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**Technical Report**

**A Review of  
Forestry Sector Policy Issues  
in Indonesia**

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The NRM Program's Forestry Resources Management team works with BAPPENAS and the Directorate General for Utilization of Production Forests (PHP) of the Ministry of Forestry and Estate Crops to support the sustainable management of production forests in Indonesia.

Work includes contributions to an improved policy and institutional framework for sustainable forest management; the development and implementation of sustainable forest management approaches and practices; and support for improved community-based forest management systems.

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## Abbreviations and Glossary

ADB	Asian Development Bank
APFC	Asia-Pacific Forestry Commission
BAPPEDA	<i>Badan Perencanaan Pembangunan Daerah</i> (Regional Development Planning Agency)
BAPPENAS	<i>Badan Perencanaan Pembangunan Nasional</i> (National Development Planning Agency)
BOD	Biochemical oxygen demand
CBFM	Community-based forest management
CIFOR	Center for International Forestry Research
Dbh	Diameter at breast height (1.30m)
DR	<i>Dana Reboisasi</i> (Reforestation Fund)
FKKM	<i>Forum Komunikasi Kehutanan Masyarakat</i> (Forum for Communication on Community Forestry)
FORDA	Forestry Research and Development Agency
GOI	Government of Indonesia
HKm	<i>Hutan Kemasyarakatan</i>
HPH	<i>Hak Pengusahaan Hutan</i> (Right of Forest Utilization)
HTI	<i>Hutan Tanaman Industri</i> (Industrial Forest Plantations)
HTI-Trans	<i>HTI-Trans-Terpadu</i> ('Integrated Transmigration' Plantation Forests)
IFAP	Indonesia Forestry Action Programme
IHH	<i>Iuran Hasil Hutan</i> (Forest Products Royalty)
IMF	International Monetary Fund
INHUTANI	State-owned forest enterprise
ITTO	International Tropical Timber Organization
KdTI	<i>Kawasan dengan Tujuan Istimewa</i> (Area for Special Purposes)
KP	<i>Kawasan Penyangga</i> (Buffer Zones)
KPH	<i>Kesatuan Pemangkuan Hutan</i> (Forest Operational Unit)
KPHP	<i>Kesatuan Pengusahaan Hutan Produksi</i> (Production Forest Utilization Unit)
KSM	<i>Kelompok Swadaya Masyarakat</i> (Community self-reliance groups)
MEFP	Memorandum on Economic and Financial Policies
MoF	Ministry of Forestry
MoFE	Ministry of Forestry and Estate Crops
NGO	Non-governmental organization
NRM	Natural Resources Management
NTFP	Non-timber forest products
PHPMT	<i>Pengelolaan Hutan Produksi oleh Masyarakat Tradisional</i>
PMDHT	<i>Pembinaan Masyarakat Desa Hutan Terpadu</i> (Integrated Village Development Scheme)
PP	<i>Peraturan Pemerintah</i> (Government Regulation)
PPTA	Project Preparation Technical Assistance

PSDH	<i>Provisi Sumber Daya Hutan</i> (Resources Royalty Provision)
REPELITA	<i>Rencana Pembangunan Lima Tahun</i> (Five-year Development Plan)
RI	<i>Republik Indonesia</i>
RKL	<i>Rencana Karya Lima Tahun</i> (5-year management plan)
RKPH	<i>Rencana Karya Pengusahaan Hutan</i> (20-year long-term management plan)
RKT	<i>Rencana Karya Tahunan</i> (Annual management plan)
RPPH	<i>Rencana Pengukuhan dan Penatagunaan Hutan</i> (Forest Land-use Plan)
RTRW	<i>Rencana Tata Ruang Wilayah</i> (Regional Level Spatial Plans)
RTRWP	<i>Rencana Tata Ruang Wilayah Propinsi</i> (Regional Level Spatial Plan for a Province)
TGHK	<i>Tata Guna Hutan Kesepakatan</i> (Consensus Forest Use Plan)
TPI	<i>Tebang Pilih Indonesia</i> (Indonesian Selective Cutting System)
TPTI	<i>Tebang Pilih dan Tanam Indonesia</i> (Indonesian Selective Cutting and Planting System)
TPTJ	<i>Tebang Pilih dan Tanam Jalur</i> (System of Selective Cutting and Line Planting)
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
UU	<i>Undang-Undang</i> (Basic Law)

## **Executive Summary**

This paper intends to provide a basis for discussion through a comprehensive review of forestry sector policy issues in Indonesia so that strategic priorities for policy change can be established. More specifically, the paper emphasizes the need to develop new policy directions for the Indonesian forestry sector. These new directions should support long term economic, social and environmental contributions of forest land and resources to Indonesian society.

For several decades, Indonesia has been facing the continuous degradation of its forest resources, despite a proliferation of regulatory texts and other policy issuances supposedly intended to ensure the sustainable use of forests. This report argues that most of the forestry sector problems affecting Indonesia today are derived from: a) the basic legal structure linking the forest resource to its users; b) forest land use planning and allocation procedures; c) excessive administrative pressure in the management of production forests; d) limitations in reforestation efforts and programs; and e) the ambiguous legal standing of rural communities. The various sections of the paper contain discussions supporting policy shifts in these problem areas, which are summarized below.

**The basic legal framework.** A basic legal issue that recurs throughout the paper is the conflict between restrictive utilization rights (*hak pengusahaan*), which pervade the present normative framework of the forestry sector, and broader management rights (*hak pengelolaan*) supported by other natural resource management legislation. A generalized shift from utilization to management rights should enable a higher degree of identification between forest resources and their users, and consequently a higher interest in sustainable resource management. This is a fundamental shift that can support a number of other changes, such as improved tenure structures, increased economic incentives, and management perspectives focused on the long term. Recent developments, like new regulations and a new forestry law under discussion, provide opportunities for policy improvements that should focus on the role of management rights.

**Land allocation and use.** From the standpoint of land use planning and allocation, various problems have arisen from the Consensus Forest Land Use Plan (TGHK), which established the present forest land categorization in the mid nineteen-eighties. This classification, despite its inaccuracies and inconsistencies, continues to form the basis of forest land allocation decisions. Following the Spatial Use Management Law of 1992, a reclassification of forest lands, guided by provincial authorities and involving the cooperation of all stakeholders was required. This reclassification has not yet taken place, even though it would provide an opportunity to correct the deficiencies of the TGHK. The Spatial Use Management Law of 1992 provides the legal framework for a

much broader and participatory land use planning process, where forest and non forest lands are mapped, along with other features necessary for land management within a province. The decentralization laws of 1999 provide an opportunity for shifting from land allocation control through centralized MoFE decisions, to land use planning for multiple stakeholders at more local levels.

**Management of production forests.** Natural production forests provide most of the raw material utilized by Indonesia's sizable forest industries. At the same time, timber harvesting is a major factor of forest degradation. A complex and excessively constraining regulatory framework, based on utilization rights (as opposed to broader management rights), motivates a behavior (on the part of both forest users and forestry authorities) that pays little attention to the maintenance of ecosystem productivity and environmental benefits. Regarding the use of production forests, there is a need to shift from a system excessively based on administrative compliance, concentrated on wood harvesting activities, to a new normative framework providing clarity and transparency of rights and obligations. This new framework should be grounded on management rights, other motivating incentives, technical standards driven by ecological principles, and control measures based on effects and outcomes.

**Reforestation programs.** Indonesia has developed an active program of industrial forest plantations (HTI) since the early nineteen-nineties, which constitute the bulk of recent reforestation efforts. While this is a welcome development, the HTI program is restrictive in that it requires an association between private companies and State forest enterprises. Additionally, these operations are most often associated with pulpmills, and involve land clearing permits covering areas much larger than the areas planted. While the HTI program represents a starting point, major shifts would be needed to develop a broad-based reforestation program that would take advantage of large areas of available land. These shifts would involve the creation of a battery of tenurial, fiscal, and financial incentives adapted to several conditions and scales (corporations, communities, households). Such incentives should help in developing an increasingly plantation-based forest economy, continue to attract investments into the forestry sector, and reduce pressure on the remaining natural forest.

**Rural communities and forest resources.** The ambiguous legal standing of communities living on official forest land continues to be a basic problem in the Indonesian forestry sector. This situation has evolved from regulations issued by different government authorities, which have resulted in the recognition of certain community rights by some texts and their denial by others. Consequently, there have been many land use conflicts involving communities, concession holders and government agencies. Issues related to community-based forest management are being actively debated nowadays, and a very broad range of ideas has emerged from such debates. Taking advantage of the decentralization laws of 1999, it is now important to concentrate on improved

legal instruments that will recognize the communities' rights to manage land and establish their legal personality status as local authorities.

Apart from these substantive issues, the paper presents discussions on economic incentives, international trade, and environmental protection, which strengthen and illustrate the main policy directions proposed.

We believe that the policy shifts suggested will contribute to the improved sustainability of forest resource management in Indonesia. Additionally, we believe that in implementing such changes, the linkages between management rights, economic incentives, and ecological principles will be essential.

## INTRODUCTION

The purpose of this document is to provide a basis for discussion through a comprehensive review of forestry sector policy issues in Indonesia. This review paper is intended for broad circulation among the Indonesian forestry community in order to gather opinions and sharpen the focus on the most substantive policy issues affecting the sector, so that strategic priorities for policy change can be established. This should be one of the steps in evolving toward a policy framework that will enable and encourage sustainable management of Indonesian forest resources, particularly Production Forests, where most of the current pressures are applied.

Since the early nineteen-seventies, the forest resources of the Republic of Indonesia have been a major contributor to the Nation's economic growth, primarily through their industrial utilization. These contributions have materialized in the form of foreign exchange, value added, employment and government revenue. However, between the mid-eighties and early nineties several expressions of concern began to surface regarding not only the capability of these resources to continue as a major factor of economic growth, but also concerning a number of social and environmental problems that have been brought about by their utilization. In this context, alarming figures on deforestation and forest degradation have been reported, as well as frequent instances of conflicts between industrial forest users and local populations.

As evidenced by a large number of legal texts and policy documents, starting with the Basic Forestry Law of 1967, Indonesia has been committed to the management of its forest resources with a long-term, multiple use, and conservation perspective. Successive texts regarding land use planning and environmental management, even as recent as the Basic Law on the Management of the Living Environment of 1997, have strengthened this perspective. In addition to this Indonesian view of sustainable forest resource management, in 1990, the Government of Indonesia (GOI) made a commitment to implement the International Tropical Timber Organization (ITTO) guidelines for sustainable forest management by the year 2000. The increased interest in sustainability is also evidenced by the thrust towards eco-labeling, by attempts to develop improved systems for timber concession allocation and management, and by a decade of debates on the rights of forest-based communities. Despite these commitments and the consequent efforts, concerns about resource degradation, environmental damages and social conflicts within the forest estate continue to be voiced, raising doubts about attaining the year 2000 time limit. In other words, the present reality of forest resource utilization raises serious questions as to whether the Indonesian forestry sector is really making progress towards sustainable forest management. Additionally, there is ample evidence that continuing degradation is affecting the capability of forest resources to continue to provide other goods and services such as non-timber forest products (NTFP), biodiversity conservation, soil and water conservation, recreational benefits and microclimate influences.

