IMPACTS AND EFFECTIVENESS OF LOGGING BANS IN NATURAL FORESTS: PHILIPPINES

Ernesto S. Guiang

INTRODUCTION

The Philippines' forestry sector has been the subject of numerous studies and analyses over the last two decades. Among these studies are those of Revilla (1998); USAID (1989), World Bank (1989), Bautista (1990), Sajise and Pacardo (1991), DENR (1990a and 1990b), FMB/DENR (1999), ESSC (1999a), FMB/DENR (1998), Pollisco (1999), Abracosa (1999), Angeles (1999), de Jos Angeles (2000), and various annual reports of the wood industry association. They confirmed that the Philippine forests were abundant in the 1950s and a major source of export revenue in the 1960s and 1970s. The country's forests, however, were largely deforested in the 1970s and converted into agricultural areas in the late 1970s and 1980s. The forests and deforestation became a major focus of democratization and biodiversity preservation movements in the 1990s (Bernas 1990; Sanvictores 1997a and 1997b; Garrity et al. 1993; Guiang 1993; Angeles 1999).

Deforestation affects upland and lowland communities alike, and causes many problems including increased open access, marginalization of the uplands, migration of lowlanders to the uplands, inadequate livelihood opportunities in the uplands, decreasing forest productivity, increased erosion and siltation, loss of biodiversity and deterioration of watersheds. The impetus for the massive deforestation includes inconsistent policies, resource allocation that favors the rich and politically influential, illegal cutting, and a centralized and ineffective bureaucracy. The problems are exacerbated by "quick fix" solutions, and poorly designed and implemented reforestation and industrial tree plantation programs.

Forest cover

The forest cover of the Philippines ranks as one of the 11 poorest among 89 countries in the tropics with a per capita forest cover of about 0.085 ha. It declined from 70 percent of the total land area in 1900 to about 18.3 percent in 1999, or just over 5 million ha of residual and old-growth forests (ESSC 1999a). Old-growth forests are estimated to cover less than 1 million ha (Table 18) and are mostly located in protected areas, reserves, concession areas, and cancelled/suspended/expired concession areas. The forest cover is projected to decline to 6.6 percent of total land area by the year 2010 without commitment and budgetary support for programs that recognize and address the interests of the rural poor living in the forest. Conversely, the forests are expected to increase to 19 percent of total land area by 2010 with appropriate governmental support and commitment.

Deforestation decreased from an all time high of 300 000 ha annually in the years between 1977 and 1980, to approximately 100 000¹ ha per year in the 1990s. Besides the environmental and economic impacts, deforestation also means that the dipterocarp forests that have been the world's primary source of "Philippine mahogany," may eventually disappear. In 1988, costs associated with forest loss were estimated to exceed 800 million pesos. Deforestation also
directly and indirectly impacted fishery resources and has been a major factor in the depreciation of upland soils. Losses to these two resources alone were estimated to be approximately 1 billion pesos for 1996-1997.\(^2\)

**Table 18. Forest area of the Philippines, 1997**

<table>
<thead>
<tr>
<th>Types of forests or forestlands</th>
<th>Area (thousand ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td>5 391</td>
</tr>
<tr>
<td>Dipterocarp - old-growth</td>
<td>804</td>
</tr>
<tr>
<td>Dipterocarp - residual</td>
<td>2 731</td>
</tr>
<tr>
<td>Pine</td>
<td>227</td>
</tr>
<tr>
<td>Sub-marginal forest</td>
<td>475</td>
</tr>
<tr>
<td>Mossy</td>
<td>1 040</td>
</tr>
<tr>
<td>Mangrove</td>
<td>112</td>
</tr>
<tr>
<td>Brushlands</td>
<td>2 232</td>
</tr>
<tr>
<td>Other land uses</td>
<td>22 375</td>
</tr>
<tr>
<td><strong>Total area</strong></td>
<td><strong>29 996</strong></td>
</tr>
</tbody>
</table>

*Source: FMB/DENR 2000*

Many environmentalists blame irresponsible logging practices for the accelerated deforestation. There is no doubt that many of the holders of timber license agreements (TLAs) logged beyond the sustainable volume, practiced clearcutting, used heavy equipment during logging operations and road construction, and did not sufficiently protect logged-over areas after harvesting. The concessionaires were accused of having a "cut-and-run" attitude and setting bad examples for the slash-and-bum farmers (Generalao 2000).

Analyses have shown that deforestation cannot be solely blamed on the TLA holders and their logging operations (DENR 1990; Garrity *et al.* 1993; van den Top 1994; Tenorio 1999; Tomboc and Mendoza 1993). However, logging opened access to the primary forests for slash-and-burn farming, agricultural expansion, and illegal logging activities. According to an FAO study (also the FMB/DENR 1999; cited by Tenorio 1999), extensive slash-and-bum farming in logged-over areas and brushlands caused at least 60 percent of forest denudation, while agricultural expansion accounted for at least 30 percent of forest cover loss. The Forest Development Center — University of the Philippines at Los Baños (FDC-UPLB) — estimated that out of the 100 000 ha deforested every year, commercial losing only accounted for approximately 10 percent or 10 000 ha. Rather, the leading cause of deforestation is the increased access to old and residual forests — the target areas of illegal loggers (Mickelwait *et al.* 1999; de los Angeles 2000).

In the past, many TLA holders had more incentives to overcut. Forest harvesting charges were very low. From the 1950s to the mid-1990s, forest charges were applied as an *ad valorem* rate that ranged from 2 to 6.3 percent of the wholesale log value (Bautista 1990). The Government charged little more than US$1 per m\(^3\) while Indonesia was charging more than US$15 per m\(^3\).
Accountability and responsibility have not been clearly mandated because timber harvest permits for TLAs have been a patronage-biased system. Unstable and unpredictable forest policies and inconsistent regulations have also made transaction costs high. Harvesting under the selective logging system has also unintentionally allowed overcutting in the natural forests. This has favored many TLA holders.

Other factors that contributed to accelerated loss of forest cover include government policies of "land for the landless" and generous equipment financing, which created opportunities for importing heavy machinery for logging, road construction, and conversion of forestlands into agricultural areas.

The Government adopted short-term, highly regulated, and privilege-driven criteria for allocating and managing forest resources. This was followed by a flurry of commercial logging and extraction activities that opened up opportunities for land conversion, upland migration, agricultural expansion, and slash-and-burn fanning. Widespread poverty, increasing population, export opportunities, low forest charges, and pro-deforestation policies further aggravated the loss of forest cover over time. A comprehensive and holistic approach is, therefore, necessary if the country is to recover the forests it lost during the last four decades.

Upland population

The upland population of the Philippines (including some 6.3 million indigenous people) already exceeds 20 million people. The University of the Philippines Population Institute estimated the total to be 25 million upland people in 2000, with an annual growth rate of 2.8 percent in the uplands. The upland residents, considered the "poorest of the poor," are highly marginalized, and treated as squatters on public lands.

Related Government and non-government social services are mostly ineffective in helping upland people because of poor accessibility. Most upland residents are highly vulnerable to the vagaries of natural disasters such as floods, drought, pests and diseases. They are also often the victims of market imperfections and inefficiencies. Moreover, few have benefited from the high GDP growth that took place during the 1994-1997 period (Balisacan 2000). Upland residents, living on both public and private lands, have been the major targets for donor-assisted poverty alleviation programs (World Bank 1999a).

Widespread poverty in the rural areas, the slow implementation of agrarian reform, and limited "economic magnets" (from light and medium industries) in the urban areas left few options for the growing population except to migrate to the forestlands. Migration of lowlanders to the uplands, combined with the widespread commercial logging, has displaced many of indigenous people who traditionally inhabited the uplands. The Government has begun to recognize the legitimate claims of indigenous people over their ancestral lands.

Poverty, limited economic opportunities and the need for agricultural land have driven the growing population to become the de facto resource managers for the forests and forestlands. Increasing access through logging roads has exacerbated the migration problem and will therefore require a re-thinking of strategies for development and management of the forests, as well as other resources.

Forest management systems

The absence of operational and effective management systems for many of the forestlands and
forest resources characterizes the Philippine situation. Most forests and forestlands are now under no effective management (de los Angeles 2000). In most areas, "check points" and "forest monitoring stations" are the only visible signs of forest management. Most forests and lands set aside for protection do not have approved, legitimized, and funded resource management plans (CPPAP/DENR 1999; Guiang et al. 1999; Mickelwait et al. 1999; FMB/DENR 2000). The only areas for which the Government demands comprehensive long-term resource management and annual operational plans are those held by TLAs, Industrial Forest Management Agreements (IFMAs), Community-based Forest Management Agreements (CBFMAs), and Certificate of Ancestral Domain Claims (CADCs). The resource-use permits of these holders are highly dependent on the Department of Environment and Natural Resources' (DENR) approval of the operational plans.

Approved and legitimized comprehensive resource management plans with funds for the periodic monitoring of performance and outcome indicators are the key to successfully managing the Philippine forestlands. If there is effective on-site management, the dipterocarp forests may be relied upon as a sustainable source of wood (Tagudar 1997; Reyes 1999). Otherwise, following Poore et al.’s (1998) argument that there is "no forest without management," de-facto resource management by communities and outsiders would take place and prevail, as is the case now.

