicraft production.
Peluso, 1986 (Indonesia)	83,000 - 100,000 people are engaged in collection, trade and processing of rattan.
Engel et al., 1986 (Bo, Sierra Leone)	60% of the farm households in the region process palm fruit and kernels for sale.
Kaye, 1988 (Côte d'Ivoire)	Estimates 65,000 people are involved in rattan cane basketry part-time while 1,500 are involved full-time.
Schwartzmann et al., 1987 (Amazon)	Estimates that half a million people depend on latex as their main source of income
Browder, 1989	Estimates 1.5 million people derive a significant proportion of their income from extractive activities.

Source: Arnold (1994)

List of Working Papers already printed

APFSOS/WP/01	Regional Study - The South Pacific
APFSOS/WP/02	Pacific Rim Demand and Supply Situation, Trends and Prospects: Implications for Forest Products Trade in the Asia-Pacific Region
APFSOS/WP/03	The Implications of the GATT Uruguay Round and other Trade Arrangements for the Asia-Pacific Forest Products Trade
APFSOS/WP/04	Status, Trends and Future Scenarios for Forest Conservation including Protected Areas in the Asia-Pacific Region
APFSOS/WP/05	In-Depth Country Study - New Zealand
APFSOS/WP/06	In-Depth Country Study - Republic of Korea
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