*By sustainable forest management we mean forestry practices and regulations leading to achieving or maintaining specific quality and environmental standards for a given forest ecosystem in which timber harvesting is one of a number of possible uses. This implies economically efficient and socially equitable management practices that allow for the cost of keeping the resource in a condition to produce a number of goods and services permanently, and the avoidance of major environmental disturbances.*

Since the early 1990s (Ministry of Forestry, 1991) there have been several studies examining the Indonesian forestry sector's policies. While these efforts have shown that public policies have been a major factor affecting the behavior of forest resource users (industry as well as local populations), the overall policy framework has remained virtually unchanged, at least since the early 1990s. Although numerous changes are being considered at present, most of these do not focus on the substantive issues.

While there was a serious attempt at forestry sector policy reform in early 1998 as a result of the Memorandum on Economic and Financial Policies (MEFP), signed between the GOI and the IMF, this ongoing effort has focused on a very limited number of policy elements (i.e. reforestation fund; trade restrictions; rent royalties; privatization, auctioning, period length and transferability of concessions; land conversion; and performance bonds). Additionally, the MEFP package of forestry sector policy reforms was driven by outside institutions and did not result from a reasoned evaluation of policies in collaboration with the GOI. As a result, this attempt has been far from comprehensive, since it does not include fundamental issues such as: precise definition of rights of resource management and utilization, the role of various stakeholders in land use planning (including that of regional and local authorities), environmental conservation, restrictive and excessive standards and procedures, enforcement and monitoring problems, and the legal status of forest dwelling communities.

Following the events of May, 1998 which brought about a change of government and the advent of an era of increased openness, many of these issues are being actively debated in a number of contexts. These include: the efforts of the Ministry of Forestry and Estate Crops (MoFE) and others in developing a new Law on Forestry (to replace the Forestry Law of 1967); the preparation of a new Government Regulation on Forest Utilization and Forest Products Harvesting in Production Forests (PP No 6 of 1999, replacing PP 21 of 1970 and PP No 7 of 1990); the issuance of MoFE Decree No 677 Kpts-II/98 on Community Forestry, and of several other MoFE Decrees of late 1998 regarding renewal, auctioning, size limits and participation of cooperatives in timber concessions. Finally, organizations like the *Forum Komunikasi Kehutanan Masyarakat* (FKKM) and a wide circle of NGOs have become very active in developing a current of public opinion favorable to the development of community-based forest management. Organizations like FKKM should also provide opportunities for constructive dialogue between the GOI, NGOs and other stakeholders.

Given the history of Indonesian forestry, with strong centralized control of the resource through a rigid regulatory framework, combined with a powerful forest products industry, policy changes of any consequence should not be expected to occur suddenly. However, the present period, characterized by a stronger will to bring about reforms in various aspects of Indonesian society, provides a special opportunity to motivate important changes in forestry sector policies. These changes should orient forest resource users towards improved management approaches and practices that will reduce the current rates of deforestation and forest degradation, and enhance more stable forms of use of the resource, while ensuring permanently its economic, social and environmental functions.

Eventual policy changes should focus on the following aspects of sustainable forest resource management: (a) policy and institutional requirements, incentive systems, administrative restructuring, etc. to orient the MoFE towards enabling and facilitating forest

management systems that are **outcome-based**;<sup>1</sup> and (b) specific changes in policy instruments, mainly incentives and other requirements (technical, economic, institutional) that are needed to orient **forest managers** (both industrial and community-based) to meet the standards of **outcome-based** forest management systems. Additionally, the preparation and implementation of policy changes should take into account the potential socio-economic consequences (i.e. costs and benefits) of both existing policies and proposed policy options.

Policy issues in the Indonesian forestry sector can be grouped in the following thematic categories:

1. The overall legal and regulatory framework
2. Land use planning issues in the forestry sector
3. Deforestation and forest degradation
4. Timber concessions
5. Forest plantations
6. Forest products trade and marketing
7. Community-based forest management
8. Economic incentives for sustainable forestry
9. Environmental conservation and protection.

These themes should cover all the major issues arising from the present Indonesian forestry sector policy framework, and should orient discussions and future work in a strategic evolution towards outcome-based directions for a forestry sector that can maximize its contribution to Indonesia's balanced and sustainable development.

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<sup>1</sup> The idea of **outcome-based** implies that the regulatory framework affecting forestry operations focuses on the condition of the forest as an end result, rather than on the administrative dispositions contained in the regulatory texts (Bennett et al., 1997).

## **1. THE OVERALL LEGAL AND REGULATORY FRAMEWORK**

From a legal standpoint, the main text controlling activities in the Indonesian forestry sector is the Basic Forestry Law of 1967 (UU RI No 5/1967). Apart from this text, there are a number of other Basic Laws, which, while not focusing directly on forestry, can also have important effects on relationships between forest resources and their users. The most important of these are:

- the Basic Agrarian Law of 1960 (UU RI No 5/1960);
- the Management of the Living Environment Law of 1982 (UU RI No 4/1982);
- the Conservation of Living Resources Law of 1990 (UU RI No 5/1990);
- the Spatial Use Management Law of 1992 (UU RI 24/1992);
- the Population Development and Family Welfare Law of 1992 (UU RI No 10/1992); and
- the Law on the Management of the Living Environment of 1997 (UU RI No. 23/1997), which explicitly develops, extends and enhances the Living Environment Law of 1982.

### **1.1 Gaps between laws and regulations**

These laws, issued over a period of more than 30 years, do not supersede one another. Rather, they are intended to complement and amplify one another. However, as they are formulated, these laws allow considerable discretion to implementing authorities, at both ministerial and provincial levels.

From a regulatory standpoint, however, activities in the forestry sector are controlled by literally hundreds of regulations and decrees of different levels that often provide directives in minute detail and are not always consistent with one another. One effect of this regulatory pressure is that most forest operators concentrate on administrative compliance, while essential components of sustainable forest management (such as maintaining forest productivity and ensuring environmental conservation) become secondary concerns, and are often neglected.

While the strategies and policies expressed in the Basic Laws generally provide the right orientations, there is clearly a gap between what is intended and what is in fact occurring in the forests. This gap may be, to some extent, the result of inconsistency between the framework provided by the Basic Laws and the regulations that are meant to support them, many of which have been narrowly focused on wood supply for industrial uses. Among other things, work on policy improvements will need to focus on strategies and incentives to facilitate better practices in the way forests are harvested, based on strict compatibility of laws and regulations.

### **1.2 Utilization rights versus management rights**

Apart from the problem of compatibility between what is intended by the Basic Laws and what is required by the regulations, a more fundamental issue arises from the types of rights that the State grants to users of forest resources. In this context, the Basic Forestry Law No 5/1967 is the primary source of authority and guidance for all forest administration and regulations. The

Law states that forest **utilization** rights (*hak pengusahaan*) may be granted to State, provincial, or private companies.<sup>2</sup> These utilization rights cover activities such as harvesting trees, reforestation, and processing and marketing of forest products, and are granted for a limited period of time, normally 20 years. A major weakness of these utilization rights is that they do not provide security of tenure, thus encouraging a short-term perspective on the part of rights holders.

A broader concept of rights applicable to the use of natural resources is that of **management** rights (*hak pengelolaan*). This concept appeared in a Ministry of the Interior Decree of 1973 (i.e. several years after the enactment of the Basic Forestry Law of 1967), and constitutes the first step of a legal structure of management rights, which was not substantially worked out until the eighties and nineties. The concept of *hak pengelolaan* is much broader and flexible than that of *hak pengusahaan* in that the holder of this kind of right can grant various rights – the right of use (*hak pakai*), the right to build (*hak bangun*), and even the right of ownership (*hak milik*) to third parties (Fox, 1994).

Since the early nineties, there has been a fair amount of debate as to whether or not the concept of *hak pengelolaan* should apply to lands under the administrative authority of the Ministry of Forestry. In fact, a number of important regulations, and even some Basic Laws support the primacy of management rights over utilization rights on forest lands. For example, an instruction from the Minister of Interior (*Menteri Dalam Negeri* No 26/1982) regarding Consensus Forest Land Use Planning (TGHK) makes it clear that all zoning boundary changes must have the agreement of the Minister of Interior via the Director General of Agraria (which has become the State Minister for National Lands). A further clarification of this instruction (*Surat Edaran Menteri Dalam Negeri* No 522.12/4275/Agr., of 3 November 1982) states the Ministry of Forestry must determine the legal status of all its lands including both Protection and Production Forest – both areas with and without concessions (HPH) – and should do so via the legal structure of management rights (*hak pengelolaan*). Other texts supporting the application of management rights in forest lands are the Spatial Use Management Law of 1992, and the Law Regarding Environmental Management of 1997 (Fox, 1994; 1999). However, despite all these supporting texts, official forest land continues to be managed through the granting of licenses under the narrower concept of utilization rights.<sup>3</sup>

A study on the Indonesian forestry sector conducted in 1993 under the sponsorship of the Asian Development Bank (ADB) argued very specifically in favor of *hak pengelolaan* as an essential policy element for forest resource management in Indonesia: “With the establishment of appropriate management rights, the MoFE will have the legal framework for allocating land on an ecologically sound and socially appropriate basis. *Inhutanis* would, in most cases, be the most appropriate holder of the right of management in areas of permanent forest and in all Production

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<sup>2</sup> *Hak pengusahaan* refers specifically to commercial utilization rights. Broader concepts of utilization also exist (e.g., *hak pemanfaatan*, or ‘right to obtain benefit’).

<sup>3</sup> All of the Basic Laws from the 1980s onward are phrased in a similar manner and overwhelmingly tend to support one another. They are, however, at variance with parts of the earlier Agrarian (UU RI No 5/1960) and Forestry (UU RI No 5/1967) Laws. A fundamental difference is that all the environmental laws refer to the management (*pengelolaan*) of natural resources such as the forest. The Spatial Use Management Law (UU RI 24/1992) even refers to ‘management rights’ (*hak pengelolaan*) over forest resources. Yet neither the Agrarian Law nor the Forestry Law recognize such rights. These differences at such a fundamental level are at the heart of the current debate concerning rights over forest resources (Fox, 1999).

and Reserve Forest. In some instances however, regional governments might be the "more appropriate holders of management rights" (Fox, 1994). The basis for this argument is that management rights form the basis of numerous government development enterprises, and land under a right of management is normally granted to state-owned enterprises and to regional governments.

Management rights on forest land apparently remain in the hands of MoFE as of today. On the other hand, these management rights for other public lands seem to have been transferred to users. This fundamental difference could be due to administrative interpretations of the law on the part of MoFE. In any event, it is important to pursue the debate and to determine, as precisely as possible, the extent to which MoFE is required to establish management rights on forest land, and to clarify the objective reasons why *hak pengelolaan* would constitute a better basis of rights and obligations for the sustainable use of forest resources than the currently applied *hak pengusahaan*. This assumes that management rights will provide a higher degree of tenure security than utilization rights.