Table 19 presents an estimate of the extent and status of forest management in the Philippines. It is probable that the 0.9 million ha of forests under 18 active TLAs are effectively managed. The TLA holders, with their annual allowable cuts (AACs) of 0.6 million m³ are generating revenues to finance forest protection and management (FMB/DENR 2000). The same is not necessarily true for CBFMA and CADC areas with resource management plans because the resource-use rights of these communities were suspended by the DENR Secretary effective September 1998 (Mickelwait et al. 1999). When the suspension was recently lifted, it was replaced by a highly restrictive policy on utilizing timber from residual forests (DENR DAO 2000-29).
Almost all Protected Areas Projects funded by the World Bank or European Union have approved, legitimized, and funded Protection Area Management Plans. However, most, if not all, of the country's major watershed forest reserves, covering a total area of 1.38 million ha, have no plans or financial support. There are doubts whether Government funds can continue the protection and management activities after the end of the European Union and World Bank Projects. Alternative mechanisms for managing protected areas are being discussed, but it will take time before the dominant approach of "protect, prohibit, and punish" is fully replaced by a philosophy of "protect, participate, and profit" (Larsen 2000). In summary, out of the total 15.9 million ha of public forests and forestlands, only 20 to 25 percent are probably under some kind of effective forest and forestland management.

More than 5 million ha of public forestlands in the timberland category are not covered by any form of tenure, and are considered "open-access" areas (Table 19). Institutional arrangements

### Table 19. Estimate of the status of forest and forestland management in the Philippines

<table>
<thead>
<tr>
<th>Type of forestland</th>
<th>Area (million ha)</th>
<th>Status plans and on site management</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected areas (national parks, came refuge and bird sanctuary, and wilderness)</td>
<td>1.34</td>
<td>Ad-hoc and highly dependent on availability of funds. Most, if not all, do not have adequate protected area management plans.</td>
<td>The World Bank and European Union are currently funding the preparation, validation, and legitimization of the protected area management plans in at least 18 sites.</td>
</tr>
<tr>
<td>Established forest reserves</td>
<td>3.27</td>
<td>Ad-hoc and highly dependent on availability of funds. Most, if not all, do not have approved, legitimized, and funded resource management plans.</td>
<td>Most declared watershed reserves, even those that are considered to be critical, such as the Ambuklao and Binga Watershed, Pantabangan, and Magat are not under effective on-site management systems.</td>
</tr>
<tr>
<td>Established timberland</td>
<td>10.02</td>
<td>Only timberlands covered by active TLAs, IFMAs, CBFMAs and CADCs are under some kind of on-site management. It is estimated that at least 5 million ha under this category are considered open access.</td>
<td>The on-site management systems of the TLAs, IFMAs, CBFMAs and CADCs are highly dependent on the approval and award of resource-use rights to the holders of these tenure rights. These areas probably cover only around 1.8 million ha (0.9 million from TLAs, 0.4 million from IFMAs, and 0.5 from communities).</td>
</tr>
<tr>
<td>Civil/military reservations, fishponds, and unclassified lands</td>
<td>1.25</td>
<td>Highly variable; some civil reservations are under some form of management; most forests in military reservations are not effectively managed. This also applies with some of the large fishpond lease agreements in mangrove areas.</td>
<td>Some LGUs are taking a closer look at how these reservations are being managed. The LGU of Nueva Vizcaya, for instance, established on-site forestland management for the Lower Magat Forest Reserve.</td>
</tr>
<tr>
<td>TOT</td>
<td>15.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
covering land rights include co-management agreements, special-use permits, co-production or production sharing agreements and presidential declarations. The Government has become the largest absentee landlord in the uplands (Mickelwait et al. 1999; Hyde et al. 1997; Johnson 1997). Under de-facto management, the forests and forestlands are not covered by any kind of tenure to establish "ownership" or stewardship for protection, development or management.

Angeles (1999) summarized the present forest management situation this way: "There is no other more serious danger that threatens the sustainability of our forest than neglect or abandonment of its protection and development." This "warning" has been the major message since the 1980s. In spite of this, policy makers, environmentalists and Government officials are not mobilizing resources to establish effective management systems for allocated forestlands. It does not re-align resources to accelerate the process of "closing the open access" to forestlands. The mentality of governmental "command and control" still prevails. Instead of devising appropriate incentive systems that could fit with the Regalian Doctrine, the forestry sector has become a victim that is further sacrificed and complicated by the lack of clear division of responsibility at the municipal and provincial levels (Argete 1998). Key forest stakeholders are demanding the clear delineation and actual on-site validation of the protection and management of natural forests and forestlands (Angeles 1999). This cannot happen overnight. It will take a massive organizational undertaking, commitment by both the elected and appointed officials, a participatory approach to obtain consensus, and considerable funding to start, continue, and complete the process.

An inadequate system requiring preparation and submission of comprehensive resource management plans has weakened the Government's ability to monitor forest protection and management. Monitoring systems based on key performance indicators and outputs such as forest cover, biodiversity indices, water quality and quantity, and forestry investments are not presently available or applied (Johnson 1999).

**Supply and demand**

Several studies and estimates (Angeles 1999; Dy and Bautista 1999; Cadiz 1999; Foronda et al. 1999) show that the existing domestic wood supply from natural and plantation forests is insufficient to meet the increasing domestic demand. In 1989, the Philippines started to import logs, initially about 0.4 million m$^3$. By 1997, log imports had risen to more than 750,000 m$^3$ per year (Table 20). Imports of logs and processed forest products rose to about 2.8 million m$^3$ in 1998. The share of imported logs in total supply increased from 5.5 percent in 1989 (based on total volume) to about 16 to 20 percent in 1997.
Table 20. Import of logs and processed forest products in the Philippines, 1988-1997 (thousand m³)

<table>
<thead>
<tr>
<th>Year</th>
<th>Logs</th>
<th>Lumber</th>
<th>Plywood</th>
<th>Veneer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>768</td>
<td>411</td>
<td>1.0</td>
<td>86.0</td>
<td>1266</td>
</tr>
<tr>
<td>1996</td>
<td>877</td>
<td>567</td>
<td>0.9</td>
<td>94.0</td>
<td>1539</td>
</tr>
<tr>
<td>1995</td>
<td>694</td>
<td>378</td>
<td>0.2</td>
<td>26.0</td>
<td>1098</td>
</tr>
<tr>
<td>1994</td>
<td>404</td>
<td>298</td>
<td>0.9</td>
<td>0.6</td>
<td>704</td>
</tr>
<tr>
<td>1993</td>
<td>603</td>
<td>462</td>
<td>0.3</td>
<td>2.8</td>
<td>1068</td>
</tr>
<tr>
<td>1992</td>
<td>530</td>
<td>43</td>
<td>0.3</td>
<td>0.3</td>
<td>574</td>
</tr>
<tr>
<td>1991</td>
<td>395</td>
<td>10</td>
<td>1.7</td>
<td>0.08</td>
<td>407</td>
</tr>
<tr>
<td>1990</td>
<td>381</td>
<td>3</td>
<td>3.0</td>
<td>0.09</td>
<td>387</td>
</tr>
<tr>
<td>1989</td>
<td>397</td>
<td>12</td>
<td>2.7</td>
<td>0.06</td>
<td>412</td>
</tr>
<tr>
<td>1988</td>
<td>7</td>
<td>2</td>
<td>0.2</td>
<td>0.09</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: FMB/DENR (2000)

Rising domestic consumption, the growing export-oriented furniture industry, and economic recovery and expansion contributed to the surge in imports of lumber that started in 1993 when the Philippines imported more than 1 million m³ of wood. Furniture manufacturing consumes approximately 95 percent of the imported wood. The increase may be largely attributed to the shift in preference from domestic to imported logs by the domestic plywood and veneer industry. Imports of logs and lumber accounted for 67 and 29 percent of total imports from 1996 to 1997, respectively.

Imported supplied most of the domestic demand when the AAC were reduced from 5 million m³ in 1990 to about 0.5 was the most Imports million m³ in 2000 (FMB/DENR 2000). The reduction in AAC was the most significant consequence of the logging ban in old-growth forests, the passage of the National Integrated Protected Area System (NIPAS) law in 1992 (RA 7586) and a decrease in the number of active TLAs from 114 in 1989 to 21 in 1998. These restrictions on the harvest of natural forests and the limited supply of wood from forest plantations have turned the Philippines into a net importer of wood.

The country’s increasing dependence on imports underlines its ongoing wood crisis. Domestic demand for wood products is growing at an average of 2 to 5 percent annually. By the end of 2000, demand for industrial roundwood (mainly for sawntimber, plywood/veneer/blockboard, fiberboard/particleboard, poles and paper and paperboard) ranged between 4.5 to 5.8 million m³ per year.

Table 21 shows the different supply sources of domestic wood demand in 1998. The AAC from the natural forests and existing plantations supplied less than 13 percent of the estimated 5 million m³ annual demand, while coconut lumber provides more than 14 percent. Between 1995 and 1999, the Philippine Coconut Authority (PCA) reported that more than 3.6 million coconut trees were cut for processing (PCA 2000). Imports Supplied almost 16 percent, but the bulk
came either from illegal sources or was due to the increasing use of steel and cement in the construction sector.

Coconut lumber and imports are very unpredictable sources. The PCA has taken a more restrictive and regulatory stance as mandated in RA No. 8043, PCA DAO No. 01 Series of 1995, and PCA Philippines may shift DAO No. 01, Series of 1998. Countries that export wood products to the Philippines may shift exports to more lucrative markets.

In the end, the only reliable local sources of wood are forest plantations and sustainably managed residual forests. Unfortunately, these sources do not receive adequate attention. From 1986 to 1996, the Government and the private sector developed approximately 773,000 ha of forest plantations. Only 36 percent are available for harvesting and utilization. These lands could potentially supply 5 to 7 percent (at the most around 300,000 m³) of the annual domestic demand (Cadiz 1999; Dy and Bautista/DENR 2000). Areas Deforested by the public and private sectors have generally decreased from 1991 to 1997 (FMB/DENR 2000). Forest management incentives and government programs to accelerate the development of small-, medium-, and large-scale forest plantations have accomplished only the minimum of the initial targets and objectives. In 1990, the DENR projected that plantations would need to produce at least 2.77 million m³ of timber annually to meet the demand for sawlogs, peeler logs, poles, and local construction timber. The annual timber production from plantations is only 45,000 m³ and far below the DENR projection (Cadiz 1999; FMB/DENR 2000).

