

### **3.0 SCENARIOS FOR THE SECTOR**

#### **3.1 The New Outlook**

The new outlook for the forestry sector can be a combination of several outlooks as follows: landuse, productivity, demand, supply, human resource, policy and institutional changes that encompasses the different aspects of the sector. Past trends and current situation provide material for outlook studies relating to different subsectors of forestry.

Typically, outlook for forestry is based on a series of projections. For example, future production of goods and services can be estimated, based on projections of several interacting elements of forestry such as forestland (area), technology/productivity, human resources, demand/consumption pattern and others. Each of these, in turn, depends on influencing factors, such as income, price and related elasticities, availability of substitutes, competing demand, efficiency levels in production, processing and use. Projections, as a planning tool are normally based on information about past trends, or potential outcome of different policy interventions.

Projections are extrapolations in space and time. Projections of future situations are useful and necessary to provide a basis and guidance for planning and setting targets. Projections are based on knowledge about the past and assumptions about influencing factors and functional relationships. Projections assume continuity of trends, which is not always true and realistic. Projections can vary in their nature, complexity and scope based on different and alternative assumptions. Projections can provide a range of potential situations that are likely to be encountered with positive or negative implications or impacts.

Outlook is what is seen as a prospect, in the future. It can be expressed both in qualitative and quantitative terms or as a combination of these. When we talk about the forest area outlook, we mean both its extent and health/quality; and the outlook of forestry often means the level of assumed technology, relative importance etc.

An important aspect of outlook analysis in forestry is supply-demand balancing. Policies relating to several factors influence both demand and supply. If information and other data are available, it should be possible to make adequate projections of future supply and demand. But apart from deficiencies in data available, much remains to be learned about factors which influence people's use and dependence on forest products. In view of this, it has not been possible to make realistic projections. However, it is necessary to indicate the range of values to be used for developing growth goals. In respect of wood supply-demand balancing, since supply sources will undergo considerable changes, supplies should increasingly be obtained from high-yielding forest plantations, village forests and agro-forestry plots. The natural high forest will then be conserved for their environmental/ecological values.

Demand, by definition, means the desire for a particular good or service supported by the means to purchase it. Demand for forest products at the national level is influenced by several factors such as: population, disposable income, literacy rate, price of the product, price of substitutes and complementary goods, and credit terms. Elasticity of demand for a product is based on income and price changes and depends on the nature and characteristics of the product.

#### **3.2 The Integrated Wood Balance Model**

A substudy on the integrated wood balance model was conducted primarily to augment outlook analysis. A complementary effort was also made under the section on forest-based industries (Section 2.10) basically to analyze demand of wood and other raw materials by the housing and furniture industry.

### 3.2.1 Background

Between the periods 1960 to early 80s, the forestry industry in the country was a very viable and progressive industry. Timber production businesses were very vigorous while log production was booming. Logging was then one of the backbones of the economy providing direct employment to over 400,000 people and livelihood opportunities for over 2 million people. It also provided the country with valuable foreign exchange as around 50 to 75 percent of log production was exported during that period. Highest export was recorded in the late 1970s when around 7.5 to 7.9 million cu m of raw logs were shipped abroad annually. Total wood product exports during the same period totaled to almost 10 million cu m. This accounted for almost 10 % of the country's total export earnings. The country's log export was bannered by the "Philippine Mahogany Lumber," the international trademark of high quality Philippine wood that was much sought-after in the international market. The country then was a net exporter of wood and wood products.

Today, timber business from natural forests in the country is considered by many, including many industry insiders, as a sunset industry, mainly because of the lack of access to raw wood materials from natural forests by which they can process and sustain operations. Investments in new plantations, even in private lands, are hampered by bureaucratic regulations and flawed policy implementation. Meanwhile, the industry's facilities are fast becoming obsolete while establishment of new plants are not rationalized. These results to high production and marketing costs, further discouraging fresh investments in the sector. From a net exporter of wood, the country at present is a net importer of wood and other wood products.