### **1.3 Land use conflicts**

Another major issue regarding the present legal and regulatory framework affecting the Indonesian forestry sector deals with a fundamental problem of conflict between corporate forest users (essentially holders of various kinds of concessions) and local populations. The present legislation (particularly the Basic Laws), if it can be effectively implemented, is reasonable. However, none of this legislation addresses the central problem. The ITTO guidelines make clear that sustainable management depends on a 'compatibility' with the interests of local populations. What is needed is the development of common interests by all parties in managing the forest on an ecologically sound basis. None of the present legislation allows for these possibilities and therefore it cannot be said to meet or even approximate essential goals of the ITTO guidelines.

An area of concern is the continuing legal status ambiguity for many forest dwelling communities. Many of the legal rights and land tenure of indigenous communities have become ambiguous and uncertain under the current framework of Indonesian land and forestry law. While the idea of Community-based Forest Management (CBFM) is benefiting from considerable new momentum, there is a pressing need to establish clear forms of tenure for these populations to provide a solid basis for sustainable forest management. These issues will be further elaborated in Section 7.

### **1.4 Recent developments and future opportunities**

Recent developments in the Indonesian legal framework for the forestry sector include the issuance of Government Regulation PP No 6 of 1999 (replacing PP No 21 of 1970) on Forest Utilization and Forest Products Harvesting in Production Forests, and efforts on the part of the Ministry to develop a new Law on Forestry. PP No 6 of 1999, like its predecessor, continues to

focus on utilization (not management) rights, and remains concentrated on timber extraction.<sup>4</sup> This new regulation, however, does carry a new emphasis on forest communities and cooperatives, and provides for: the auctioning of concessions, limits on concession size, and the application of performance bonds. Regarding the development of a new Forestry Law, successive drafts have recognized the existence of populations in and around the forest and have dealt in various ways with the concepts of 'right to manage' (*hak mengelola*), right to use (*hak guna*), and 'right to obtain benefit' (*hak memanfaatkan*) (Fox, 1999). While a new Forestry Law has not yet been enacted and continues to be discussed, at least management rights have become part of the debate, in contrast to the Forestry Law of 1967.

Policy reform in the Indonesian forestry sector must rest upon improved legislation that will explicitly consider **management** rights, along with the tenure security dimension, as well as overcome the presently ambiguous legal status of forest dwelling communities. Essential to the policy reform process will be clear definitions and characterizations of *hak pengelolaan* and *hak pengusaha*, and other related rights, i.e. what they contain and do not contain, what they allow and do not allow.

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<sup>4</sup> Recently, MoFE has actively participated in discussions on a "new paradigm" focusing on forest resources for multiple purposes. However, regulatory texts recently issued by the Ministry continue to have a timber extraction orientation.

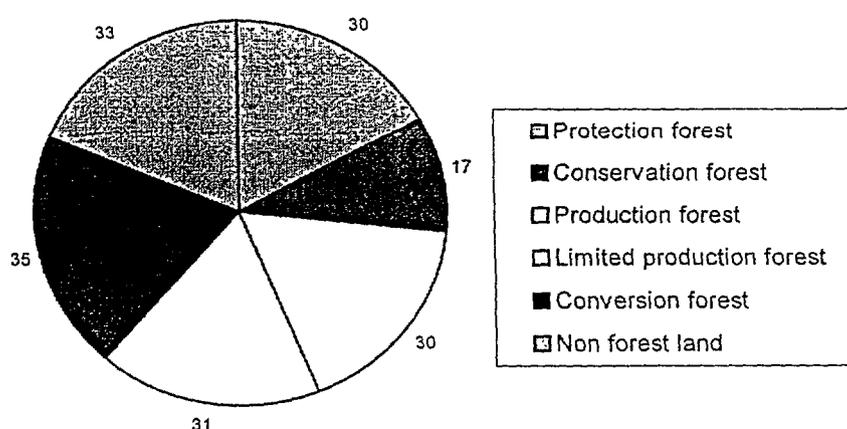
## 2. LAND USE PLANNING ISSUES IN THE FORESTRY SECTOR

Land allocation in Indonesia constitutes a major field of public policy, which is controlled by more than 300 regulatory texts. In particular, officially designated forest land covers an area of approximately 143 million ha, which represents roughly three quarters of the nation's land, and more than 80% of the national territory if the island of Java is excluded. All this official forest land area is under the administrative authority of the Ministry of Forestry and Estate Crops. As a result, the MoFE carries considerable weight in land use policy decisions.

### 2.1 Forest land classification

The areas designated as forest land and the delineation of categories of forest land "function" were determined for each Province through agreements in the early 1980s. The "function" categories are: (a) **Protection Forest** (intended primarily for watershed protection); (b) **Conservation Forest** (National Parks and other protected areas); (c) **Limited Production Forest** (intended for timber production compatible with protection from soil erosion); (d) **Production Forest** (designated for timber production); and (e) **Conversion Forest** (designated for conversion to agriculture and other land uses). The agreement, known as *Tata Guna Hutan Kesepakatan* (TGHK) or Consensus Forest Use Plan, was arrived at in 1984 with the participation of the Provincial Government Agencies of Forestry, Agriculture, Lands (Agraria), Public Works, Planning (BAPPEDA), and Transmigration (Clunie et al., 1994). The distribution of the forest area of Indonesia as of 1998, according to TGHK is shown in Figure 1.

Figure 1: Distribution of Forest Land Area [million ha]



Source: 1997/1998 Forest Utilization Statistical Yearbook

The TGHK attempts to deal with inter-agency conflicts over the use of land under the jurisdiction of the Ministry of Forestry. The Ministry prepared a Forest Land-use Plan (RPPH - *Rencana Pengukuhan dan Penatagunaan Hutan*) using forest categories and boundaries derived from the TGHK. As discussed below, the Spatial Use Management Law of 1992 requires an update of the TGHK under the authority of Provincial Governors. However, no updates have been completed to date, and forest land categorization continues to be based on the TGHK of 1984 (Fox, 1999).

## 2.2 Problems derived from forest land classification

A widely acknowledged problem with the current land classification based on TGHK is that it rests upon poor forestry and land resources information (no information on forest cover, or the physical environment) and a high degree of subjectivity. In most regions, the designations are deeply flawed, and there are many instances where land that should belong in the **Protection** Forest category is designated for **Conversion**. Additionally, a substantial proportion of **Conversion** Forest land has a forest cover which could be managed for sustained yield of timber and other forest-based services. In many provinces, the TGHK zoning is inconsistent, and often very inaccurate (Clunie et al, 1994).

Other problems with the TGHK classification are of a more technical nature. For example, the functional categories of forest land were originally delineated on small scale maps (usually 1:500,000), generally out of date, and later transferred to larger scale maps once nominal field checking had been carried out. The base maps were inaccurate and there are instances where the boundaries of the functional categories do not match on adjacent sheets. Additionally, the value of TGHK maps as instruments for land use planning and land allocation is severely limited because they contain neither any information about vegetation cover, nor a range of other characteristics of the physical environment, which have an important bearing on land capability. Despite these and other serious deficiencies, the TGHK maps have formed the basis for regional forest land allocation decisions.

## 2.3 Land use planning requirements under the Spatial Use Management Law of 1992

A wide-ranging change in land use policy came about with the enactment of the Spatial Use Management Law of 1992 which devolved authority for the categorization and gazetting of land, including forest land, to the Governors of the provinces. This Law (enacted several years after the TGHK agreements) requires the Governor of each Province to undertake the planning of spatial use for the territory and to provide a Spatial Plan for the Province, where forest and non forest land is mapped along with other land use features necessary for land management within the Province. Additionally, the Law calls for community consultation and involvement, as well as inter-sectoral cooperation, in the determination of the use of land, and it recognizes appropriate compensation for losses from the implementation of development activities. Finally, a specific result of the Spatial Use Management Law of 1992 is that the MoFE's classification of land identified via TGHK must be brought into accord with new Regional Level Spatial Plans

(*Rencana Tata Ruang Wilayah: RTRW*). For example, the transfer of Production Forest or Limited Production Forest to the category of Conversion Forest involves a complex decision process. Under this legislation, such critical decisions must be made at the provincial level in accordance with well-established spatial planning models. Until each province has an agreed upon Provincial Spatial Plan (*Rencana Tata Ruang Wilayah Propinsi: RTRWP*) there will continue to be controversy and conflict (Fox, 1994; 1999; Khan, 1999).<sup>5</sup>

REPELITA VI has insisted on the integration of the TGHK system with the requirements of the Spatial Use Management Law of 1992 focusing on clearly demarcated tracts of permanent forest. Other dispositions contained in REPELITA VI related to forest land use planning (following the Spatial Use Management Law of 1992) included: the consideration of ecosystem characteristics and regional socio-economic conditions for establishing forest function uses; the participation of communities living in or surrounding the forests in the management of forest boundaries and maintenance of forest stability; and the phased delegation to district governments of responsibilities for all forestry activities related to soil conservation and social forestry.

#### **2.4 A persistent problem and opportunities for solution**

The Law since 1992, and the National Planning Agency (BAPPENAS), require the collaboration of the MoFE in a much more participatory and decentralized forest land use planning process. This would bring about the additional benefit of correcting the deficiencies of the TGHK. The Ministry, however, has continued to use the old centralized planning framework as a basis for its allocation decisions despite its evident weaknesses. As an important step towards obtaining the Ministry's active involvement, it will be important to identify the reasons why the MoFE has not been willing to participate in the processes stipulated in UU RI 24/92. In this context, a major issue is the MoFE's administrative interpretation of the Spatial Use Management Law as to whether or not it applies to official forest lands. Unless the Law applies to all lands, including forest lands, the future use of the large majority of Indonesia's territory will continue to be decided by one centralized administrative authority, affected by erroneous information and without consideration of decentralized and participatory processes that have been legally established. This will be a major obstacle in solving the broad array of economic, social and environmental problems facing the Indonesian forestry sector.

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<sup>5</sup> For several years, there have been problems in understanding linkages between TGHK and RTRW. In most cases, the concept of RTRW was well known at the central government level, while it was not well understood by the provincial forestry authorities. As a result, there have been many instances in which concession holding companies have had difficulties in resolving boundary conflicts with local governments and communities (Erwinsyah, 1999).

### **3. DEFORESTATION AND FOREST DEGRADATION**

Recent estimates of deforestation in Indonesia range between 600,000 ha and 1.3 million ha per year. Major factors of deforestation are shifting cultivation, forest harvest and land clearing for plantations, both forest and non-forest. Land clearing is performed by various methods, of which the use of fire is one of the most important. Apart from deforestation (i.e. removal of forest cover), large areas, while maintaining some forest cover, have been degraded, particularly by logging operations. The MoFE reports annually tens of thousands of hectares of forest loss and damage due to fires, and land, soil or standing stock disturbances (Erwinsyah, 1999).

Resulting from the combination of these factors, the natural forest resource of Indonesia has diminished in area much more rapidly than was expected under TGHK, and the quality of the resource in large areas of the forest that remains has also diminished more rapidly than anticipated. This diminished forest cover, both in quality and in quantity is having major economic, social and environmental consequences. From a socio-economic standpoint, many areas are becoming less productive, while environmental consequences include external effects of soil erosion, irregularity in water flows, alteration of microclimates and loss of biodiversity. Environmental effects are discussed in more detail in Section 9.