Based on projections from the Philippines’ National Forest Resource Inventory (NFRI) conducted from 1979 to 1989 (FMB/DENR 1988), the total volume of timber in the commercial forests in 1997 was estimated to be around 400 million m³ for all residual dipterocarps and pine forests. Estimates of the remaining secondary forests vary, ranging from 2.85 to 4.36 million ha (Angeles 1999). Researchers agreed that at least 2 million ha of the remaining residual forests may be covered by the sustainable forest management scheme. These areas are considered productive, with adequate residual forest stands. The DENR (1990a) recommended timber harvests in the residual forests be permitted only under three situations — by timber license holders, communities, and through conversion to other land uses. Estimates of potential annual sustainable yields from the remaining residual forests range from 1.7 to 5.1 million m³ (Table 22). Angeles (1999) recommends a maximum annual harvest of 2.0 million m³ from the natural forests on a 35-year rotation, extracting only trees with a dbh of 60 cm and above. Commercial harvests in the remaining residual forests have ignited a variety of debates among the different stakeholders — the private sector, communities, policy makers, lawmakers, local government units (LGU), and environmentalists.
Table 21. Sources of Philippines' industrial roundwood supply, 1998

<table>
<thead>
<tr>
<th>Source</th>
<th>Estimated volume (thousand m³)</th>
<th>Percent based on total</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual allowable cut from natural forests (residual)</td>
<td>588</td>
<td>11.8</td>
<td>AAC of 18 active TLAs</td>
</tr>
<tr>
<td>Harvest from forest plantations</td>
<td>45</td>
<td>0.9</td>
<td>Extrapolated from Table 2.21 of the Forestry Statistics, 1998 (Total log production - TLA and IFMA production). It was assumed that most of the CBFM production came from more accessible and existing forest plantations.</td>
</tr>
<tr>
<td>Imports</td>
<td>796</td>
<td>15.9</td>
<td>Taken from Table 3.20 of the Forestry Statistics</td>
</tr>
<tr>
<td>Coconut lumber</td>
<td>721</td>
<td>14.4</td>
<td>Computed from Philippines Coconut Authority data. Number of coconut trees cut per annum, based on data from 1995-1999, was at least 721,000 with the assumption that each tree yields at least 1m³</td>
</tr>
<tr>
<td>Others (illegal cuts and other substitutes)</td>
<td>2 850</td>
<td>57.0</td>
<td>The total estimated demand of 5 million m³ minus the amount of the 4 sources above.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5 000</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Sources: FMB/DENR (2000); PCA (2000); Cadiz (1999)

Table 22. Area and potential timber yield from Philippines' natural secondary forests

<table>
<thead>
<tr>
<th>Source</th>
<th>Area of secondary forests (ha)</th>
<th>Tentative annual yield (thousand m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP-German Project (1987-1989)</td>
<td>1000</td>
<td>1 715 *</td>
</tr>
<tr>
<td>Master Plan for Forest Development (MPFD)</td>
<td>2 180</td>
<td>4 300 - 5 100**</td>
</tr>
<tr>
<td>Modified MPFD</td>
<td>3 365</td>
<td>2 000***</td>
</tr>
</tbody>
</table>

Source: Adopted from Angeles (1999)

*Based on 60 + m³/ha cutting cycle of 35 years. TSI-treated 0.5 million ha not included.
**Based on the yield in year 2000 and in year 2015 respectively assumed in the MPFD.
***Based only on 682 000 ha for private sector and 500 000 ha for large community holdings recommended in MPFD and not on the entire area of 3 365 000 ha; also at 60 m³/ha, cutting cycle of 35 years. Based and checked by 380.6 million in of available volume of standing timber from 15 cm and above dbh in second growth forests as reported in the Philippine Forestry Statistics in 1997 and multiplied by 18.5 percent (ratio between commercial volume, 55 cm and above dbh and all tree volume, 15 cm and above dbh) equals approximately 2 million m³/year.

The Philippines should be able to supply almost 50 percent of its domestic timber demand over the next 10 years, assuming that the existing forest plantations can supply a minimum of 0.3 million m³ per year and that harvests in the residual natural forests will produce at least 2 million m³ per year. The supply of coconut lumber may also reduce the country's dependence on imported wood.
Furthermore, improving harvesting and utilization efficiency could reduce dependence on timber imports. In many cases, if foresters applied new harvesting technologies, the level of waste left after losing could be reduced by 50 percent. In processing, 50 percent of the harvested volume are waste materials. Hence, only approximately 25 percent of the volume harvested are actually processed into usable products (Angeles 1999).

Opportunities in the forestry sector

Despite the increasing timber shortage, the Philippine forestry sector has the potential to rebound and become a key player in local and regional economies for several reasons. First, key forestry policies are in place. Second the forestry sector has pioneered the adoption and implementation of CBFM as the national strategy. Third, the country has ample human resources and the most ideal climatic conditions, such as in eastern Mindanao, for establishing fast-growing hardwoods and becoming a major exporter in Southeast Asia. Economic rotation and yields of key species such as *albizzia, acacia, gmelina*, and *eucalyptus* average 6 to 12 years and at least 200 to 300 m$^3$ per ha at harvest. Smallholder tree crops could also positively impact the rural economies and ensure the supply of plantation timber (Dy 2000; World Bank 1999a, 1999b, and 1999c). The forestry sector could potentially generate more than US$ 3 billion a year as opposed to spending US$ 1 billion for imported forest products (Nuevo 1998 and 1999). Fourth, there are at least 25 forestry schools and colleges in the Philippines that can provide technical training in forestry development. Finally, there are thousands of professionally registered foresters who are waiting for new challenges and opportunities to emerge (Fellizar 1998). Major issues and constraints, however, still have to be addressed first.

THE POLICY ENVIRONMENT OF THE PHILIPPINE FORESTRY SECTOR

Key forestry policies

Several national policies affect the Philippine forestry sector (Table 23). In general, the intent substance, and vision of the national policies are sound. Many may set a precedent for other ASEAN countries, especially those that concern CBFM (Bisson *et al.* 1997), decentralization and devolution, and protected area systems. However, the translation of the policies into operational Programs for sustainable forest management needs to be improved.

The current forestry policies are best interpreted and analyzed in relation to the People's Power Revolution (EDSA) in 1986 combined with the emergence and upsurge of environmental Consciousness and influential media (Fairman 1996). Except for the Revised Forestry Code of 1975 (PD 705), most of the policies were enacted after 1986. The 1987 Philippine Constitution, the highest law of the land, lays down the tenet of natural resources management. The Executive Orders (EOs) during the first year of the Aquino administration carried executive and legislative Mandates in support of forestry policies. The Republic Acts (RAs) by the Philippine Congress from the Aquino to the Ramos regimes reflect deeply rooted concerns from the lawmakers and the executive branch on how the Philippines could conserve its forest resources and support sustainable natural resource development and management.
Table 23. Key forestry policies of the Philippines

<table>
<thead>
<tr>
<th>Policy instrument</th>
<th>Form and year of issuance</th>
<th>Major focus and mandate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Forestry Code</td>
<td>Presidential Decree No. 705 of 1975</td>
<td>Creation of the Bureau of Forest Development (BFD) with line authority. Mandates the adoption of multiple use, land classification and delineation of forestlands, key conservation and reforestation strategies, census and initial recognition of forest occupants.</td>
</tr>
<tr>
<td>The 1987 Philippine Constitution</td>
<td>1987 Constitution</td>
<td>Adoption of the Regalian Doctrine; the State may undertake on the development and utilization of natural resources or enter into co-production, joint venture, or production agreements.</td>
</tr>
<tr>
<td>Executive Order No. 192 on the Reorganization of the Environment and Natural Resources</td>
<td>Executive Order with legislative and executive powers issued in 1987</td>
<td>Downgraded the BFD from line into a staff bureau; DENR was mandated to conserve, manage, develop, properly use, license and regulate the use of natural resources.</td>
</tr>
<tr>
<td>Local Government Code</td>
<td>Republic Act No. 7160 of 1991</td>
<td>Partially devolved some functions of the DENR to the LGUs.</td>
</tr>
<tr>
<td>The Law on National Integrated Protected Area Systems</td>
<td>Republic Act No. 7586 issued in 1992</td>
<td>Allocation of forestlands and forest resources to protected area systems for biodiversity purposes, preservation of habitats, watershed protection, and maintenance of ecological balance.</td>
</tr>
<tr>
<td>The Law on Forest Charges on Timber and Other Forest Products</td>
<td>Republic Act No. 7161 issued in 1991</td>
<td>Mandated the Government to increase forest charges for timber and non-timber forest products up to 25 percent and 10 percent of FOB prices, respectively.</td>
</tr>
<tr>
<td>Executive Order No. 263 on Community-based Forest Management Strategy</td>
<td>Executive Order of 1995 with no legislative power</td>
<td>Mandated the DENR to adopt CBFM as the strategy for sustainable forestry and social justice.</td>
</tr>
<tr>
<td>Indigenous People’s Rights Act</td>
<td>Republic Act No. 8371 in 1997</td>
<td>Mandated the Government through the newly created National Commission on Indigenous Peoples to recognize, protect and promote the rights of indigenous people.</td>
</tr>
</tbody>
</table>

The 1987 Philippine Constitution

The 1987 Philippine Constitution mandates in Article II, Section 16, "that the State shall protect and advance the right of the people to a balanced and healthful ecology in accordance with the harmony of nature." The Constitution adopted the Regalian Doctrine and empowered the Congress to determine by law the specific limits of forestlands and national parks. The State has the right to undertake on its own the development and utilization of natural resources, or enter into co-production, joint venture or production agreements to achieve sustainable development and natural resources conservation objectives (Argete 1998). The Constitution has virtually stopped the practice of awarding concessions, leases, or timber licenses.