The lack of raw wood materials was triggered by many factors. Primarily, the reduction of logging concessionaires from almost 400 licensees in the early 1970's to merely sixteen at present took its toll on wood supply. The lack of appropriate management systems that could have taken over many expired and cancelled timber license areas saw the expansion of open access areas that resulted in rapid destruction of many residual dipterocarp forests. A study conducted by the Fernandez, et. al. (1987) showed that rate of forest destruction was enhanced in areas where logging operations stopped resulting to subsequent pull out of private forest managers as compared to the periods when the TLAs were still operating. This was primarily due to the uncontrolled take over of many upland farmers including displaced company workers over cancelled or expired concession areas.

Another factor that contributed to the decline of raw material supply from the forests was the policy shift in the utilization and disposition of forest resources. The provision under the 1987 Philippine Constitution where exploration and utilization of natural resources by private entities can only be allowed under joint venture, co-production and production sharing agreement with the government, practically prohibited the renewal of timber licenses. Cutting from virgin forests has been banned since 1992 (through NIPAS Act or RA 7586 & DAO 02, 1992). Furthermore, many timber concessionaires operating in secondary forests were cancelled or suspended in the early 90s in view of emerging environmental problems allegedly caused by logging. The Integrated Forest Management Program (IFMP) which is supposed to promote forest industrialization and creation of employment opportunities and boost sustainable wood production is still hampered by many operational problems.

Meanwhile the demand for wood products continues to soar. The lack of legal supply prompted significant importation of logs and other wood products beginning the mid 1990s. Product substitution using coconut lumber became attractive to the detriment of coconut industry. Timber poaching from the natural forests became lucrative. Woods from private tree plantations (both from public and private lands) were able to fill up significant part of the demand. However, the inadequacy of locally-produced industrial timber continued to exacerbate while upland population exerting pressure on forest resources continued to soar. At present, approximately 3.8 million hectares of forest lands are considered under open access situation.

The Master Plan for Forestry Development in the Philippines (MPFD, 1990) projected that the demand for wood products would steadily grow by an average of 5 percent every year until the Year 2015. However, the potential sources of timber would steadily decline for three reasons. First, the gradual phase-out/non-renewal of expiring timber license agreements (TLAs) resulting to much decreased supply of timber from natural forests. Second, the supply of coconut lumber would drastically decrease due to protection efforts being instituted by the coconut industry, and the fact that there is hardly any old stand of coconuts to harvest by the year 2005. Finally, other exporting countries are now restricting exports of logs. Indonesia for example has already banned its log export from its natural forests.

These scenarios converge to an impending and serious wood shortage by the year 2005 and onwards. Due to current economic difficulties sweeping the country, and as the government continue to incur budget deficits, it is foreseen that public investments in forestry would be harder to come by. Hence, private investments in forestry would play a critical role in the rebound of forestry in the country. It is also urgent that the government and the private sector anticipate this problem to come up with early solutions.

This study on the Philippine wood balance situations primarily aims to evaluate the opportunities that our forest resources can offer in view of the divergent concerns of many stakeholders regarding utilization of forest resources. It explores the enabling conditions by which the country could benefit from its resources without endangering the fragile forest environment which also provides other benefits aside from timber. This model does not set targets to be pursued the sector in the future but is meant to be used as a guide by the government and the forestry sector as a whole in evaluating impacts of different forest landuse decisions and resource utilization directions to future wood supply situations.

### **3.2.2 Objectives**

The general objective of the study is to analyze the trends in wood balance situations in the Philippines under different policy situations and strategic land use assumptions in support of the assessment and revision of the 1990 MPFD. The specific objectives are:

- to develop a framework describing the wood production and utilization trends in the country;
- to assess the wood resource base and potential wood supply of the country;
- to evaluate the demand of wood in the country under the past, current and future conditions;
- to evaluate potential sustainable supply of wood;
- to use the model as a decision support tool for analyzing the wood balance situation in the Philippines and continually improve supply and demand projections as accurate data come along;
- to recommend policy adjustments relative to providing sustainable wood supply.