#### **3.1 Shifting agriculture as a factor of deforestation**

Among the major causes of deforestation, unsustainable shifting agriculture, particularly within and around Production, Protection, Conversion and Conservation Forests, is a problem of increasing severity and has not been addressed adequately. Shifting cultivation is practiced in each of the functional categories of forest. Specifically, it is found in 15% of Native Reserves and Protection Forest, 25% of Limited and regular Production Forest and fully 60% of designated Conversion Forest (McWilliam, 1994). It is important to point out, however, that there is significant variation between systems of shifting cultivation across the country, ranging from long term comparatively stable traditional systems to more recent unsustainable incursions resulting from population pressures and negative impacts of migration.<sup>6</sup>

The overwhelming evidence of numerous anthropological and sociological studies points to the existence of two generally distinguishable 'local populations': (a) the indigenous local populations who have inhabited a particular territory for generations; and (b) the recent local populations who as a result of migration now occupy forest territory. The exploitation of felled forest land by recent (non-indigenous groups) is generally more opportunistic and more destructive than that of the local indigenous shifting cultivators. Transitional or opportunistic shifting cultivation is characterized by unsustainable extractive types of slash and burn farming frequently undertaken in recently logged Production or Conversion Forest areas. Practitioners of

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<sup>6</sup> Two major forms of migration have occurred in Indonesia in the last three decades: a) economic or spontaneous migration composed of migrants who come unbidden to an area; and b) transfers of population through "Transmigration," which is a GOI program that focuses on relocating people under a set of incentives. Both forms of migration have been factors of forest resource degradation.

these activities include entrepreneurial lowland farmers seeking rapid short-term commercial gains, and migrant communities (McWilliam, 1994).

Unless local people, including various categories of shifting cultivators are encouraged to cooperate in forest protection, it will not be possible to conserve forest resources. Unfortunately, the present forestry sector policy framework reflects a negative attitude towards forest dwellers in general and shifting cultivators in particular. In fact, Joint Decree from the Ministries of Agriculture, Home Affairs, and Transmigration and Forest Dwellers No 480/Kpts-II/1993, defines 'forest dwellers' as all individuals who reside, work in, or carry out permanent agriculture in forests.<sup>7</sup> Shifting cultivators are defined as people who practice shifting agriculture both within and outside the forests with or without permanent settlements. They are described as destroyers of the forest resources.

At present, and particularly since the events of May 1998, there are signs of improvement with respect to forest dwellers, as reflected in the recent decrees regarding community forestry (e.g. MoFE Decree No 677 Kpts-II/98) and the participation of communities in timber concessions (e.g. MoFE Decree No 752 Kpts-II/98). However, deforestation due to shifting cultivation is a massive problem involving millions of people and millions of hectares. As such, no solution can be expected without a major effort concentrated on the stabilization of rural communities, founded on comprehensive participatory land use planning schemes on forest land. This effort must also be supported by a legal framework focusing on land tenure and legal capacity of communities, where rights and obligations are unambiguously clear. Unless a major effort of this kind is undertaken, deforestation through shifting cultivation will continue to be a major problem. These issues will be discussed in more detail in Section 7.

### **3.2 Timber harvesting as a cause of forest degradation**

Timber harvesting, mainly through industrial concessions, is another major factor of deforestation and forest degradation. Approximately one tenth of the annual rate of deforestation in Indonesia is attributed to logging in natural forests (Sève, 1994). Major forces behind these impacts are a policy and regulatory framework that encourages timber extraction, and deficient enforcement. As a result, a considerable number of concessionaires do not adequately adhere to, or comply with management conditions stipulated in their license. In general, concession operations are characterized by inadequate planning prior to harvesting, inappropriate harvesting procedures and systems, poor road location and design, rigid log specifications, and excessive wood residue remaining in the forest following harvesting. These are all factors that contribute to the degradation of forest ecosystems (Applegate, 1994).

Deficient enforcement of concession management on the part of the MoFE is an important factor. The capacity of the Ministry to control the management of concessions is constrained due to limitations of qualified personnel and supporting facilities, which results in inadequate motivation to undertake the task. However, more important than enforcement of forest management regulations are the incentives provided by the regulatory framework

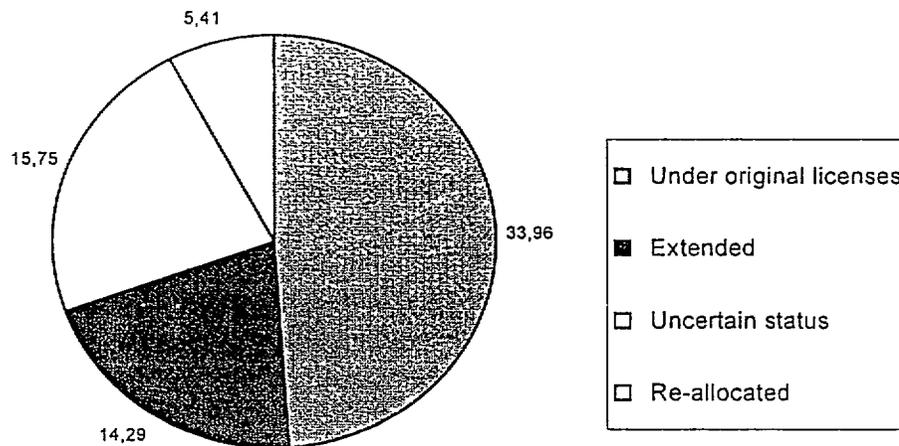
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<sup>7</sup> Implications of this decree are discussed in section 7, which focuses on community-based forest management.

controlling forest harvesting. These motivate operators to carry out their activities with a short-term perspective. Major elements of this framework include the limited scope of utilization rights, limited tenure periods, rigid prescriptions regarding various aspects of forest management, and burdensome reporting requirements. This type of normative framework encourages operators to harvest excessively, leave the residual stands degraded, and engage in other irregularities, such as the often mentioned “special arrangements” between concession holders and forestry authorities that hinder regulatory enforcement.

A reflection of this type of behavior is the fact that of 652 timber concessions originally granted, as of October 1998, only 293 remained in the hands of the original licensees. Among the concessions no longer managed by the original holders, some have been canceled due to illegalities, others are at various stages of renewal procedures, but the majority are not being renewed after expiry of the 20-year license period, either because of non-compliance, or due to the poor condition of the residual forest (Ministry of Forestry and Estate Crops, 1999). As a result of cancellations and non-renewals, it is estimated that approximately 16 million ha of forest land are currently under uncertain management status facing *de facto* open access, as shown in Figure 2. This situation encourages takeovers by shifting cultivators as well as illegal logging, thus exacerbating the deforestation and forest degradation problems.

Figure 2: Status of Timber Concessions as of October 1998  
[million ha]



Source: *Perkembangan Pengelolaan HPH Sampai Dengan Oktober 1998*

Some encouraging steps have been taken recently in order to correct this situation.<sup>8</sup> As already mentioned in Section 1, these include the discussion of successive drafts of a new legislative text to replace the Basic Forestry Law of 1967 and the issuance of PP 6 of 1999 (replacing PP 21 of 1970) on Forest Utilization and Forest Products Harvesting. However, a much deeper analysis of the effects of the current normative framework is needed to determine clearly why most concessionaires are not managing the forest, what would be the essential incentives that would motivate a drastic change in behavior from a short-term to a long-term perspective, and what it would take to get such incentives as part of Indonesia's forestry sector formal policy framework. These issues are further elaborated in Section 8.

### 3.3 The paradox of some reforestation policies

A more recent factor of deforestation has been, paradoxically, the establishment of industrial forest plantations, which along with the development of other forms of plantation estates has led to large areas of land clearing. In this context, as previously discussed in Section 2, the TGHK Consensus Forest Use Plan of 1984, with its inherent deficiencies, may have slated for conversion lands that should have been designated as Production Forest, or even as Protection Forest. Therefore the potential of land conversion as a factor of deforestation has roots in the forest land use planning schemes currently in effect, and changes in such processes will be an essential part of future solutions.

Apart from land use planning issues, reforestation policies designed in the early nineties, associated with a rapidly expanding pulp and paper industry, have had major land clearing impacts. The basis for Industrial Plantation Forests (*Hutan Tanaman Industri*: HTI) was established by government regulation (PP No 7/1990).<sup>8</sup> This regulation was followed by several ministerial decrees in 1990 and 1991, on concession applications, preparation of feasibility studies and environmental impact analyses. Pulp plantation forests can be granted an area up to 300,000 ha. Of special concern is the hinterland surrounding plantation sites. The areas logged for interim pulpwood supply are likely to exceed substantially the plantation area, and after logging for pulpwood, little prospect of natural regeneration will exist. Reportedly, with the rapid expansion of the pulp and paper industry during the nineties, land clearing and forest degradation for pulpmill furnish has exceeded by far the area actually planted. This stands to reason, since wood supply for a world class pulpmill requires between 50,000 and 100,000 of healthy plantations, while clearing up to 300,000 is allowed for each pulpmill site.

A major problem with the current reforestation policies is that deforestation could be one of their major effects. A complete evaluation of these policies is needed. An urgent step in this context would be to conduct a careful analysis of the wood supply conditions of the pulp and paper industry with the objective of keeping land clearing to a minimum and moving as rapidly as possible towards plantation-based wood supply. At present, large areas of land and considerable amounts of funds are available for establishing forest plantations. This constitutes

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<sup>8</sup> PP No 6 of 1999 has replaced PP No 7 of 1990 in addition to PP No 21 of 1970. However, Article 40 of the new PP stipulates that the implementation of the two old PPs remains in effect insofar as there are no incompatibilities.

an opportunity to develop a major national reforestation program which could form the basis for an Indonesian forestry sector increasingly based on plantations. These issues will be dealt with further in Section 5.

## 4. TIMBER CONCESSIONS

Since the early 1970s, timber concessions have been and continue to be the most important source of wood supply for the Indonesian forest industries.<sup>9</sup> The concession system was introduced in 1970 through the issuance of Government Regulation PP 21 of 1970 on Forestry Exploitation Rights. Following this regulation and the Basic Forestry Law of 1967, Indonesian timber concessions are known as *Hak Pengusahaan Hutan* (HPH). They are granted for a period of 20 years (renewable under certain conditions) and are based on the concept of **utilization rights** (*hak pengusahaan*), which allows activities such as harvesting trees, reforestation, and processing and marketing of forest products. As discussed in Sections 1 and 3, PP 21/1970 has been replaced by PP 6/1999. However, the new regulation maintains the HPH system as well as the emphasis on utilization rights.

### 4.1 A constraining regulatory framework

Apart from these basic rights, concessions are subject to approximately 140 regulatory texts that constrain concession management to a rigid administrative framework (Khan, 1999). Within this framework, concessions are also subject to elements of fiscal pressure (royalties and other forest charges) whose purpose is to “extract economic rent,” both to generate government revenue and, supposedly, to act as an incentive for sustainable management. As discussed in Section 3, however, there is ample evidence that this detailed regulatory framework has not been conducive to sustainable forest management. If anything, present policies may have had the opposite effect, as revealed by the current condition of a large part of Indonesian forests that are or have been managed under the HPH system.