TLAs were also banned since they had been abused by favoring only large-scale operations (Wallace 1993; Porter and Ganapin 1988; Vitug 1993). The Constitution has supported and strengthened the Government’s efforts, to take drastic measures in dealing with holders of TLAs. Many TLAs were suspended, cancelled, modified or not renewed. These drastic actions
reduced the number of TLA holders from 159 in 1986, to 26 in 1997, and less than 20 in 1998 (FMB/DENR 2000).

**The Revised Forestry Code (Presidential Decree (PD) No. 705 of 1975)**

The Revised Forestry Code provided the first formal forestry laws and policies in the Philippines. It mandated the Government to adopt a multiple-use approach to forestlands, accelerate land classification, delineate forest boundaries, rationalize wood-processing plants, enhance forest protection and development through industrial tree plantations, conduct a census and recognize some forest occupants, and continue to support the implementation of selective logging. The revised Code created the powerful BFD to formulate and implement forest sector policies, strategies, and programs.

Some provisions of the Code that have not been rendered invalid by the Constitution, EO 192, and succeeding laws, still apply. From 1975 to 1987, PD 705 dominated the thinking in the forestry sector. Twelve years of implementing the Code institutionalized many processes, regulations, operational Guidelines and organizational structures. PD 705 strengthened the regulatory powers of the BFD, reduced the focus on reforestation and rehabilitation of forestlands, and institutionalized the "timber-orientation" of many professional foresters. On the other hand, the Code allowed "occupants" to rehabilitate forests and provided an opportunity for forestry workers in the private sector to organize cooperatives and participate as co-owners of concessions.

Executive Order No. 192 of 1987 Executive Order No. 192 downgraded the powerful BFD, a line bureau of the former Ministry of Natural Resources (MNR), into a DENR staff bureau. The forestry sector's concerns were taken over by the Forest Management Bureau (FMB) of the DENR field offices at the regional, Provincial, and community levels. The DENR Secretary with the technical and policy advice of the Director of the FMB acts on all forest policy-related matters at the national level, while the DENR field offices execute the programs.

This Order mandated that the DENR formulate and implement administrative policies that support the Constitution and do not violate the relevant provisions of PD 705. The Order, with the legislative authority of former President Aquino, was penned in the context of the 1987 Constitution before the First Congress was convened. It stated:

"The Department shall be the primary government agency responsible for the conservation, management, development and proper use of the country's environment and natural resources, specifically forest and grazing lands, mineral resources, including those in reservations and watershed areas, and lands of the public domain, as well as the licensing and regulation of all natural resources as may be provided for be, law in order to ensure equitable sharing of the benefits therefrom for the welfare of the present and future generations of Filipinos."

The DENR used the EO 192 under the 1987 Constitution when it formulated the Philippine Strategy for Sustainable Development (PSSD) (DENR 1990a: PSSD 1997). It adopted the PSSD to promote economic growth through adequate protection of the country's biodiversity, vital ecosystem functions and the overall environmental quality (Argete 1998). The PSSD has advocated proper pricing and natural resource accounting of all forest products and commodities, lesser dependency on forest product sourced from the natural forests, and CBFM with the participation of indigenous people and women.

The DENR was also guided by the EO 192 and the 1987 Constitution when it formulated the
MPFD as a 25-year plan for the development of the forestry sector (DENR 1990; Pollisco 1999). The MPFD was a response to the massive deforestation and forest degradation, and the need for the sector to become a significant player in sustainable development, generating rural employment, and ensuring stable and continuing supply of domestic forest products. The MPFD presented a macro-level and holistic approach to the multidimensional concerns of forestry.


The RA 7161 (Increasing the Forest Charges on Timber and Other Forest Products) and RA 7586 (National Integrated Protected Area System) were the first initiatives of the reorganized DENR under the EO 192. They were a response to a national demand to identify, delineate, and invest in the remaining protected areas of the country; and to the need of capturing acceptable economic rents. The implementation of these policies largely benefited from the studies of Mendoza (1991 and 1993), Mcketta (1992), Boado (1988) and Bautista (1992).

The NIPAS law strengthened the DENR's mandate to set aside forestlands as "protected areas" to preserve biodiversity and critical habitats, and to carry out its mandate under the EO 192. The framers of the NIPAS law saw the impending threat to the forestlands and the need to implement a logging ban. The preservation of the remaining 0.8 to 1 million ha of old-growth forests was included in the law.

The Forest Charges Law allows the Government to charge for the use of forest resources. The charges increased from as low as US$1/m³ to as high as 25 percent of the FOB price for timber harvested on public lands in the early 1990s (Argete 1998; Wallace 1993). This law was only enacted in 1993, despite previous studies that highlighted the substantial amount of potential forest rent lost by the Government because the rates charged for use of the forestlands were well below the market rate (Boado 1988; Bautista 1992). The increase in forest charges was only adopted when the total AACs of TLAs were approximately a quarter of those in 1990, about one-seventh of the AAC levels of 1985, and only about one-twelfth the levels of 1980 (FMB/DENR 2000). Those in power or influence before and during the martial law years clearly benefited from low forest charges (Vitug 1993). The low rents also contributed to the mentality of "cut, cut, and get out quickly" of many concession holders.

Executive Order No. 263 of 1995

Consistent with the spirit of the 1987 Constitution, EO 192, and the PSSD, President Fidel Ramos signed the EO 263 mandating the adoption of CBFM as the national strategy for sustainable forestry and social justice. EO 263 recognizes the need for the Government to enter into long-term agreements with communities and the indigenous people for the protection, rehabilitation, development, conservation, and management of forestlands. The Government has to respond to the communities’ need for long-term tenure and resource-use rights provided they employ low-impact and labor-intensive harvesting methods.

The signing of the EO 263 was a major milestone for the 20 million Filipinos in the uplands. Unlike previous community forestry administrative and presidential decrees, EO 263 enables the Government to allocate forestlands, even those with natural forests, to participating communities for protection, development, and management (Guiang and Harker 1998; Guiang 1996).

Republic Act 7160 of 1991
While the forest policies were becoming increasingly focused on social equity, sustainability, protecting biodiversity and environment, the RA 7160 (Local Government Code) opened the way for partial devolution of environment and natural resource functions to the LGUs (Brillantes 2000; IPC 1997; Salazar and Zenit 1993). The Code was designed to redress the skewed power relations between the central and local Government.

The Local Government Code made it possible for the LGUs to share in the protection, conservation, and management of forest resources, especially in assisting communities in social forestry (Marco 1992). The power to allocate forestlands, and issue resource-use rights, forestry environmental compliance certificates, and land titles was not shared and remained with DENR (Guiang 2000). The Code, however, enabled the LGUs (provinces, municipalities, and barangays) to share income from forest charges. At least 40 percent of the forest charges were paid to the LGUs with territorial jurisdiction over the areas where the forest resources were extracted.

The Code also opened up opportunities for the LGUs to enter into co-management agreements with the DENR for the protection and management of forestlands, especially in areas that have been declared communal watershed reservations but were previously unmanaged (DILG-DENR 1998). For example, the Code paved the way for Puerto Princesa in Palawan to enter into an agreement with the DENR to protect and manage the St. Paul Subterranean National Park. The Code also inspired the provincial Government of Nueva Vizcaya and the DENR to agree to protect and manage a 24 000 ha forest reserve. Over the years, co-management has become the DENR's modality for allowing LGUs to actively participate in the protection, development, and management of forestlands with communal management objectives.

**Republic Act 8371 of 1997**

The RA 8371 (Indigenous People's Rights Act) mandates the recognition, protection and promotion of the rights of indigenous people. Its influence cuts across the forestry sector because the issuance of CADCs or Certificates of Ancestral Domain Titles (CADTs) are land allocations that include forestlands with or without forest resources. CADCs or CADTs are land allocations that have significant impacts on commercial or conservation forestry. These instruments are by themselves permanent tenure for indigenous people who have claims on the forestlands, including protected areas. The Act also created the National Commission for Indigenous Peoples under the Office of the President to assist the indigenous people.

**Policy impacts**

Table 24 provides a list of the perceived impacts of forestry policies over the years. As noted earlier, the RAs, the EOs, and the PDs are backed by the DENR through the implementation of rules and regulations as well as administrative others, memorandum circulars, and memorandum orders. In the forestry sector, most of the orders and circulars have been meant to regulate instead of deregulate the use of forestland and resources. Consequently, the forestry sector was considered one of the most regulated industries in the country (Lu 1998; Olizon 1991; Guiang and Manila 1994; Seve 1995; Mickelwait et al. 1999). While the laws are stable and generally consistent, the operational policies embodied in the administrative decrees have almost always been revised with each change of administration and DENR leadership.
Table 24. Major impacts of Philippines’ key forestry policies