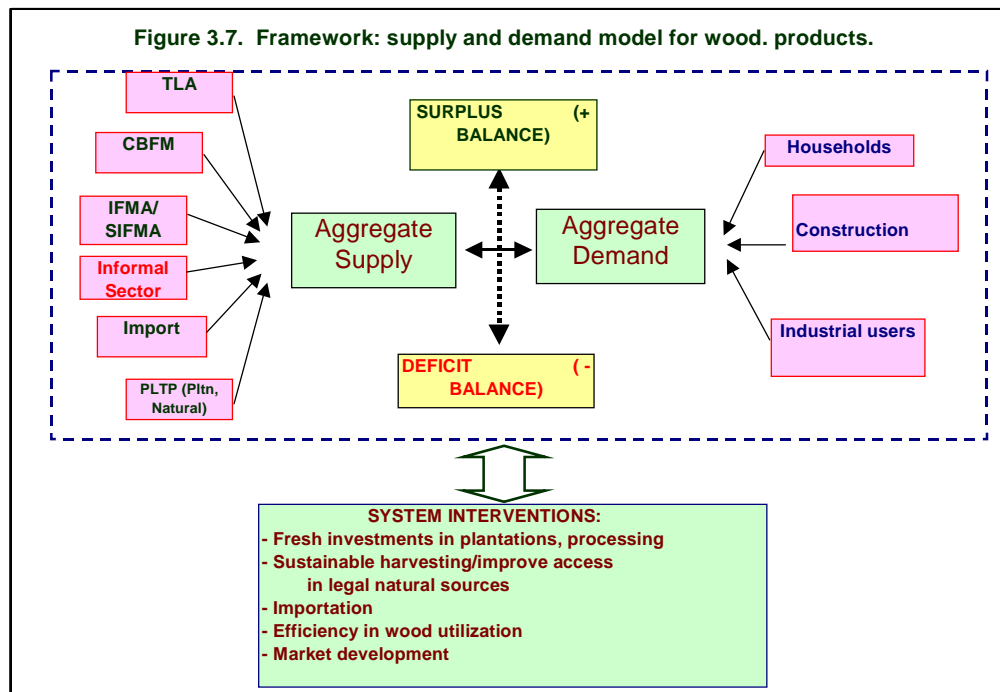
### **3.2.3 Methods**

A wood balance framework was developed to provide a platform for disaggregating different supply sources (Figure 7). The framework also provides potential interventions to narrow or eliminate the gap between supply and demand.

The study relied mainly on secondary data from the Philippine Forestry Statistics of FMB, Philippine Statistical Yearbook (2000), ENRAP studies, etc., to assess the extent of forest resources in the country. Likewise, the trends on wood production, export and import, and availability of raw materials from various sources were also analyzed. A limited validation of national statistics was also conducted based on the regional data submitted by selected regions.

The past, present and future demand for and supply of wood in the country were evaluated using secondary data. The study relied on some assumptions particularly on the production and consumption trends for the past 12 years. Individual supply and demand accounts for different major wood products like sawlogs, peeler/veneer logs, poles and local construction timber, pulpwood and fuelwood/firewood, and for secondary wood products like sawnwood/lumber and plywood were also analyzed and projected. Subsidiary accounts for relevant non-timber forest products were also developed and formulated.

The average changes in demand and supply for these wood products for the period 1990 to 2000 were determined. These were then used to project the demand and supply for the years 2005 to 2030 considering some adjustments. The surpluses ( or deficits) for the years 2005 to 2030 were also based on several assumptions listed as footnotes in each table.