Basic to the application of the regulatory framework controlling the HPHs are three major elements: (a) a hierarchy of forest utilization plans; (b) the Indonesian Silvicultural System with its two components *Tebang Pilih dan Tanam Indonesia* (TPTI) and *Tebang Pilih dan Tanam Jalur* (TPTJ);<sup>10</sup> and (c) a complicated reporting system for the volume and financial control of log transactions.

HPH holders are by law required to prepare utilization plans. The current utilization plans prescribed for concession holders are: (a) the 20-year long-term management plan known as RKPH (*Rencana Karya Pengusahaan Hutan*); (b) the 5-year management plan or RKL (*Rencana Karya Lima Tahun*); and (c) the Annual management plan or RKT (*Rencana Karya Tahunan*). In principle, these are technical exercises that should orient the forest production system in space and time to ensure efficiency of operation, maintenance of ecosystem productivity, and protection of environmental benefits. In reality, however, the sequence of plans looks more like a set of administrative hurdles that have to be complied with, and have

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<sup>9</sup> In recent years, however, the share of production from concessions has been declining relative to wood coming from conversion forest land.

<sup>10</sup> TPTI is currently being replaced by TPTJ (meaning “System of Selective Cutting and Line Planting”) in “lowland forests,” defined as forest areas on dry land with an elevation of less than 500m and a slope of less than 25% (Erwinsyah, 1999). The application of TPTJ is established by MoFE Decree No 625/Kpts-II/1998.

only minor effects on how the forest resource is managed, especially since there is no effective monitoring, evaluation or enforcement of plans.

The TPTI silvicultural system that was introduced in 1989, is designed to utilize the forest by applying appropriate harvesting methods, and to promote natural regeneration and increase growth of the residual stand. It is based on a polycyclic method using a cutting cycle of 35 years and allows the removal of commercial stems down to 50 cm dbh. It was designed to replace the previous system (*Tebang Pilih Indonesia: TPI*) under which non-compliance with some of the regulations was reportedly quite common. There are 11 steps in the TPTI which are specified with very rigid limits, including details of timing of the operations (Applegate, 1994). Apart from its rigidity, one major problem with the TPTI/TPTJ system is that it must be applied to all Production Forests in Indonesia. As such, the system is inflexible for accommodating the ecological characteristics and silvicultural requirements of different forest types. These differences may require different cutting cycles and different size class cutting limits to achieve sustainability. Additionally, the TPTI/TPTJ lacks a specific objective of forest management, since it does not define what kind of improved stand should result from forest operations. Clear objectives are essential in any kind of outcome-based forest management.

Regarding control procedures, these are concentrated on log transactions, while little ongoing monitoring takes place in the forest itself. At present, revenue is determined and collected at the mill. The control and sale of logs is determined by the three following processes: (1) through the working plans (RKPH, RKL, RKT), whereby forest areas must be inspected and plans checked for accuracy in relation to wood potential, concession boundaries and logging plan; (2) through control of logs by dimension and grade at the log yard by random sampling, with detailed reporting involved; and (3) through transportation authorization reports, also quite detailed. In total, there are over 25 reports required for monitoring log production and movement. These reports are filed by and distributed to many different bodies (Applegate, 1994). As a result of the limited enforcement capability of the local Forestry Administrations, there are many opportunities for irregularities in the log control procedures. Additionally, there seems to be little cross-checking of records, even though official procedures exist.

#### **4.2 Some basic ideas for improvement**

The complexity of the regulatory framework just discussed, has led to a considerable number of concessionaires not adequately complying with conditions stipulated in their licenses. There is ample evidence that the present concession system, along with its forest charges structure, provides opportunities for trespassing (logging theft and other irregularities), high grading (leaving a degraded residual stand), avoidance of payment, overharvesting, and causing environmental damage. These are major issues that can be approached through a system of motivating incentives, balanced with specific penalties for non-compliance. The details will be discussed further in this and other sections (especially Section 8). The structuring of such a system will require a thorough review of major elements, including present guiding policies, the legal and regulatory framework, the distribution of the forest resource, the condition of the resource, the structure of the industry and its raw material requirements, and other factors of pressure on the resource.

One possible starting point for such a major restructuring effort would be to focus on stability of resource tenure as a fundamental condition for long-term efficiency of resource use. This stability of tenure should be combined with sound technical packages including flexible silvicultural prescriptions, practices minimizing environmental damage, and operational planning. The remainder of this section will discuss the technical aspects, while the details of tenure stability will be taken up in Section 8. Environmental protection issues are covered in Section 9.

As discussed in Section 3, many concessions are currently in the process of renewal. Others have been either revoked or allowed to expire without renewal. This suggests that there would be an estimated 16 million hectares of forest land which currently are not benefiting from formal management, and thus provide an opportunity for applying new forest management policies and approaches. Efforts should aim at systems that could be simplified, understood by those concerned, be open, equitable, and operable by field staff with a reasonable level of resources and training. The application of such systems should not be limited to industrial concessions, but should be applicable to community-based operations as well.

A major requirement for sustainable management is the need for silvicultural interventions to be based on ecological principles. There is a clear need to understand, as far as possible, the ecological capability of the forest, and apply this knowledge in the development of silviculturally and environmentally sound management approaches. Silvicultural systems designed to ensure sustainability of natural forests rely heavily on the harvesting process as the major tool to manipulate the forest and increase productivity. Sound and appropriate harvesting operations for tropical rainforests involve the following: (a) determination of the sustainable yield, an accurate estimate of allowable cut based on cutting cycle analysis (determined on the basis of the productive capability of the forest) and net harvestable area; (b) development of harvesting plans compatible with sustainable yield to be followed rigorously; (c) harvesting guidelines which include appropriate tree marking, felling and skidding rules; and (d) implementation of environmental management procedures with defined standards (Applegate, 1994).

#### **4.3 The promise of the KPHP system as a “concept to work from”**

As of the early nineties, a new approach to concession management was being investigated: the *Kesatuan Pengusahaan Hutan Produksi* (KPHP) as an alternative to the traditional HPH. It was intended for permanent forest production, and involved a new rezoning of current concessions into management units at the Provincial level, with new boundaries agreed upon by all parties. This system is designed on the basis of a ‘utilization unit’ as the fundamental unit of management for Production Forests and has been supported by a series of Ministerial Decrees (Applegate, 1994; Clunie et al. 1994; Fox, 1994). While the KPHP option has been the subject of numerous studies, and has been field-tested in two pilot projects since 1994, its use has not become generalized, and the HPH scheme continues to be the basis for timber concessions. The KPHP concept appears as a promising new vehicle for the management of concessions, yet the legal structure for these kinds of concessional units is still based on ‘utilization rights.’

The KPHP concept builds upon a long experience of managing the forests of Java, where similar units (*Kesatuan Pemangkuan Hutan* or *KPH*) have proved to be more or less permanent despite intense pressures on forest land in areas of high population density.<sup>11</sup> A KPHP is legally defined as a unit of production, which can be managed, based on ecological and currently accepted utilization principles. The forest activities in these units may cover growing trees in plantations and natural forests, separately or in combination, as well as tending, harvesting, processing and marketing of forest products. Additionally forest stands can be managed with one or several silvicultural systems. From a social standpoint, the experience of established communities within or around the edges of the pilot KPHP study areas has indicated the need to involve the local population in the process of defining the forest boundaries, and the desirability of their involvement in future management activities (Applegate, 1994; Clunie et al, 1994; Erwinsyah, 1999).

Clearly, as compared with the HPH concession system currently in effect, the KPHP approach has a considerable number of advantages, and should be used as a starting point for developing the forest management units of the future. Some preliminary work was conducted in 1993 exploring the possibility of strengthening the KPHP concept with management rights (*hak pengelolaan*) instead of utilization rights (*hak pengusahaan*), as the concept is currently defined (Applegate, 1994). This work should be pursued further, linking the generic discussion on management rights in Section 1 to specific forest management issues. Part of this work should include the extent to which tenure security (again, an essential condition for long-term resource management) can be strengthened as rights change from **utilization** to **management**.

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<sup>11</sup> Note that the Java experience is based on the concept of *pemangkuan*, which combines 'utilization' and 'exclusivity.' On the other hand, the KPHP focuses on *pengusahaan*, i.e. strictly 'utilization.' Both concepts are mentioned in Article 10 of the Forestry Law of 1967.

## 5. FOREST PLANTATIONS

In most countries with an important forestry sector, there has been an evolution from the native forest resource towards plantations as an increasingly significant source of raw material for the forest products industry. This has been the case not only in developed countries (Northern Europe, Western Europe, USA, New Zealand), but in some developing countries as well (Brazil, Chile, South Africa). While the large majority of roundwood volumes in Indonesia still originate in the native forests, there is a steady trend towards increasing the area of timber plantations. While timber plantations have existed in the island of Java for more than a century, such plantations in the outer islands are a much more recent phenomenon. Forest plantations in areas outside Java were given a new boost in the early nineties with the concept of *Hutan Tanaman Industri* (HTI) or Industrial Plantation Forests. While agroforestry efforts and trees planted by households have also contributed to reforestation, HTI plantations constitute the bulk of recent reforestation efforts in Indonesia, which to date have been relatively modest.

### 5.1 The concept of HTI and its implementation

The basis for HTI was established by government regulation (PP No 7/1990). This regulation was followed by several ministerial decrees in 1990 and 1991, on concession applications, preparation of feasibility studies, and environmental impact analyses related to forest plantations.<sup>12</sup> The stated intention of these plantations was to transform degraded land into productive resource areas managed in a sustainable manner (Fox, 1999). From a legal standpoint, HTIs must be established by private companies in conjunction with a State Enterprise (normally with one of the *Inhutanis*) in order to receive funds from the Reforestation Fund (*Dana Reboisasi*: DR) for their efforts. They cover a concession period of 35 years, unlike the 20 years of the HPH, although both types of concession are based on similar utilization rights (Fox, 1994; Erwinsyah, 1999).

These plantation forests are divided into two kinds: (a) 'Pure' Plantation Forests (*HTI-Murni*); and (b) 'Integrated Transmigration' Plantation Forests (*HTI-Trans-Terpadu*, or simply, *HTI-Trans*). In the case of *HTI-Trans*, the Ministry of Transmigration is legally required to collaborate with the Ministry of Forestry, particularly regarding the supply of labor. The location of settlements for the *HTI-Trans* has to be in areas of Production Forests that are no longer productive, or areas designated as Conversion Forest. The conditions of these settlements are to follow standard transmigration practice, including the provision for farming and gardening land.