<table>
<thead>
<tr>
<th>Impact areas</th>
<th>Key policy determinants</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest cover</td>
<td>PD 705, 1987 Constitution and EO 192</td>
<td>The privilege-driven system of awarding resource-use access under PD 705 combined with low forest charges, increased upland migration, and expansion of agriculture accelerated forest degradation and loss of forest cover. The cancellation, non-renewal, and suspension of TLAs increased open access and contributed to illegal logging and cutting. These have greatly added to the loss of forest cover.</td>
</tr>
<tr>
<td>Open access</td>
<td>1987 Constitution and EO 192</td>
<td>Increased open access as a result of TLA cancellation, suspension, and non-renewal. Alternative instruments to close open access and stabilize tenure are not in place.</td>
</tr>
<tr>
<td>Biodiversity, watersheds, and habitat protection</td>
<td>RA 7586</td>
<td>Increase in protected area &quot;set asides&quot; and watershed reservations. These areas now comprise at least 15 percent of the total forestlands.</td>
</tr>
<tr>
<td>Supply of forest products</td>
<td>RA 7586 and 1987 Constitution</td>
<td>The gradual reduction of commercial harvesting in natural forests and the low investment in forest plantations due to poor incentives have made the country increasingly dependent on imports substitutes.</td>
</tr>
<tr>
<td>Participation of key stakeholders - communities, private sector, LGUs, and environmental groups</td>
<td>RA 7160, EO 263, 1987 Constitution and RA 7161</td>
<td>The LGUs, communities and environmental groups are increasing their demands for sustainable forest management. The private sector has been marginalized but is not totally out of the picture.</td>
</tr>
<tr>
<td>Allocation of forest resources and forestlands</td>
<td>RA 8371, EO 263 and 1987 Constitution</td>
<td>Almost 4 million ha of forestlands have been allocated to upland communities, indigenous people, and LGUs. The private sector owns a little more than 1.3 million ha. The opposite was true in the 1970s and 1980s when TLAs controlled at least 10 million ha or two-thirds of the total forestlands.</td>
</tr>
<tr>
<td>Paradigm of forest management</td>
<td>EO 192, RA 7586 and 1987 Constitution</td>
<td>From a timber-oriented system of forest management to a people-oriented ecosystem and watershed approach of managing forestlands.</td>
</tr>
</tbody>
</table>

A closer examination of Table 24 reveals several key points:

- Before 1986, policies on implementing the PD 705 were consistent and predictable, although the industry was also highly regulated (Olizon 1991). After 1986, administrative decrees became erratic, inconsistent, and unpredictable. Before the EDSA revolution, policy changes were influenced mostly through patronage; after EDSA, the upsurge of environmental NGOs, powerful media, and newly rediscovered democracy greatly influenced the policies and governance of the environment and natural resources. Olizon (1991) claimed that from 1975 to the early 1990s, the administrative policies on, industrial tree plantations chanced 20 times. Indeed, the rate of policy change was much higher than the capacity to implement the policies. Regulations regarding, timber harvesting are also restrictive. Harvesting timber from the natural forests has almost become a crime. Even to cut planted species in Eastern Mindanao now requires farmers to submit 11 documents to the DENR field offices before harvest and transport permits are issued.
There are renewed efforts to shift forest management from a timber production orientation to community-based and multiple-use management (FMB/DENR 1998). There has also been an increased realization that forests yield non-timber forest products in addition to timber.

The cancellation, non-renewal and suspension of many TLAs have resulted in an increase in open access areas, making the DENR the leading absentee landlord in the country (Hyde et al. 1996; Johnson 1997). More than 5 million ha of forestlands, with and without forest cover, are considered to be open access (FM/DENR 2000; Mickelwait et al. 1999).

Since the early 1990s, forest policies have increasingly allocated forestlands to communities and indigenous people, with the subsequent reduction of forestlands under TLAs. TLAs cover only 1.3 to 1.4 million ha, and CBFMAs and CADCs cover 3.8 million ha (FMB/DENR 2000). This shift has considerable implications, especially in the context of providing technical, financial and managerial assistance. Encouraged by the Local Government Code, more LGUs are requesting allocations of forestlands and resources for their own communal forests, watersheds and municipal parks. These allocations will continue to influence the formulation of operational policies (La Vina 1997 and 1998).

The private sector's participation in formulating key administrative guidelines and regulations for the industry has been marginalized (Olizon 1991; Lu 1998). The private sector, to a certain degree, has become a victim of the upsurge of environmental advocacy and "democratization" process. It has yet to regain its damaged credibility in the management of forestlands. The private sector role in the protection, development and management of forest resources is presently not clear except where TLAs, IFMAs and other use permits are still active. Despite the growing demand for timber from plantations, with few exceptions, the private sector has hesitated to proceed with IFMAs. They feel constrained by a lack of long-term financing, and the need to collaborate with communities, as well as the unpredictable and changing forest policies.

The current policies divert the focus from forest management to curbing abuses of TLA holders, preserving and conserving biodiversity and protected areas, shifting responsibility for forest management from commercial operators to communities, strengthening the bureaucracy, and large-scale rehabilitation efforts, especially with the funds from the Asian Development Bank (ADB 1998) and the World Bank. As a result, the process of creating the foundation for the long-term development of a stable wood and fiber supply has been neglected. Most recommendations of the MPFD (DENR 1990a) have not been realized or seriously implemented. As a result, the Philippines has been increasingly becoming dependent on imported forest products — both for furniture manufacturing and local consumption (FMB/DEN-R 2000; Sanvictores 1997b; Cadiz 1999).

The post-EDSA forest policies allowed the participation of various stakeholders in the policy making process through consensus-building within and between the public and private sectors at different hierarchical levels (Malayang III 1998). This process gradually rendered the former "command and control" approach of forest management ineffective. The issue of "policy ownership" at the different levels of the DENR, LGUs and communities has taken center-stage. Time and government inputs in the "brokering" process have become critical factors before decisions are reached.

The emergence of environmental NGOs and the increasing participation of LGUs in advocacy and direct protection and management of forestlands have strengthened forest conservation. The partial devolution of key environment and natural resource functions to LGUs has been raised as a major issue in recasting or modifying the Local Government Code (Brillantes 2000).
ISSUES LEADING TO THE BAN OF HARVESTING TIMBER IN NATURAL FORESTS

More than 70 percent of the Philippine's 77 provinces\(^4\), now have logging bans or moratoria for a variety of reasons (Table 25) (FMB/DENR 1999; DENR 1999). These bans or moratoria are covering by administrative orders, letters of instruction from the Office of the President, radiogram order or laws such as the NIPAS Law and the RA 7611 (Strategic Environmental Plan for Palawan). The logging bans "disallow the extraction of timber from the natural forests." The cancellation, suspension and non-renewal of TLAs have also supported logging bans in conclusion areas.

The DENR issued an administrative order in 1991, which banned timber harvests in all old-growth/virgin forests. The same order banned timber harvesting in areas above 50 percent slope and in areas located more than 1000 in above sea level. Old-growth forests should be delineated in the concessions of TLA holders. Holders are not allowed to harvest the old-growth forests; they are instructed to protect these areas as part of their forest management functions. These restrictions do not apply if the old-growth forests are located in protected areas and watershed reservations since they are part of the Government's direct responsibility (although, in reality, many of these areas and reservations are exposed because of the Government's limited resources). Old-growth forests located in cancelled, abandoned, suspended or non-renewed TLAs and the adjacent residual forests are most vulnerable to poachers, illegal cutters and slash-and-burn farming.

Current policies allow harvesting in residual forests that are covered by TLAs, CBFMAs and, to a certain extent, in CADCs if the forests are not located in protected areas, watershed reservations or areas above 1000 m above sea level and slope above 50 percent. There are at least 500 000 ha of residual forests under existing TLAs. The residual forests that are under CBFMAs or CADCs but outside the protected areas, reservations, or old-growth forests may also be harvested. In September 1998, however, the DENR suspended the harvesting rights of the holders of CBFMAs and CADCs. This suspension was only lifted in early 2000 when more restrictive provisions were established.

Based on the analysis of CBFMAs and CADCs, which were assisted by the USAID-funded Natural Resources Management Program, approximately 45 percent of residual forests in Luzon are by these tenures, while 30 percent of Mindanao's forests are residual (Mickelwait\textit{et al.} 1999). At least 0.2 million ha of residual forests are still in open access areas.

The estimated 2 million ha of productive residual forests (TLA's 0.5 million ha, CBFMAs/CADCs 1.3 million ha, and the 0.2 million ha of residual forest in open access forestlands) are the center of the ongoing debate about the logging bans. There is a proposal to ban timber harvests in all natural forests in the Philippines. The TLA areas comprise only 3 percent of the total forestland on the Philippines, or 25 percent of the 2 million ha of residual forests where logging is allowed. The total TLA area of natural forests (residual) that will be affected by the logging ban will gradually decline to only 72 000 ha by the year 2010 (Sanvictores 1997b). The residual forests that are within the existing CBFMAs and CADCs are areas where timber harvest may be allowed to augment local wood supplies. In summary, the ban of timber harvests from the natural forests will only affect the residual forests of the TLAs, CBFMAs and CADCs, or almost 70 percent of forestlands under the management of communities.
Table 25. Provinces and areas covered by logging bans in the Philippines