### **3.2.4 Results of the Substudy**

#### **3.2.4.1 Physical Forest Account**

In year 2000, the Philippines has a total forest land area of 15,854,922 ha (Table 3.43). Of this, 1,089,118 ha (6.87 %) are still under the category of unclassified public forest land. Dipterocarp forests covers around 3,448,500 ha of which around 796,900 ha are old growth, hence, closed to logging. Of the remaining 2,651,600 ha of residual dipterocarp forests, there is still an estimated 30 % to be covered under protection forest, hence, total area available to sustainable harvest is around 1,856,100 ha.

There is also an estimated 65,000 ha forest plantations within private lands in the year 2000 (both registered and unregistered) based on adjusted figure from Carandang, M. et al, 1998.

#### **3.2.4.2 Potential Timber Volume**

In 2000, there is an estimated 642.3 mil cu m of timber in the Philippine forests including those timber planted in private lands (Table 3.44). Of these, 254.22 mil cu m are within residual production forests. Volume of old growth dipterocarp forests was estimated at 198.79 mil cu m for the same year. This level is projected to decrease insignificantly through time due to its inaccessibility and strict protection.

There is also a significant volume of wood in brushland areas amounting to 22.32 mil cu m. However, these timbers exist in non-commercial quantities per unit area and are subject to unregulated fuelwood gathering. Brushland areas are also prone to occasional burning.

#### **3.2.4.3 Forest Management Systems**

In 2000, around 12.034 million ha (75.90 %) of forestlands are under formal management systems (Table 3.45). The bulk of these is covered by CBFM program where around 5.708 mil ha are under various CBFM projects. CBFM is expected to expand further to around 8.5 mil ha by the year 2015 as envisioned by the Department. All TLAs are expected to expire on or before Year 2011. Consequently, the number and area of IFMAs/ITPLAs and other modes of forest disposition such as joint venture, co-production and production sharing are expected to increase at 1.2 million hectares by 2015.

From a high of 413,600 ha of pasture/grazing leases in 1990, only around 122,000 ha are leased in 2000. The skid was primarily due to declining interest of pasture lease holders to continue with the business due to low economic returns resulting from low productivity of pasture areas, lack of government support to the business and high costs of operations, among others. However, initial consultations showed that the sector will endeavor to maintain at least 300,000 ha of permanent grazing and pasture areas through time, to be improved and intensively managed as such. This area can still be increased (or decreased) substantially as estimates of grasslands available for grazing is around 1.5 million ha (pls refer back to Table 3.43).

Considering the above statistics, a large chunk of public forestlands or around 3.8 mil ha is still under open access conditions. Considering further the social dimension of forestlands in the Philippines, there is a high probability that most of these areas are already claimed, occupied or cultivated. It maybe noted, however, that as envisioned under the Revised Forestry Master Plan, all open access areas will be totally closed by the year 2025. This means that all efforts shall be exerted to put every hectare of forestland in this country under a formal sustainable management system.

**Table 3.43. National physical forest accounts/landcover status.**

National Forest Account	1990/a	2000	2010	2020
Dipterocarp				
Old growth	861.2	796.9	756.6	756.6
Second Growth (Residual Dipt.)	3,287.6	2,651.6	2,254.1	2,254.1
Protection Forest	986.3	795.5	676.2	676.2
Production Forest	2,301.3	1,856.1	1,577.9	1,577.9
Mossy	1,113.7	1,029.8	977.4	977.4
Pine Forests	236.4	213.5	199.3	199.3
Closed	128.3	123.3	120.1	120.1
Open	108.1	103.4	100.5	100.5
Submarginal	527.4	467.6	430.3	430.3
Brushlands	2,455.6	2,200.4	2,040.9	2,040.9
Forest Plantations (Forest Lands)	364.3	720.8	1,143.6	1,143.6
Mangrove Forests	132.5	120.4	127.2	131.2
- Naturally-Forested Mangrove /d	128.5	112.4	102.2	102.2
- Mangrove Plantations	4.0	8.0	25.0	29.0
- Open/denuded/reverted fishponds	25.0	21.0	4.0	-
Grasslands/open areas /c	1,542.9	1,497.1	1,467.3	1,438.1
Extensive use/Cultivated areas /c	5,335.7	6,122.6	6,432.9	6,462.1
<b>Total</b>	<b>15,882.3</b>	<b>15,854.9</b>	<b>15,854.9</b>	<b>15,854.9</b>
PLTPs	50.0	65.0	70.0	70.0