The standard practice for HTI is to allocate large areas of Production or Conversion Forest land and to require the concession holder to identify and propose the areas to be planted. Pulp plantation forests can be granted areas ranging from 100,000 to 300,000 ha, while other timber plantation forests (mainly for construction timber) have been granted areas of 1,500 to 53,000 ha. *HTI-Trans* concessions have been awarded areas that range from 3,800 ha to 22,000

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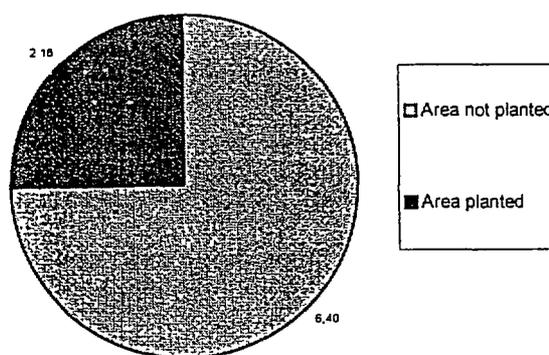
<sup>12</sup> As mentioned in Section 3, PP No 7/1990 has been replaced by PP No 6/1999. However, this change has had virtually no consequence on the implementation of the HTI concept.

ha (Erwinsyah, 1999). Regulations prescribe for HTI to be implemented on “unproductive forest lands” – defined as “those forest lands being economically unproductive, such as sparse forest, those covered by scrub and *alang-alang* grass, and bare land.” The Ministry has defined sparse forests as those with stands of commercial species with an average per hectare volume of less than 20 m<sup>3</sup> for trees with diameter greater than 30 cm. In principle, it is strictly forbidden to establish a HTI on land under HPH. However, this does not prevent land from being taken out of a HPH and transferred to a HTI, particularly if it meets the ‘sparse forest’ conditions (Clunie et al., 1994; Fox, 1994).

As mentioned in Section 3, with the rapid expansion of the Indonesian pulp and paper industry during the nineties, large areas for HTI have been granted in recent years. In fact, large numbers of HTI applications had been received as early as 1993, particularly in Kalimantan.

Following the discussion in Section 3, a major concern with the HTI program is the effect it may be having in terms of deforestation, particularly since the areas that need to be planted to furnish a sustainable supply of wood to major pulping facilities is considerably smaller than the land area allocated. Additionally, there is evidence that only a fraction of the HTI areas targeted for plantation are actually being planted, and that funds received from the DR specifically earmarked for reforestation are not being used for this purpose. As shown in Figure 3, as of late 1998, the total area allocated for HTI concessions was approximately 8.6 million ha, of which only 2.2 million ha had actually been planted.<sup>13</sup> Most of the HTI area has been planted with fast growing species suitable for pulping, while a more limited area carries construction timber or other species (Erwinsyah, 1999; Ministry of Forestry and Estate Crops 1999a).

Figure 3: Industrial Forest Plantations: Areas Allocated and Actually Planted [million ha]



Source: *Perkembangan Pembangunan HTI S/D bulan Desember 1998*

<sup>13</sup> In contrast, oil palm estates have been expanding much more rapidly. Given the option, investors may prefer the more rapid returns of oil palm, thus reducing interest payments on loans. In this context, it is significant that the major conglomerates involved in oil palm plantations are also involved in timber plantations (Potter & Lee, 1998; Fox, 1999).

Reportedly, the land clearing involved is also creating social problems for forest dwelling communities, mainly through displacements and other land use conflicts. Particularly with respect to *HTI-Trans*, guidelines and decrees set out the duties and responsibilities of the concession holders and the transmigrant communities. It is worth noting that the allocation of use rights on land for participants is restricted to 0.25 ha of garden land and 1 ha of diversification cropping land, but without secure tenure for the participant (McWilliam, 1994).

## **5.2 Opportunities for forest plantations beyond the HTI concept**

While the HTI concept represents a good starting point for a comprehensive reforestation program, major changes would be needed to make it effective. Given the considerable areas of deforested land and degraded forest, combined with the large amount of financial resources accumulated in the Reforestation Fund, an interesting option would be to design a number of funding instruments, adapted to several conditions and scales (corporations, communities, households), as financial incentives to encourage the development of forest plantations. These financial incentives could be combined with access to reforestable land, subject to firm and stable tenure instruments, as well as exonerations from at least some forest charges, and technical assistance. Such a battery of incentives could be a major building block in helping Indonesia evolve towards an increasingly plantation-based forest economy and continue to attract investments into the forestry sector. Apart from the obvious effect in mitigating deforestation, timber and fiber extraction concentrated on plantations would allow for a larger area of natural forest dedicated to various environmental benefits.

## **6. FOREST PRODUCTS TRADE AND MARKETING**

### **6.1 Trade policies affecting the plywood industry**

International trade of forest products in Indonesia has been characterized by a dramatic expansion of the plywood manufacturing industry during the 1980s. This industry, which currently produces approximately 10 million m<sup>3</sup> annually, has been typically export-oriented with 80 to 85% of its production sold in foreign markets. As a result, plywood manufacturing has been a major generator of foreign exchange for the Indonesian economy, with a total export value of US\$3 billion in 1990 and US\$3.9 billion in 1997 (Barbier et al., 1994; USDA, 1998).

The rapid expansion of the Indonesian plywood industry was affected by some policy decisions, the most important of which were restrictions on the export of logs since 1985, and on the export of sawntimber since 1989.<sup>14</sup> These restrictions were originally in the form of outright export bans, and were later applied through prohibitive taxes. This emphasis on replacing exports of raw material exports by manufactured products followed the plywood and sawntimber industries long established in Peninsular Malaysia, which had also benefited from log export restrictions. However, Indonesia went a step further in 1989 when plywood was favored to the detriment of sawntimber and other forms of wood products manufacturing (Fenton, 1996).

Because of its large timber resource base and abundant labor supply, combined with export restriction policies, Indonesia has been able to expand its plywood processing capacity, production and exports fairly quickly. However, these export restrictions on logs and sawntimber have resulted in domestic log prices that are significantly lower than international levels, bringing about processing inefficiencies, overcapacity, and consequently greater pressures on timber resources. Studies conducted both in Indonesia and Peninsular Malaysia have shown significant losses in value added and export revenue as a result of these policies (Barbier et al., 1994).

Some of these inefficiencies are reflected in a level of plywood capacity twice as high as that projected in 1980 (Fenton, 1996). Other inefficiencies are shown by volumes of wood waste estimated at one third to one half of the annual log input to manufacturing facilities (World Bank, 1994; Fenton, 1996). Under a different policy framework (that would not have plywood as a privileged option), much of this waste could be used in other forms of wood products manufacturing (sawntimber, veneers, various forms of composite panels, etc.) or even log exports.

If sustainable forest management is to be a viable land use option, it must yield net revenues that are greater than those derived from competing uses, such as conversion to estate crops or various forms of agriculture. Incentives linked to international trade are an important means of ensuring appropriate returns to sustainable management of tropical forests and making it an economically attractive land use option. However, trade policies favoring a particular type of product to the detriment of others, with their inherent inefficiencies, may reduce the expected

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<sup>14</sup> During the 1970s and up to the early 1980s, Indonesia had been a major exporter of logs, which provided large volumes of raw material for the forest products industries (mainly plywood) in Japan, South Korea and Taiwan.

returns to forestry activities and leave alternative land uses in a better position to compete for forest land, and may even result in deforestation pressures.

As a result of the MEFP negotiations, log export restrictions were officially lifted in early 1998 and replaced by a schedule of *ad valorem* export taxes declining from 30% in April 1998 to 10% in December 2000 (USDA 1998). However, no significant volume of log exports has been reported. This may be due to cumbersome procedures involving permits, quotas and reports required by MoFE. Additionally, export taxes are applied against "check prices," established by the Ministry of Trade and Industry, which have been significantly higher than actual international market prices. Although the GOI issued export licenses to 20 of 43 companies that applied in 1998, for a total volume of 460,000 m<sup>3</sup>, less than 20,000 m<sup>3</sup> were exported (Jakarta Post, 1 Mar. 1999). These developments suggest that old export restrictions have been replaced by new ones and that plywood manufacturing continues to be a protected industry.

## 6.2 Trade implications of forest products certification

Another major policy issue in the area of international trade deals with certification and "ecolabeling" of forest products. Since the early 1990s, several markets, particularly in Western Europe have shown interest in products certified as coming from sustainably managed forests. Some markets are even beginning to oppose forest products that are not certified. Additionally, there is an increasingly generalized interest in "environmentally" friendly" or "green" manufactured products of all kinds, and forest products are no exception. The issues raised in this section, far from implying an objection to forest products certification are an attempt to maintain the sustainability focus on the certification process.

Indonesia is currently embarked on a major effort to certify timber concessions as sustainably managed operations. However, it is common that a particular facility (e.g. a major plywood plant) procures raw material from several sources. If the products manufactured by this facility are to be certified, then all sources of raw material must be certified as sustainably managed. This "chain of custody" situation raises at least four questions: a) How long might it take to certify all concessions furnishing logs to a particular mill so that the **product** can be certified? b) Assuming a plywood manufacturing company furnishes logs to its mill from both its own and other concessions, what incentive does it have in getting its own concessions certified (a fairly costly process) if the other concessions are not interested in doing so? c) Would there be any commercial advantage in separating production lines according to "certified" and "non-certified" log inputs? and d) Given these difficulties, is there an incentive to commit irregularities, like getting a "sustainable" label for a product that does not satisfy all labeling requirements?

An additional issue is that if certain markets refuse to buy products that are not certified, this amounts to a non-tariff trade barrier. Therefore, through a reduction in demand, this would lower the value of non-certified forest products, thereby reducing the return to forest land in exporting countries. If the economic return to forestry activities is depressed by such trade restrictions, then alternative uses of forest land (estate crops or various forms of farming) will seem comparatively more attractive. There may be a real danger in that any scheme of product

labeling will discriminate against the import of tropical timber. Such restrictions, if allowed, will not be effective in reducing tropical deforestation and may in fact accelerate it.

Given the difficulties with product labeling and concession certification, it might be more appropriate to negotiate for “country certification” based on international commitments to adopt policies and practices leading to sustainable management of Production Forests, probably in collaboration with ITTO. This procedure would allow all products from a given country to be imported, based on periodic independent inspections that would certify progress towards sustainability (Barbier et al., 1994). In sum, certification should use international trade as a means to stimulate and support sustainable forest management, not as a means to impose trade restrictions that might have the opposite effect.

## **7. COMMUNITY-BASED FOREST MANAGEMENT**

For several years, community-based forest management has been a subject of debate in Indonesia. Beyond the debate, a few programs have been officially established.<sup>15</sup> However, despite the large number of forest dwelling communities comprising millions of individuals, the programs, in general, have hardly had any measurable effect on the well-being of communities. Rather, the relationship between the forest resource and forest dwelling communities has been characterized by land use conflicts involving these communities, other forest land users (mainly timber concessions and developers), MoFE and other government agencies.

### **7.1 New thrust for community-based forest management issues**

Following the events of May 1998, the debate on CBFM and other issues related to rural communities has acquired considerable momentum, with a large number of ideas being discussed. Additionally, under the leadership of Minister Muslimin Nasution, the Ministry of Forestry and Estate Crops not only has been an active participant in discussing the issues, but has also taken concrete initiatives through the issuance of Decrees No 677 Kpts-II/98 on Forestry Cooperatives and No 752 Kpts-II/98 requiring the participation of Forestry Cooperatives in the renewal of HPH concessions. These two initiatives are supported by PP No 6/1999.