<table>
<thead>
<tr>
<th>Affected areas</th>
<th>How the logging ban is imposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 km on both sides of the proposed Marikina-Infanta Highway</td>
<td>Presidential Proclamation No. 1636</td>
</tr>
<tr>
<td>All logging concessions and permits in all areas near or adjacent to Angat and Penaranda River Basin</td>
<td>Presidential Directive, 5 July 1968</td>
</tr>
<tr>
<td>Catanduanes</td>
<td>Telegram of the Acting Director BFD, 19 October 1973</td>
</tr>
<tr>
<td>Provinces of Ilocos Norte, Ilocos Sur, Abra, La Union, Baguio City and within 50 km radius of Baguio City</td>
<td>Memorandum of MNR Minister Jose J. Leido, Jr., 20 March 1975</td>
</tr>
<tr>
<td>25 km radius of Baguio City</td>
<td>Memorandum for the President of the Philippines from Minister Jose J. Leido Jr., 16 March 1976</td>
</tr>
<tr>
<td>Pangasinan, Zambales, Laguna, Quezon, and central Luzon areas and within 50 km of Greater Manila area</td>
<td>LOI 409 signed by President Ferdinand E. Marcos. 29 May 1976</td>
</tr>
<tr>
<td>Polillo Island</td>
<td>Order signed by then Sec. Jose Leido Jr., 21 August 1976</td>
</tr>
<tr>
<td>Nueva Ecija</td>
<td>Order of Assistant Secretary for Field Operations for Luzon, Gregorio Magdaraog, 17 March 1989</td>
</tr>
<tr>
<td>All proclaims watersheds, national parks, nature reserves, and wildlife sanctuaries</td>
<td>LOI 917, 22 August 1979</td>
</tr>
<tr>
<td>Negros Oriental</td>
<td>Order signed by then Minister Jose Leido. Jr., 4 October 1979</td>
</tr>
<tr>
<td>Small Islands</td>
<td>Memorandum of Presidential Staff Director Joaquin Venus. Jr. to the Minister of MNR, 5 November 1979</td>
</tr>
<tr>
<td>Leyte and Southern Leyte</td>
<td>MNR Administrative Order No. 31 signed by then Deputy Minister Arnold Caoili, 20 July 1982</td>
</tr>
<tr>
<td>Entire Philippines except Southern Cotabato, Northeast Davao, part of Zamboanga del Sur, part of Samar, Northern Kalinga-Apayao, Northern Cagayan, Eastern Isabela, part of Agusan del Sir, part of Palawan</td>
<td>Memorandum of Presidential Executive Assistant Juan C. Tuvera to MNR Minister Teodoro Pena as directed by the President of the Philippines. 4 August 1983</td>
</tr>
<tr>
<td>Entire Philippines except Region 2, Palawan, Samar, and the Islands of Mindanao</td>
<td>Memorandum of Minister Teodoro Penta to Director Edmundo Cortez, 9 August 1983</td>
</tr>
<tr>
<td>Negros Occidental</td>
<td>Radio message of Director Edmundo Cortez to BFD Regional Director, Region 6, 10 September 1984</td>
</tr>
<tr>
<td>Nueva Ecjia, Nueva Vizcaya, Quirino, Ifugao</td>
<td>Ministry Order No. 2 signed by Min. Ernesto Maceda. 2 April 1986</td>
</tr>
<tr>
<td>South Cotabato</td>
<td>Ministry Order No. 3 signed by Min. Ernesto Maceda. 23 May 1986</td>
</tr>
<tr>
<td>Abra, Benguet, Lagun and Misamis Occidental</td>
<td>Ministry Order No. 4 signed by Min. Ernesto Maceda. 29 May 1986</td>
</tr>
<tr>
<td>Basilan</td>
<td>Ministry Order No. 8 signed by Min. Ernesto Maceda. 3 October 1986</td>
</tr>
<tr>
<td>Samar</td>
<td>Moratorium Order of Secretary Fulgencio Factoran. Jr., 8 February 1989</td>
</tr>
</tbody>
</table>
The major issues that led to the logging ban in all "open" natural forests are summarized below:

### Continuing loss of biodiversity

The arguments in support of logging bans in conservation areas include: the continuing loss of biodiversity, the need to protect endangered and rare species habitat, and the increasing imbalance in the prey vs. predator population (Heaney and Regalado 1998; Bautista 1994; de los Angeles and Oliva 1996; UPLB Foundation 1996; CPPAP 1999; Alonzo 1993).

The Philippine forests have a very high degree of faunal endemism and host a rich and diverse flora. The fear of losing the diverse dipterocarp forest altogether has also been raised to argue for a logging ban in natural forests.

### Destruction of watersheds

One potent argument for declaring "logging bans" in many provinces is the degradation of watersheds that support major hydropower schemes and river systems. The perception is that log-in-increases soil erosion and siltation of waterways, and ultimately endangers or shortens the life span of major infrastructure (FMB/DENR 1999).

There are also fears that there will be more lowland floods like the 1992 flood that killed 7 000 people in Ormoc City, Leyte. Logging, bans are believed to reduce catastrophic floods in low-lying areas, and minimize the re-occurrence of Ormoc-type tragedies.

### Graft, corruption and abuses by TLA holders

Earlier abuses by privileged TLA holders have left a lasting negative attitude towards this form of tenure. Logging opponents fear that a return to commercial logging would re-ignite abuses by privileged TLA holders, and that graft and corruption in the forestry sector would happen again.

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<table>
<thead>
<tr>
<th>Location</th>
<th>Document/Order Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Nakar, Quezon</td>
<td>DENR Order signed by Assistant Sec for Regional Operations, Luzon G. L. M darao, 13 June 1989</td>
</tr>
<tr>
<td>Gattaran and Baggao, Cagayan</td>
<td>Radiogram of DENR, Region 2, RED Baggayan to Sec. Fulgencio Factoran, Jr., 31 July 1989</td>
</tr>
<tr>
<td>Nueva Vizcaya</td>
<td>DENR Memorandum Order No. 2 signed by Sec. Fulgencio Factoran, Jr., 16 January 1990</td>
</tr>
<tr>
<td>Bukidnon</td>
<td>Order of Sec. Fulgencio Factoran, Jr., 30 April 1990</td>
</tr>
<tr>
<td>San Mariano and Ilagan, Isabela</td>
<td>DENR Order of Secretary Fulgencio Factoran Jr., March 1992</td>
</tr>
<tr>
<td>Real and Mauban, Quezon</td>
<td>DERN Order of OIC Secretary Victor O. Ramos. 13 April 1992</td>
</tr>
<tr>
<td>Palawan</td>
<td>DENR DAO No. 45 signed by Sec. Algel C. Alcala 22 October 1992</td>
</tr>
<tr>
<td>Quirino</td>
<td>Order of Sec. Angel C. Alcala, 18 May 1993</td>
</tr>
<tr>
<td>Sarangani Province</td>
<td>DENR Memorandum Order No. 25 signed by Acting Sec. Ben S. Malayang III, 3 December 1994</td>
</tr>
</tbody>
</table>

Source: FMB/DENR (1999)
The perception remains that many of the TLAs overcut and did not practice sustainable forest management (Wallace 1993; Vitug 1993). Corruption, payoffs, and irregularities (e.g. over-harvesting, trespassing, and avoidance of forest charges) in the regulation, review and approval of resource-use rights and transport permits could spawn unholy alliances and collusion between the DENR, military and TLA holders (Seve 1995).

**Destruction of coastal and marine resources**

Only 4 percent of corals in the Philippine coastal areas are in good condition. Some 30 to 50 percent of seagrass beds have been lost, and two-thirds of mangrove forests were destroyed during the last 75 years. These impacts are believed to have been directly or indirectly caused by large-scale commercial timber harvesting and poor logging practices. Commercial timber harvests in the natural forests have been perceived to intensify deforestation and degradation, which accelerates siltation of estuaries and river mouths, and ultimately affects coral reefs, and marine sanctuaries.

**Increasing migration**

Upland migration is estimated to be 2.8 percent annually. Halting commercial logging operations may help to slow down this trend since loggers provide access roads to residual and logged-over areas. These areas have become highly vulnerable to conversion and settlement by migrants.

**Displacement of indigenous peoples**

About 6.3 million indigenous people live in the forestlands. Commercial logging practices have been blamed for the corruption of indigenous knowledge, attitudes, and traditional practices. Timber logging bans have also been suggested as a key strategy to ensure that the indigenous people are not displaced from their land and continue to have access to the natural environment.

**GOALS AND OBJECTIVES OF THE LOGGING BAN**

**Goals and objectives**

The logging ban or moratorium of commercial logging covers a wide range of coals and objectives. These are not clearly specified in statutes or directives, but are inferred from a review of FMB/DENR's list of logging bans as follows:

- Protect the critical watersheds or drainage areas of river systems supporting existing, or proposed hydroelectric power facilities, irrigation works or existing water facilities in need of immediate protection or rehabilitation (PD 705).
- Watershed protection is the basis of the logging ban in Benguet, Nueva Vizcaya, Angat and Penaranda, Quirino, and in other watershed areas.
- Protect the forest cover of areas that are highly prone to flash floods and hazardous flooding. This is the basis for logging bans along the Marikina-Infanta Highway, in central Luzon, parts of Nueva Ecija, Catanduanes, Zambales, Leyte and Southern Leyte, parts of Cagayan, Pangasinan, Mizamis provinces.
- Preserve biodiversity and protect threatened habitats and sanctuaries of endangered and
rare species. This is the basis for logging bans on the island of Palawan, Negros Occidental, Sarancani, Siargao islands, and other protected areas.

- Allow natural regeneration and development of plantation forests. This is the basis for logging bans in provinces with a timber deficit, or areas whose forest cover is below 40 percent of the total land area.

EXPERIENCES IN IMPLEMENTING LOGGING BANS IN NATURAL FORESTS

The effects of selected logging bans have been mixed and highly variable. The imposition of logging bans in most of the provinces, and the subsequent cancellation, non-renewal and suspension of logging activities, generally turned forestlands into open access areas (Fernandez et al. 1989; Bautista 1994; Lopez-Gonzaga 1995; Carandang et al. 1996; Ronquillo-Manila and Gallego 1992). This invited the entry of illegal cutters in response to the increasing demand for forest products. More than half of the cancelled TLA areas were completely destroyed (18 out of the 32 areas surveyed) despite the easing of social unrest (Fernandez et al. 1989). Imposing logging bans causes more damage to the environment because illegal cutters extract forest products without long-term interests or accountability (de los Angeles and Oliva 1996). Logging bans burden the Government with more forest protection efforts that are not as effective as those provided by land holders (Mickelwait et al. 1999).

Logging-bans eliminated revenues from logging charges that the Government would otherwise collect. Assuming that 50 percent of the annual demand of 5 million m$^3$ come from illegally harvested logs at an average forest charge of P500/m$^3$, the Government losses amounted to about 1.25 billion pesos. Logging bans encourage illegal logging, which causes market imperfections and imbalances in the local prices for forest products. Logging, bans also encourage illicit alliances among financiers, illegal cutters, the military, and DENR field personnel. For example, the imposition of the commercial logging ban in Nueva Vizcaya spawned the growth of a small-scale furniture industry that thrived on wood supplies from small-scale illegal loggers (Bautista 1994). In summary, logging bans do not guarantee forest conservation as long as domestic demand is strong and access to the forestland is open.