**Notes:**

- a/ - PFS, FMB, 1990
- b/ - PFS, 1997, plantation data from Castillo, et. al.(1997).
- c/ - MPFD, 1990.
- d/ - ENRAP figure.

**Table 3.44. National forest volume account (in Mil cu m).**

Forest Type	1990	2000	2010	2020	2030
Dipterocarp					
Old growth 1/	212.42	198.79	196.81	194.84	192.90
Second Growth (Res. Dipterocarp) 1/	433.30	363.17	312.55	261.93	211.31
Protection Forest (30%)	129.99	108.95	93.76	78.58	63.39
Production Forest (70%)	303.31	254.22	218.78	183.35	147.92
Mossy					
Pine Forests 2/	24.76	23.64	23.17	22.71	22.25
Submarginal					
Brushlands 3/	24.56	22.32	20.41	20.41	20.41
Forest Plantations (Forest Lands) 4/	14.57	27.05	37.74	45.74	45.74
Mangrove Forests 5/					
- Naturally-Forested Mangrove Stands	5.19	4.78	4.69	4.59	4.50
- Mangrove Plantations	0.04	0.12	0.60	1.16	1.45
<b>Total</b>	<b>716.8</b>	<b>642.3</b>	<b>598.8</b>	<b>554.2</b>	<b>501.4</b>
PLTPs 6/	2.0	2.4	2.8	2.8	2.8

**Notes:**

- 1/ - PFS, 1990, for 1997 data, ENRAP, 2000.
- 2/ - PFS, 1990, & 1997.
- 3/ - Based on 10 cum/ha, initial estimates made by FRA, 2003.
- 4/ - Castillo, et a., ENRAP, 2000
- 5/ - ENRAP estimates, Estrada, 2000.
- 6/ - Based on average volume of 40 cu m per ha (all plantations).

Table 3.45. Forest area under different management systems (area in '000 ha).

National Forest Programs/ Access Systems	Y E A R				
	1990	2000	2010	2020	2030
TLA	3,762.0	910.0	75.4	-	-
CBFM/ISFP/FLMA (POFP)	596.3	5,708.4	9,000.0	9,000.0	9,000.0
IFMA/ITPLA/JV/CP/PS	304.0	548.0	1,300.0	2,034.4	2,034.4
Pasture leases/permits	413.6	122.0	300.0	300.0	300.0
SIFMA	-	22.4	25.0	25.0	25.0
TFL	13.0	19.0	20.0	20.0	20.0
AFL	110.0	91.0	200.0	300.0	322.6
Forest Res./Reservations	3,644.7	3,644.7	2,284.7	2,100.0	1,950.3
Natl Parks/Protected Areas	1,341.0	893.2	1,500.0	2,000.0	2,127.1
Fishpond	75.5	75.5	75.5	75.5	75.5
Areas under formal mgt	10,260.1	12,034.2	14,780.6	15,854.9	15,854.9
Open Access	5,622.2	3,820.7	1,074.3	-	0.0
Total Forest lands	15,882.3	15,854.9	15,854.9	15,854.9	15,854.9

Source: PFS, various years.

Notes: 1995 POFP coverage estimated from 1997 DENR Strategic Action Plan, all included under CBFM.