Another important development surrounding the debate on CBFM has been the new vigor of the *Forum Komunikasi Kehutanan Masyarakat* (FKKM). This is essentially a nation-wide structure dedicated to discussing community forestry issues and providing suggestions to the different branches of Government (executive, legislative and judicial) on policy directions regarding rights and obligations of forest dwelling communities. A very broad range of ideas have come out of FKKM discussions, some of which even go to the extreme of legally transferring all forest lands to communities with full rights. While all ideas are welcome, at some point it will be necessary to focus the debate on a more limited number of options, guided by the realities of a very large nation, with a very large rural population, with an economy that should continue to grow, where there should be increasing demands for forest land and forest products, and where interests currently holding claims on forest resources will continue to assert their rights.

### **7.2 Problems derived from the ambiguous legal standing of rural communities**

A concrete issue that has faced forest dwelling communities for decades (i.e. since the expansion of industrial forestry in the seventies and eighties), is the continuing ambiguity of their legal status. Many of the legal and land tenure rights of indigenous communities have become ambiguous and uncertain under the current framework of Indonesian land laws, even though a number of texts, both legal and regulatory, have been issued since the early nineties, which direct

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<sup>15</sup> Social forestry and community forestry efforts sponsored in one way or another by GOI include: *Pembinaan Masyarakat Desa Hutan Terpadu*: PMDHT; *Usaha Pelestari Sumberdaya Alam*; *Hutan Kemasyarakatan*: HKM; *Pengelolaan Hutan Produksi oleh Masyarakat Tradisional*: PHPMT; *Pengelolaan Kawasan Penyangga*: KP; *Kawasan dengan Tujuan Istimewa*: KdTI; and *HPH Bina Desa Hutan* (Fox, 1999).

and facilitate the participation of local communities within the sector (McWilliam, 1994; Fox, 1999). However, these texts are apparently not applied or enforced by anybody.

Among the positive developments, The Spatial Use Management Law of 1992 calls for community consultation and involvement in the determination of the use of land and it recognizes appropriate compensation (*penggantian yang layak*) for losses from the implementation of development activities. In this context, REPELITA VI called for encouraging participation of forest dwelling communities in the management of forest boundaries and maintenance of forest stability.

Another positive development relates to the Population Development and Family Welfare Law of 1992. This text guarantees the 'right to the beneficial use of territory that constitutes a traditional customary inheritance' (Chapter III/Article 6/b). Elucidation of this article states that 'The rights of the beneficial use of territory that constitutes local inheritance guarantee that groups who have traditionally developed an area for generations may not be subordinated in importance by newcomers' (Fox, 1994).

However, along with these positive developments, ambiguities begin to appear in Ministry of Forestry decrees from the same period. For example, Ministry of Forestry Decree No 251 Kpts-II/93 reasserts the rights of populations with traditional communal rights (*adat*) to take both wood and non-wood products from concession areas. These societies, however, must be recognized as such by the *Bupati* of the area. The applicability of this decree depends entirely on a formally acknowledged recognition of the preexistence of *adat* rights by local government officials (although there have been some encouraging cases recently). Such rights are difficult to establish and therefore, formal acknowledgment is rarely given. Additionally, those who gather products must have the permission of the local head of forestry. The products are to be used explicitly for local consumption and not for commercial purposes. However, many communities have harvested forest products for commercial purposes. This decree is the particular target of most reformers (Fox, 1994; 1999; McWilliam, 1994).

Some regulations from that period have also been clearly negative with respect to rights of forest communities. As discussed in Section 3, in the Joint Decree of Ministers of Agriculture, Home Affairs, and Transmigration and Forest Dwellers No 480/Kpts-II/1993, 'forest dwellers' are defined as all individuals who reside, work in, or carry out permanent agriculture in forests. In the same text, shifting cultivators are defined as people who practice shifting agriculture both within and outside the forests with or without permanent settlements. These populations are described as destroyers of the forest resources and disturbers of the balance of the natural environment and of local and national development. The decree is based on the principle that these communities will be resettled outside forest areas and makes no allowance for *in situ* development. By summarily stigmatizing both groups, and by attempting to solve complex problems by radical removal, this particular decree has also been the target of virtually all parties calling for forestry sector reform (Fox, 1999; McWilliam, 1994).

As a result of these policy issuances, an ambiguous situation has been created whereby rights recognized by some texts are denied by others. When customary use rights of local communities are denied or overridden in the interest of large scale development, the local

communities are not likely to be interested in active forest management. Indeed, the opposite should be expected. It is important, therefore, that provisions be made for negotiated settlements and compensation procedures, and that some kind of formal legal tenure be offered to forest dwelling communities. This will encourage them to become stakeholders in the development of forest management systems. Improved legal instruments are required to provide security of tenure and the recognition of community rights (not only utilization rights, but management rights as well).<sup>16</sup> Nevertheless, policy directives and legislative arrangements, while creating the framework for community participation, do not of themselves achieve this result. Day to day involvement of local people in the design and implementation of field activities is just as essential.

### 7.3 Opportunities for progress

Recently, some encouraging developments took place with the official recognition of the *Kawasan dengan Tujuan Istimewa* (KdTI) in late 1997 and the Ministerial recognition of *tanah ulen* (Dayak Ancestral forest land) in East Kalimantan in early 1998. However, these case-by-case events are still far from constituting a generalized recognition of the rights of forest communities. As for a new legal and regulatory framework that will remove the existing ambiguities, debates on community forestry are rapidly becoming more structured, broad-based and realistic. These debates need to be pursued at least until a basic structure of legal rights and obligations and mechanisms for their implementation are acquired. In this context, the recent laws on decentralization and deconcentration (UU RI No 22/1999 and No 25/1999), and ongoing deliberations regarding their application are most welcome.

A key consideration in a structure of legal rights is the ability of communities to obtain some form of legal personality. Without this basic characteristic, communities cannot acquire rights or contract obligations, and have no legal power to transact or negotiate. Since the establishment of legal personality creates a structure of rights that does not exist at present, this should be a matter of law (as opposed to regulation). A possible starting point for the legal development of communities could be the 'Community Self-reliance Groups' (*Kelompok Swadaya Masyarakat: KSM*). These groups can be formed along traditional lines, and several different groups can be formed in any poor village. Additionally, activities of the KSM can take place in almost any field of gainful endeavor (Fox, 1994; McWilliam, 1994). Other forms of association, including municipal models should be explored as well (Sève, 1999).

With the assistance of NGOs and foreign-funded projects, there have been numerous attempts at implementing community-based forest management under various approaches and models. In particular, it is recognized that many national and regionally based non-government agencies within Indonesia have a long and successful history of promoting active community participation in development, and should continue their involvement in the broadening and expansion of CBFM programs.

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<sup>16</sup> Tenure rights have the four fundamental characteristics of **exclusivity**, **transferability**, **divisibility** and **enforceability**. These are discussed in Section 8, which deals with economic incentives. Any recognition of community rights must pay close attention to these concepts.

These pilot efforts, of course, have had the benefit of a special legal status provided by project agreements, which normally lapse with project completion. However, they can provide valuable lessons of experience on what may or may not work under a variety of circumstances, on what the interests of the different communities are, and on how they can interact with local governments and corporate enterprises. Given the broad variety of situations in which CBFM can take place, the lessons of experience should be examined in specific contexts, and the information organized into categories such as: community forest products enterprises, participation in concession management, agroforestry schemes, smallholder plantations, traditional farming and forest management systems, marketing cooperatives, and others.

In the end, a fundamental principle is that active community participation is directly related to the degree of demonstrable benefit, including legally established decision powers. Communities are unlikely to support programs that do not have a tangible and relatively immediate direct benefit. The presently recognized inadequate level of community participation in the forestry sector is a reflection of this principle. Poor levels of participation reflect poor levels of benefits. Future CBFM work, particularly that of developing a clear and solid legal base must always be guided by this principle. As a basic part of this "benefits principle" it is important to make progress towards the legal personality of communities, which allows for decentralized and autonomous decision making through deliberative processes (Sève, 1999).

## **8. ECONOMIC INCENTIVES FOR SUSTAINABLE FORESTRY**

Economic incentives have already been discussed generically as a set of factors that should motivate improvements in forest management. Incentives also figure prominently in the various ways in which the present policy framework and its application motivates operating behaviors that have led to forest resource degradation. There is a need for new sets of incentives to change current ways of using forest resources.

Economic incentives are often discussed in terms of financial instruments imposed by an official authority, such as taxes or subsidies. These instruments affect the prices of goods and services, thus changing the behavior of producers and consumers in their attempts to maximize economic magnitudes, i.e. well-being, profit margins, asset accumulation and other kinds of benefits. In a broader sense, however, an economic incentive can be any factor affecting the motivation of economic agents in their attempt to maximize these magnitudes. Economic incentives, therefore, can also include legal rights and obligations, tenure institutions, and the extent to which markets are allowed to operate more or less freely.

### **8.1 The continuing emphasis on “rent capturing” and its effect on concession holder behavior**

In the particular case of the Indonesian forestry sector, serious discussions on certain economic incentives (particularly fiscal) took place in the early nineties within the framework of the Indonesia Forestry Action Programme (IFAP) (Ministry of Forestry, 1991). At that time it was argued that royalties charged by the government for timber harvesting were too low and that raising these royalties would contribute to more sustainable resource management and waste reduction. This philosophy of “rent capturing” as a factor of economic efficiency and social equity has been supported by a number of academic studies and other technical reports (Gillis, 1992; Grut, 1991; World Bank, 1994). As a result of the IFAP policy recommendations, the fiscal pressure on timber harvested from HPHs was increased substantially. However, despite successive increases in forest charges, deforestation and forest resource degradation derived from logging have continued to be serious problems in Indonesia, as mentioned several times in previous sections of this document.

Since the mid-nineties, there have been analyses questioning the “rent capturing” philosophy as a factor of sustainability (Hyde et al., 1990; Paris et al. 1991; Sève, 1994). These analyses have examined whether other incentives can come into play to motivate improvements in the management of natural forests. As discussed in Section 3, it is apparent that HPH operators are motivated by the present policy framework to carry out their activities with a short-term perspective, involving excessive harvest, degradation of residual stands and various other effects in the interest of short-term profits.

A basic policy objective concerning natural forest management would be to motivate operators to develop a long-term perspective whereby the regeneration and future productivity of residual stands would be maintained. This implies that operators would have to adjust harvesting methods and undertake post-harvest activities (mainly rehabilitation of landings, draining of skid

trails, closing of secondary roads and applying protection measures) to maximize the value of the second and subsequent harvests. Such adjustments and activities would entail additional costs. However, in order to be willing to incur such costs, the operator should be able to benefit from the expected value of the maintenance of stand productivity leading to future harvests. The present policy framework controlling concessions, however, provides no motivation for residual stand maintenance, since the value of the required investments cannot be capitalized by the operator. Additionally, as a result of increasing forest charges, policies make the wood more expensive to extract, while they do not make it expensive to damage residual stands.

Clearly, the present structure of economic incentives in the forestry sector does not encourage long-term investments in the management of natural forests. Incentive deficiencies also appear to exist in the case forest plantations. As mentioned in section 5, only a fraction of the area allocated for forest plantations has actually been planted. Therefore, the behavior of concession holders, seems to reflect a general lack of interest in forest productivity investments.