Proposed bills on logging bans

The proposed bill to enact a logging ban under Senate Bill S. No. 1067 (11th Congress of the Republic of the Philippines 1999) entitled. "An Act to Protect the Forest by Banning All Commercial Logging Operations, Providing Mechanisms for its Effective Enforcement and Implementation and for Other Purposes" intends to:

"Conserve and enhance the natural resources, not only of its economic or environmental role, but also because of its social and cultural importance; prevent environmental disaster and sustain for the succeeding generations the natural wealth of the nation. Towards this end, the State shall provide sufficient forestlands, vigorously pursue and support protection and conservation, promote and encourage the involvement of all sectors of society and maximize people participation in forest conservation and protection".

The key provisions of this proposed bill are:
prohibition of all commercial logging operations in all types of forest (old-growth and residues for a period of 20 to 30 years;
provision of mechanisms and funding support for monitoring and evaluation, and increasing and strengthening forest protection activities;
dependence on forest plantations and substitutes; and
provision of social safety nets for the upland population and industry workers.

In this case, commercial logging means the "cutting, felling, or destruction of trees from old-growth and residual forests for the purpose of selling or otherwise disposing of the cut or felled logs for profit."

The partial logging ban bill, particularly the "Act Providing for the Sustainable Management of Forest Resources and for Other Purposes" (Senate S.B. 1311) allows logging in residual forests but not in old-growth forests, areas above 50 percent slope, mossy forests, national parks and protected area systems. Good-performing and existing TLA holders may convert to co-production, joint venture or production sharing agreements after expiry of their current contracts. The partial logging ban approach embraces sustainable and integrated management and development of forest resources. It utilizes watersheds as the planning unit, adopts community-based and multi-sector participation in forest management, and provides for permanent forest boundaries. Reforestation and agroforestry are key interventions in marginal forestlands. Finally, the bill encourages professionalism in forestry, security of tenure, and the need to conserve biodiversity. This is also one of the private sector's acceptable modalities for the future of forestry in the Philippines (Olizon 1991).

AN ASSESSMENT OF LOGGING BAN IN RESIDUAL NATURAL FORESTS

The residual forests in natural forest production areas are not explicitly covered by the logging bans and therefore are potential targets for future timber harvesting by either holders of TLAs, CBFMAs, IFMAs, and to a certain extent, CADCs.

Policy implications

Several policies and actions are required to effectively implement a logging ban in the Philippines' residual forests. Whether a partial or complete logging ban is imposed, new and modified Government and DENR policies and support systems will be necessary to ensure that mechanisms, services, logistics, and structures and other relevant sub-systems are in place to implement and enforce the ban. Otherwise, as stressed by Fernandez et al. (1989), Bautista (1994), Carandang et al. (1996) and Mickelwait et al. (1999), a logging ban policy for the residual forests could quickly become ineffective. Even enforcing the existing logging ban policies has almost been impossible. Unless Government resources are re-allocated, aligned and committed for enforcement, the logging ban in residual forests cannot ensure the protection and management of the remaining natural forests for ecological and biodiversity purposes.

The proposed logging ban in residual forests in active TLAs, CBFMAs. CADCs and open access forestlands would require the following:

- Empowerment of the LGUs to enable their participation in actively managing forestlands (Mercado 1998; Magno 1999): Although the LGUs have to ensure that their forests do not become an open-access resource, the Local Government Code currently has no provision
to prevent this from happening. In fact, most LGUs with logging bans affecting their lands would be deprived of revenues. Currently, the LGUs also do not have enough incentives or interest to risk their own well-being to enforce forest protection. Policies are needed to empower the LGUs to more effectively protect forests under their jurisdiction.

- Provision of consistent and stable policies to provide incentives to communities to protect their own forestlands: Presently, this is not the case. Community access to resources, and stability of this form of tenure, are extremely vulnerable and subject to cumbersome regulations. They largely depend on the mood and perspective of the current DENR leadership (Mickelwait et al. 1999; DENR DAO 2000-29; Cadaweng and Guiang 1999; NRMP/Region 10, 1999; ESSC 1999b).

- Improvement of policies for private investments in tree plantations and related wood-processing facilities: The Philippines is 15 to 20 years behind in the establishment of industrial tree plantations as a means to augment wood supplies (Cadiz 1999; World Bank 1999c). Only stable, consistent and predictable forest policies and a system of deregulation and decentralization will attract private investments in tree plantations (Olizon 1991; Lu 1998; Oposa 1995). The present policies are highly regulatory in nature and transaction costs are too high. For instance, various local stakeholders in 13 regions reported that at each major checkpoint transporters were charged approximately 250 pesos for passage. In Region 4, a medium-sized truck carrying a load of wood pays 3,000 to 7,000 pesos at each of the 14 checkpoints from Dinadiawan to Bulacan. An audit report of the CBFMA holder in Lianga, Surigao del Sur showed that there was a "leakage of at least 30 percent of the total income as grease money." There is extreme need to simplify and deregulate the harvest and transport of timber derived from plantations. Fast-growing hardwoods must also be reclassified as agricultural crops to minimize regulations.

- Provision of an appropriate incentive system to encourage field personnel to improve enforcement of DENR policies: The role of the DENR should shift from regulation to one of providing services to communities, the private sector, LGUs and NGOs. This change will require significant investments in training, re-orienting, re-engineering and modifying operational policies (Bortagdan 1998).

- Demarcation and identification of forest resources in communities where residents may harvest for construction and other domestic needs.

- Improving access to foreign exchange to facilitate the importation of forest products, particularly from within the Asia-Pacific region.

- Allocation of funds to support forest protection, monitoring, information and education, public awareness programs., and extension.

**Economic implications**

The economic implications of the logging ban policy on residual forests center on how the Government can:

- meet the demand of the domestic construction and furniture industries for forest products;
- generate enough revenues to support forest protection and law enforcement;
- minimize losses of resource values due to the expected increase in illegal cutting;
- encourage the use of non-wood substitutes; and
- generate sufficient foreign exchange earnings to pay for imported timber products.

The proposed logging ban will require the Government to take the responsibility to protect and manage the remaining natural forests, whether these forests are in protected areas and reservations, entrusted to communities and indigenous people, or under private sector control.
The logging ban will eliminate the financial incentives for the holders of CBFMAs, CADCs, TLAs and IFMAs to protect and manage their residual forests (Guiang and Harker 1998). Timber extraction from the remaining residual forests remains profitable at current prices (Laarman et al. 1995). Estimates indicate that the Government must increase its 1995 budget by 10 percent or P300 million annually to fund increased enforcement (de los Angeles and Oliva 1996). However, Hyde et al. (1998) and Mickelwait et al. (1999) estimate that it will cost considerably less if communities protect forestlands through long-term tenure agreements than if the Government protects these lands.

The major economic costs of a commercial logging ban include (de los Angeles and Oliva 1996; Bautista 1994; and Carandang et al. 1996):

- the foreign exchange outflow needed to import forest products;
- lost income from timber harvest when forestlands are converted to alternative uses;
- the increased cost of monitoring and enforcing the logging ban; and
- the costs of assisting displaced communities to shift to alternative income sources.

In 1997, approximately US$1 billion was spent on imported forest products (FMB/DENR 2000). In addition, there are also opportunity costs (loss of value) related to converting high-value illegally cut forest products into low-value products, for example converting high-value wood planks in Quirino into wood tiles. It appears that under a complete logging ban policy both the national Government and the environment become the losers and the entire Filipino society would suffer.

**Environmental implications**

Adequate implementation of logging bans will definitely allow the degraded natural forests to regenerate over time. Under proper management and protection, the natural forests can recover and ensure a constant wood supply (Tagudar 1997). In theory, if a logging ban is adopted, there will be no further damage to the forest stand and soil from logging activities (Ludwig and Pena 1991). A logging ban with managed natural regeneration can have a positive impact on the wildlife population with the exception of flora (Alonzo 1993; CPPAP 1999). De Padua and Cardenas (1996) and Rojo (1996) found that residual forests have higher biodiversity than old-growth forests. Sustainable forest management will also improve the upper watersheds. Carbon sequestration in the residual forests and brushlands will accelerate since there will be less disturbance and destruction in the timber lands.

Analysts expect there will be an increase in illegal logging activities. As estimated, this will involve cutting on approximately 90 000 ha, constituting an important part of the annual average deforestation of about 100 000 ha. These illegal activities further complicate issues involved in slash and burn farming and the conversion of brushlands to upland farms.

Without necessary financial support mechanisms and "social fences," the implementation of a logging ban for the residual forests will not achieve the desired positive environmental impacts. If the logging ban is to be a success, there must be clearly defined and enforced property rights. Stable and consistent policies must be adopted, and appropriate incentives must be provided for I communities, LGUs, and DENR field staff to enforce the logging ban (Sinues 1997; Knox 1999; Laarman 1994; Johnson 1997).

**Social implications**
The logging ban will have a positive effect on the implementation of the Indigenous People's Rights Act Law. Many indigenous people have been displaced as a result of commercial logging. There will also be less migration to the uplands because there will be fewer logging roads. This is not the case, however, in open access forestlands, where commercial logging has already taken place. Many logging roads are still functional and are being used by migrants to access the uplands.

The displacement of forestry workers and a decline in the economic vitality of areas dependent on commercial logging are the major social impacts of logging bans (de los Angeles and Oliva 1996; Ramirez and Laarman 1993). It was estimated that a reduction in log production from 4.1 million m$^3$ to 2.7 million m$^3$ from 1987 to 1993 resulted in 34,000 jobs being lost. If a total logging ban is adopted, the forest industry will miss numerous opportunities to create more jobs in the rural sector.