### 3.2.4.4 Wood Supply Projections

Based on current production levels, the supply of different round wood types from legal sources was projected in Table 3.46. Current production levels show that potential wood supply from legal local sources, both natural and artificial forests, is estimated at around 800,000 cu m in the year 2000. This is expected to slightly pick-up in 2005 and beyond due to increase harvest in plantations within CBFM and IFMA areas. However, the projected 2030 wood productions would be way below even with the 1990 level.

A subsidiary account for processed products as well as rattan and bamboo was also presented in Table 3.46. Future production of processed wood products would likely surpass the 2000 level primarily because of increasing contributions of supply from forest plantations.

Table 3.47 shows the projected timber production from various tenured areas within forestlands. Areas of IFMA/ITPLA and other modes as allowed by the 1987 Philippine Constitution, are expected to provide the bulk of wood needs by the country in the future. Currently, these areas are able to provide over 300,000 cu m of wood, both from natural and planted areas.

Table 3.48 presents the potential sustainable supply of wood from residual forests and forest plantations. Based on the analysis using very conservative estimates which utilized a uniform 40 years cutting cycle and a harvestable volume of 80 cu m for matured residual forests, with a safety factor of 70 % for wastes and logging inefficiencies, the potential sustainable supply is significantly higher than current harvests. However, the projected sustainable supply is seen to be decreasing through time because of projected decrease in residual forests by 38,400 ha per year (ENRAP, 1996). Nevertheless, a conditional sustainable annual harvest of 2.32 mil cu m can be steadily maintained if the continued decline of residual forests were fully arrested by year 2005.

**Table 3.46. Wood supply projections, local sources, in '000 cu m (status quo).**

<b>WOOD/PROD. TYPE</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
<b>Total Roundwood</b>	2,503	800	1,377	1,842	1,942
Sawtimber ('000 cu m)	2,045	362	1,001	1,339	1,412
Peeler logs ('000 cu m)	111	22	60	80	84
Pulpwood ('000 cu m)	335	400	306	409	431
Poles ('000 cu m)	12	16	10	14	14
<b>Fuelwood (million cu m)</b>	<b>22.97</b>	<b>25.18</b>	<b>27.62</b>	<b>30.32</b>	<b>33.29</b>
<b>Subsidiary accounts</b>					
Lumber ('000 cu m)	841	150	182	220	266
Veneer	49	178	215	261	315
Plywood ('000 cu m)	<b>397</b>	<b>286</b>	346	419	507
<b>Wood-Based Panels</b>					
Particle Board	17	40	48	59	71
Fiberboard					
Rattan (million lm)	19.3	32.3	39	47	57
Large diameter	7.7	12.9	15.6	18.9	22.9
Small diameter	11.6	19.4	23.5	28.4	34.4
Bamboo (million culms)	32.4	35.9	39.6	43.6	48.1

**Notes:**

- 1990 - 2000 figures, from PFS. Except for fuelwood and bamboo.
- All units in '000 cu m, except for rattan (in '000 lm) and bamboo (in '000 pcs).
- 1/ = based from average recovery rate of 56% from log to veneer.
- Roundwood production for years 2005-2030 was based on projected supply from various sources reflected in Table 5 with average percentage distribution from 1990 to 2000 data.
- A 10 % increase in the production of subsidiary accounts every 5 years is projected.

**Table 3.47. Projected production of timber from legal sources, status quo ('000 cu m).**

<b>SOURCES</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
TLA	2,503.0	113.0	30.0	-	-
IFMA/ITPLA	40.4	308.6	700.0	1,100.0	1,100.0
Natural		93.2	300.0	500.0	500.0
Planted	40.4	215.4	400.0	600.0	600.0
Logs from CBFM	-	50.0	250.0	350.0	450.0
Natural		50.0	100.0	100.0	100.0
Planted		-	150.0	250.0	350.0
PLTP (Natural)	2.5	10.2	5.0	-	-
PLTPItn	280.0	336.0	392.0	392.0	392.0
<b>TOTAL</b>	<b>2,825.9</b>	<b>817.8</b>	<b>1,377.0</b>	<b>1,842.0</b>	<b>1,942.0</b>



Table 3.48. Potential sustainable supply of timber from second growth forests and plantations.