## **8.2 Recent attempts to adjust economic incentives under the MEFP**

The MEFP package of early 1998, requires the application of a number of economic instruments to enhance sustainable forest management. These include a restructuring of forest rent royalties, the auctioning of concessions, the lengthening of concession periods, the transferability of concessions and the application of performance bonds. Among these, one of the few that has been fully implemented is the restructuring of forest rent royalties in replacement of prohibitive export taxes for logs and sawntimber (by virtue of Decree No. 25/MPP/Kep/6/1998 of the Ministry of Industry and Trade, dated June 8, 1998) (USDA, 1998).<sup>17</sup> This restructuring, however, has resulted in no more than another increase in fiscal pressure on timber harvesting, which is still consistent with the prevailing "rent extraction" philosophy and is unlikely to have any effect in improving timber management practices.

As for the other instruments, most are still pending. An important dimension, affecting all these instruments, however, continues to be the basic rights structure under which they will be applied. If utilization rights continue to prevail in their present form, the lengthening of the concession period may be of little consequence. As for auctioning and transferability, what would be gained from transferring no more than utilization rights? Finally, the application of performance bonds can have some effect under the restrictive utilization rights, especially if such bonds focus on environmental protection and are administered over short periods. However, they can be considerably more effective if operators are motivated by a long-term perspective with full tenure rights.

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<sup>17</sup> The royalty structure prior to MEFP (*Iuran Hasil Hutan: IHH*) consisted of specific charges differentiated by location and type of wood. The new "Resources Royalty Provision" (*Provisi Sumber Daya Hutan: PSDH*) is an ad-valorem charge applied against reference prices periodically established by decree, which do not necessarily reflect market values.

### 8.3 Tenure rights as an essential condition for economic efficiency and sustainable management

A key element in motivating a long-term perspective rests upon clear and unambiguous rights of **usufruct** on timber concessions affecting both natural forests and forest plantations. While the land itself can remain owned by the State, there should be a structure of concession rights that can be "owned" by the operators. These should have the four fundamental characteristics of tenure rights, i.e. **exclusivity** (potential returns on investments performed on the concession belong to the operator and to no one else); **transferability** (the operator is allowed to sell his concession rights at anytime, thus allowing concessions to migrate to concessionaires interested in sustainable forestry); **divisibility** (the operator is allowed to sell his concession rights on part of the concession area if he so chooses, thus allowing concessions to attain their most efficient size); and **enforceability** (concession rights have legal force and are protected by the State, thus ensuring that exclusivity, transferability and divisibility are effective).<sup>18</sup>

Apart from the right of **disposal** of the land, which would remain vested in the State, these rights of **usufruct** are very similar to full property rights from the standpoint of resource use. Under full rights, experience has shown consistently that resource tenure is a much more fundamental condition for long term efficiency than "rent capturing" by the State. A fundamental question, however, is whether present Indonesian forest legislation, with its basis on **utilization** (*hak perusahaan*) rights, would allow for such usufruct rights to be established. Additionally, the concept of **management** rights (*hak pengelolaan*) must be thoroughly investigated to determine to what extent it includes the concept of usufruct as discussed above.

Other economic instruments, such as a combination of auctioning, rolling license periods based on periodic inspections, and performance bonds for ecosystem maintenance and environmental protection (covered in Section 9), can be elaborated as implementation tools, but tenure rights are essential for motivating the long term perspective necessary for sustainable forest resource management. Tenure rights, with the characteristics discussed above, are necessary conditions for economic agents to become interested in forestry or any other kind of land use investments. They apply to individuals, communities and enterprises, as long as they have the legal capability to acquire rights and contract obligations. They also apply to natural forests as well as plantations. Indeed, as discussed at the end of Section 5, a much stronger emphasis on forest plantations combining tenurial, financial and fiscal incentives should be considered as a high policy priority for the Indonesian forestry sector.

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<sup>18</sup> Full tenure rights in and of themselves will not guarantee a "long-term perspective." Along with these rights, the possibility of capitalizing investments must be present. If the return on investment in maintaining regeneration and future stand productivity is lower than alternative rates of return, such investments are not likely to occur regardless of tenure rights. Under a full tenure rights structure, productivity investments can be expected to occur in some, but not in all harvested forest lands.

## 9. ENVIRONMENTAL CONSERVATION AND PROTECTION

Estimates of total log production in Indonesia vary between 30 and over 50 million m<sup>3</sup> per year.<sup>19</sup> This volume comes primarily from natural forests either through HPHs or land conversion licenses, with minor amounts coming from timber plantations. Such a substantial level of extraction may inflict considerable environmental damages, primarily through soil erosion and alteration of water flows, but also through loss of biodiversity and contributions to global warming. These environmental damages, while inflicted by logging operators, are normally endured by other sectors of society. While operators are in a position to control the degree of damage, they have little incentive to do so, since they do not suffer the consequences.

### 9.1 Environmental damages derived from forestry operations

Timber extraction requires large amounts of roadways, skid trails, and landings, which imply major movements of soil. Additionally, these infrastructure elements if improperly constructed or maintained, can be major factors of soil erosion. In Indonesia there is ample evidence that typical timber concessions apply poor road construction, maintenance and drainage practices (Applegate, 1994; Klassen, 1997; Bennett et al., 1997; MacDonald et al., 1998). Additionally, inadequate planning and layout of logging blocks with excessive amounts of improperly designed skid trails are frequent. These are all practices that can have several downstream effects.

Soil erosion can have impacts on water quality, primarily through suspended solids, but also by increasing biochemical oxygen demand (BOD), and perhaps through other chemical reactions, all of which can affect downstream users of both potable and process water. Seasonal water flow patterns can also be affected as a result of altering the vegetative cover of watersheds. Erosion also can inflict direct damage to infrastructure such as roads and bridges, and human settlements in the form of mud flows. Finally, the life span of hydroelectric and irrigation dams can be considerably reduced as a result of erosion.

Loss of biodiversity and contributions to global warming are less evident and the damages derived from them are much harder to assess than those from erosion. However, to the extent that logging of the natural forests is a factor of deforestation, declines in biodiversity are virtually inevitable, and the carbon sequestration capability of ecosystems can be substantially reduced.

Forestry activities can also have effects on air pollution and carbon emissions. These effects, however, are limited to particular cases. One of these is the increase in fire hazard in peat soils. Peat fires burn persistently and their fumes can have a more permanent effect on health and visibility than other types of forest fires that normally occur in Indonesia (BAPPENAS, 1999).

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<sup>19</sup> The lower bound is based on log production reported by MoFE; the upper bound is derived from the installed capacity of the forest products industry.

In analyzing the environmental effects of forestry operations, it is basic to consider the economic effect of the damage, and not only its physical dimensions. A given logging operation may generate large amounts of soil movement with little if any economic impact if there is no downstream human activity to endure the effects. This is an essential consideration in designing policy instruments of environmental control. The application of a given measure must consider both the costs and the benefits of environmental protection in an effort to provide the highest net gain to the economy at large.

## **9.2 The legal and regulatory framework on environmental protection**

Indonesia has a number of legislative texts that deal directly with environmental protection. Among these, the most important are: a) the Management of the Living Environment Law of 1982 (UU RI No 4/1982); b) the Law on the Conservation of the Living Environment and its Ecosystems of 1990 (UU RI No 5/1990); c) the Spatial Use Management Law of 1992 (UU RI No 24/1992); and d) the Law on the Management of the Living Environment of 1997 (UU RI No. 23/1997). All these laws, which are phrased in a similar manner and support one another, constitute a legal framework that: i) requires that the natural environment be managed in a sustainable fashion; ii) establishes obligations to exercise a function of environmental protection to holders of rights on land and water; iii) sets out principles of land use; iv) defines environmental damages; v) creates the legal basis for environmental audits; and vi) determines penalties for environmental damage (Fox, 1999). Additionally, regulations require the preparation of environmental management and monitoring plans for the renewal of natural forest concessions, the awarding of new natural forest concessions, and the development of timber plantations (Ministry of Forestry and Estate Crops Decrees No 731 and 732/Kpts-II/1998 and PP No 6/1999).<sup>20</sup>

Despite this detailed legal and regulatory structure, environmental damage associated with forestry operations continues and may be increasing as the effects of newly opened logging blocks accumulate with those of previously harvested areas.

## **9.3 The potential of improved practices and related incentives**

Over the past few years, there has been a fair amount of emphasis on reduced impact logging and other practices dealing with mitigating environmental damage in forestry operations. This emphasis has been reflected by various studies and reports, workshops, and training courses, not only in Indonesia, but also in several other countries (Klassen, 1997, 1998; Sist et al., 1998a & b; Asia-Pacific Forestry Commission, 1998; Applegate, 1998). Indonesian foresters have been particularly active participants in all these events, in which a number of applicable standards have been developed and disseminated. However, these standards are having difficulty in gaining acceptance by field operators. This reluctance may be linked to the perception that the application of certain harvesting standards may increase logging costs, and to the natural tendency to continue doing things as usual. While at the moment there is no definitive answer on

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<sup>20</sup> These recent regulations replace texts from 1990 that also required environmental impact assessments.

the financial advantage of reduced impact logging, preliminary evidence suggests that there can be significant increases in volume extracted for a given amount of volume felled. This extra volume recovery may become a “financial” advantage provided that there are value added options for the incremental volume.<sup>21</sup>

From a broader perspective, however, the value of this extra volume recovery would be added to the net benefit of reduced environmental damages and may lead to major advantages for the economy at large. While the operator would not capture directly the economic advantage of his improved environmental behavior, incentives could be provided, for example, by means of an environmental performance bond.<sup>22</sup> This instrument would be based on an estimate of the value of the environmental damage that could be caused by a logging operation, and the operator would have to deposit a sum equivalent to this potential damage estimate. Periodic inspections, based on the application of specific environmental standards would determine whether the operator would have to forfeit the bond, or recover it either partially or totally.

In order to get to this point, the standards (which are already at an advanced stage of development) would have to be officially accepted. Once accepted, they would have to be popularized through a strong training program, and performance bonds would have to be applied on a case-by-case basis depending on the environmental damage that each operation would be expected to cause.

Potential environmental damages other than soil erosion can be mitigated through stipulations included in an operation’s management plan. These are contractual documents and sanctions can be applied in case of violations. Biodiversity, for example, can be handled within the context of the plan’s silvicultural prescription, which would include biodiversity protection as a component of the post-logging forest. As for the forest’s carbon sequestration potential, this can also be included in the silvicultural prescription, since it is related to the ability of a particular stand to recover after harvesting.<sup>23</sup> Finally, potential environmental damages derived from fire belong in a fire management plan, which should be required from every operator.

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<sup>21</sup> This may not be the case if large amounts of raw material volume are forced into plywood, as has been the case in Indonesia, but with the opening of markets, several other options may appear (e.g. various grades of sawntimber and various types of composite panels).

<sup>22</sup> Other incentives for this purpose could be based on exonerations from forest charges.

<sup>23</sup> “Joint implementation” efforts linking forestry operations with foreign producers of carbon emissions have been undertaken on a pilot basis and may have some future as economic incentives. However, the cost-effectiveness of these projects remains uncertain, particularly once transaction and monitoring costs are considered (Brown et al., 1997)

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