The logging ban policy will also significantly affect rural economies. Schools and clinics may have to close, road maintenance will be reduced, and power plants in many logging communities will probably shut down unless there is significant transfer of financial resources from the Government. The major source of "standing capital" and the livelihood for the CBFMA holders will cease to exist (DENR/CBFMO 1999). It will also mean that the Philippines has chosen to interpret sustainable forest management as consistent with the logging ban policy and not with sustainable utilization of forest values including timber. Indirectly, the Government will have opted not to respond by utilizing residual forests to address the increasing poverty in the uplands (FMB/DENR 1999).

Impacts of logging bans on neighboring and exporting countries

Imposing a commercial logging ban in residual forests will mean that more forest products will be imported from Australia, Malaysia, New Zealand, USA and South Africa. Imports of forest products totalled US$1 billion in 1997 and are expected to increase (FMB/DENR 2000). Imports will continue for as long as the wood industry faces wood shortages (Fernandez 1997). The Philippine's dependence on imported wood will remain until the country has enough forest plantations to meet its domestic demand. At an average yield of 200 m$^3$ per ha of fast-growing forest plantations, a total of 25 000 ha per year will be needed to meet the average annual demand of 5 million m$^3$.

CONDITIONS NECESSARY FOR THE SUCCESSFUL IMPLEMENTATION OF A LOGGING BAN IN ALL NATURAL FORESTS

The results of this study suggest that logging bans must be supported by a number of factors if they are to be effective in meeting natural forest protection and conservation goals. Necessary and sufficient conditions include:

1. Empower the LGUs by including them in joint DENR land-use planning exercises. By empowering the LGUs to jointly plan and allocate forestlands and to issue resource-use rights based on the approved land-use plan, forestlands and forest resources will be better protected and managed.
2. Decentralize power, authority, accountability and responsibility within the DENR bureaucracy and adopt an appropriate incentive system for DENR staff. This should be
accompanied by clear definition of responsibilities, accountability, and authority for Community Environment and Natural Resources officers, Provincial Environment and Natural Resources officers and Regional Executive Directors (Tesoro 1999; Gaon et al. 1996).

3. Provide defined and stable tenure and resource-use rights for communities, legitimate individuals and the private sector for public forestlands. Co-management with LGUs, communities. NGOs and environmental groups may be the way to block open access (Johnson 1997; Hyde et al. 1997; Lopez-Gonzaga 1995). Tenure arrangements should provide economic incentives for communities, both indigenous people and upland migrants, to enable their participation in forest protection and management.

4. Set up a system to monitor the key indicators of sustainable forest management at the community, LGU and DENR levels (Johnson 1999). A self-governing multi-sector forest protection committee (DENR 2000) could help facilitate the community-based monitoring system.

5. Provide effective DENR Extension Delivery Systems for communities, forest occupants, LGUs and the private sector (Borlagdan 1998) to accelerate the establishment and development of tree farms, agroforestry systems, forest plantations, and natural regeneration. It will also be necessary to provide key economic infrastructure to upland communities. Accordingly, forestry education should focus on the science of multiple-use forestry, protection, rehabilitation and conservation of natural forests, forest plantation development, community participation and extension (Revilla 1998).

6. Make available long-term financing at acceptable terms for tree plantations, agroforestry systems and permanent crops.

7. Encourage international third-party certification of forest management under the tenure of TLAs, CBFMAs, LGUs and indigenous people. Third-party certification will gradually improve the credibility of the DENR, tenure holders and LGUs.

8. Demarcate forest boundaries, especially for forestlands that may be allocated for sustainable production and those that are designated for protection. This may be approached through a land-use planning, exercise involving the DENR and the LGUs.

9. Implement predictable, consistent and stable operational forest policies (Seve 1995; Olizon 1991; Lu 1998) with strong stakeholder participation during the formulation and validation process.

10. Provide sufficient budgetary allocations to efficiently manage protected areas on the basis of sound zoning, technical interventions and clear institutional arrangements (CPPAP/DENR 1999).

11. Allocate sufficient foreign exchange for the projected imports of timber and forest products to meet domestic demand.

12. Establish and manage a "safety net fund" to cushion the negative social impacts of the logging ban and minimize further marginalization of the upland residents who are highly dependent on forest resources for their livelihood.

CONCLUSIONS

This case study concludes that:

Guarantee forest

- Banning timber harvests in the remaining productive residual forest will not guarantee forest conservation or protection of remaining biodiversity.
The LGUs are probably in a better position to implement logging bans, provided they are empowered and supported by the national Government. In that case, the DENR should provide the LGUs with technical assistance.

The DENR, LGUs, communities, NGOs and the private sector do not have appropriate incentives or support systems to enforce a commercial logging ban on all natural forests.

The open access conditions prevailing on almost 5 million ha of forestlands make it almost impossible to enforce a logging ban in those areas.

The increasing domestic demand for logs and construction is the main incentive to log illegally. As long as the marginal revenue is higher than the marginal cost of extraction and transport, especially in easily accessible natural forests, illegal logging will continue.

Inconsistent, highly regulated and unstable government policy in tenure and resource-use rights, combined with the lack of long-term financing and high rates have constrained the development of forest plantations.

Concerns about biodiversity, ecological sustainability, administrate and management costs and adverse social and economic impacts could be best addressed if the Government would strategically invest its limited resources to:

(a) protect forest resources that have high levels of biodiversity endangered, threatened and rare species and habitats, and sanctuaries of highly endemic; and
(b) provide incentives to communities to participate in conservation and preservation. The Government and environmental NGOs must gradually with their land protection strategies from a philosophy of "protect, prohibit, and to "protect, participate, and profit."

In the short-term, the Philippines will continue to depend on imports of timber and forest products until domestic wood supply sources have been better developed. In the meantime, the country may optimize yields from the remaining productive residual forests, while accelerating the establishment and development of forest plantation over the next 10 years.

POLICY OPTIONS

There are two major options for the forestry sector of the Philippines

Maintain and strictly enforce the existing legislative logging bans and administrative logging ban policies

This option continues the existing administrative and legislative logging bans and urgently calls for accelerated efforts to block open access natural forests by entering into joint ventures and agreements with LGUs, communities, NGOs and the private sector in protect and manage these forestlands.

The remaining residual forests outside specifically designated closes areas will not be protected and managed without organized and sustained efforts to halt access open forestlands. The TLAs, CBFMAs and CADCs will continue supplying timber from residual forests but with more effort to increase supplies from forest plantations. This approach will empower communities to protect and manage their natural forests, provide them with economic incentives, and ensure that property rights are recognized and formalized.

There is an urgent need to open certain areas to the private sector under joint production or joint venture agreements, provided that the holders of these agreements strike a fair arrangement with the communities involved. The CBFMA holders would be allowed to harvest
from the natural forests as part of the arrangement.

The estimated 2 million ha of productive residual forests could easily provide 2 million m$^3$ of wood annually under the assumption of a 35 year cutting cycle and a conservative annual growth increment of 1m$^3$. While timber harvests are allowed in the residual forests, there should be a parallel strategy and program to promote the establishment of forest plantations to reduce the long-term dependence on natural forests.

**Complete logging ban in all natural forests**

Under this option, all holders of TLAs, IFMAs, CBFMAs and CADCs would be restricted from harvesting timber from any natural forests. These areas would be permanently taken out of timber production. The Government will have to decide how to:

- meet domestic demand through imports, plantations and non-wood substitutes;
- design and provide incentives for upland communities to participate in protecting and managing natural forests;
- solely bear the burden of forest protection and management in all allocated and unallocated forestlands;
- design and implement a decentralized and devolved system of protecting and managing an natural forests;
- design and implement a performance-based system to monitor key indicators of the logging ban policy;
- strengthen the DENR to enforce the logging ban policy; and
- accelerate the establishment and development of forest plantations.

Under this option, the Government takes upon itself the gargantuan job of protecting and managing the remaining natural forests, whether these are within or outside the protected area systems, forest reserves, areas covered by various rights and those areas considered as open access.

**RECOMMENDATIONS**

This case study recommends that the Philippines adopt a strategy that incorporates the major features of the first option above. The Government should seriously consider four areas for urgent action:

- Invest in blocking off open access forestlands at all cost.
- Deregulate, decentralize, devolve, standardize, simplify, and stabilize policies on tenure, resource-use rights, forest products processing, financing for forest plantations and delivery of extension services in support of protection and management of forest resources.
- Establish a monitoring system for key performance indicators of the forestry sector including forest covers forest area, supply and demand of forest products, biodiversity, open access, management systems and investments.
- Allocate funds to project and manage key protected area-systems, reserves and sanctuaries and let other stakeholders protect and manage the remaining forestlands and resources by providing appropriate incentives.
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Notes

1 Based on discussion with Director Bert Argete of DENR Policy and Planning Services, the 100,000 ha per annum deforestation rate of the Philippines was based on projections using two forest cover data points. The Points are the forest covers in 1980/81 (based on aerial photos) and in 1987/88 (based on SPOT imagery). This deforestation rate is oftentimes contested in public meetings and fora; however, it is used in this paper for lack of other reliable information.

2 US$ 1 = 49 pesos

3 Under the Regalian Doctrine, all lands of the public domain, waters, minerals, coal, petroleum, and other mineral oils, all forces of energy, fisheries, forests or timber, wildlife, flora and fauna and other natural resources are owned by the State (Section 2, Article XII of the 1987 Constitution).

4 Figures vary. Wallace (1993) estimated that 60 out of 75 provinces were under logging bans; others say that about 48 out 76 provinces have logging bans; the FMB/DENR data (1999) compiled a list of logging ban areas. The list is comprehensive and cuts across provinces and regional boundaries.