<b>Second Growth</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
Area (million ha)	3.287	2.755	2.371	1.987	1.603
Volume (million cu m)	433.3	363.2	312.5	261.9	211.3
Sustainable cut (m cu m) a/	3.22	2.70	2.32	1.95	1.57
<b>Forest Plantations</b>					
Production Area ('000 ha)	364.32	676.24	943.59	1143.6	1143.6
PLtn Devpt schedule		156.0	222.8	-	-
Volume (million cu m)	14.6	27.0	37.7	45.7	45.7
Potential cut (m cu m)	0.31	0.57	0.79	0.96	0.96
<b>Total</b>	<b>3.53</b>	<b>3.27</b>	<b>3.12</b>	<b>2.91</b>	<b>2.53</b>

Notes:

- Steady rate of second growth loss from 1990-1997 is 38,400 ha/year (PEENRA/ENRAP).
- Estimated average volume of second growth is 131.821 cu m/ha, ENRAP, 1992.
- Estimated average volume of matured second growth is 181.0 cu m/ha.
- Sustainable cut from residual dipterocarp = total residual under production forests/40 yrs cutting cycle \* 80 cu m harvestable volume per ha \* .70 safety factor. Total residual under production forest estimated to be 70 % of total residual area.
- Potential cut from plantations = Area \* 0.30 (production forest) / 10 (ave.rotation) \* 80 (ave. vol.) \* .7 (waste factor).

Forest plantations is expected to significantly contribute to the wood supply balance on the basic assumptions that soonest, serious efforts shall be exerted to establish high quality forest plantations, while current existing plantations shall be strictly maintained and improved. Within the next 12 years, the country needs only to develop 467,400 ha of quality plantations in order to be self sufficient in plantation wood with plenty to spare for supplying the export demand. This area translates to a yearly plantation development of around 40,000 ha. This is physically attainable considering that for the last 20 years, the average annual plantation development rate in the country is around 50,000 ha. However, both government and the private sector must invest fresh funds to realize this scenario.

Although estimates for bamboo resources in the country is still very sketchy, available figures show that in year 2000, there is an estimated 28,000 ha of bamboo stands (both natural and planted, all sizes) in the country (Table 3.49). The potential supply from this stand is estimated at 35.9 mil culms. The potential supply of large diameter culms is around 40 % of the total supply. With the inclusion of bamboo plantation as one of the strategic development components in several CBFM sites, this supply is expected to increase steadily until year 2030, provided that current stands are strictly protected from destruction and land use conversion.

One of the major wood needs of the country is fuelwood. A great part of fuelwood supply is burned in rural firewood stoves and urban charcoal stoves. FAO (1988) as stated in Carandang, *et. al* (1999), estimated that the per capita consumption of fuelwood in the country is around 0.566 cu m per year. Table 3.50 shows the potential supply of fuelwood from various sources. The leading source of fuelwood in the country is from agricultural areas, most notably, from coconut plantations and boundary tree plantings along farms. This accounts for 55.25 % of total fuelwood supply. However, a large chunk of fuelwood supply is still sourced from natural forests accounting for 38.75 % of the total supply. This translates to 9.81 mil cu m of all types of wood burned in the stoves of most Filipino homes in the country. It must be noted, however, that this wood comes mainly from branches, tops and other dried wood parts coming from brushlands, and to a certain extent, from residual forests.

Some provinces with still vast forest areas use fuelwood at a much higher rate than the national average. Mainland Palawan, for example, consumes fuelwood twice as much as the national average, at 1.16 cu m per capita per year (Carandang, *et. al*, 1999). This consumption pattern has profound impacts in nearby forests as fuelwood gathering (both for charcoal and firewood) is observed to be concentrated in

Table 3.49. Potential supply of bamboo, all sizes.

<b>Bamboo</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
Area (million ha) 1/	0.025	0.028	0.030	0.034	0.037
Poles (million culms) 2/	32.4	35.9	39.6	43.6	48.1

1/ Source, FMB - with 1 % estimated increase in area per year, (40% estimated for big culms, 60 % for small culms).

**Table 3.50. Potential Supply of Fuelwood (m cu m)**

<b>Sources</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
Public Forests (uplands)	8.90	9.81	10.82	11.93	13.15
Mangrove	0.24	0.22	0.20	0.18	0.16
Agricultural areas	12.69	13.99	15.42	17.01	18.75
Wood wastes	1.14	1.16	1.19	1.21	1.23
<b>Total</b>	<b>22.97</b>	<b>25.18</b>	<b>27.62</b>	<b>30.32</b>	<b>33.29</b>

- 1990 estimates based on MPFD, 1990 with 5 % estimated increase every 5 years, except mangrove which decreases by 5 % every 5 years.,

concentric patterns, within 5 km radius from community and urban centers in mainland Palawan. Mangrove forests are also main targets of charcoal makers because of the generally very good heating quality of mangrove species.

### 3.2.4.5 Wood Importation

Under status quo conditions, roundwood import will steadily increase through time. This is expected because of the need for high quality timber for lumber and furniture that can not be supplied from local plantations. By the year 2020, expected import of roundwood is around 1.0 million cu m (Table 3.51). Likewise, import of finished products would steadily increase through time. The furniture industry in Cebu City, for example, is the main importer of high quality lumber. The strict and high quality requirements of Cebu furniture industry render plantation grown timber inappropriate for the export-oriented industry. In 2000 alone, around 358,514 cu m of lumber were imported by the country, almost 50 % of which came from Malaysia.

Table 3.52 shows the import-export balance for different wood products. The analysis shows that with the current trends in wood production, the country will remain to be net importer of wood products throughout the planning period considered (2000-2030).

**Table 3.51. Wood supply projections, with imports, in '000 cu m (status quo).**

<b>WOOD/PROD. TYPE</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
<b>Total Roundwood</b>	2,884.2	1,383.5	2,150.4	2,864.8	3,294.7
<b>Roundwood Import</b>	381.2	584.8	773.4	1,022.8	1,352.7
Sawtimber ('000 cu m)	2,044.6	361.0	1,001.1	1,339.2	1,411.9
Peeler logs ('000 cu m)	111.4	21.7	59.8	80.0	84.3
Pulpwood ('000 cu m)	335.0	400.0	305.9	409.2	431.5
Poles ('000 cu m)	12.0	16.0	10.2	13.6	14.4
<b>Fuelwood (million cu m)</b>	<b>23.0</b>	<b>25.2</b>	<b>27.6</b>	<b>30.3</b>	<b>33.3</b>
<b>Subsidiary accounts</b>					
Lumber ('000 cu m)	844.7	508.5	655.6	846.7	1,095.0
Veneer	49.1	297.3	373.2	469.3	591.4
Plywood ('000 cu m)	<b>400.1</b>	<b>287.0</b>	<b>347.4</b>	<b>420.5</b>	<b>509.0</b>
Wood-Based Panels					
Particle Board	17.0	40.0	48.4	58.6	70.9
Fiberboard					
Rattan (million lm)	19.3	32.3	39.1	47.3	57.2
Large diameter	7.7	12.9	15.6	18.9	22.9
Small diameter	11.6	19.4	23.5	28.4	34.4
Bamboo (million culms)	32.4	35.9	39.6	43.6	48.1

**Notes:**

1. 1990 - 2000 figures, from PFS. Except for fuelwood and bamboo.
2. All units in '000 cu m, except for rattan (in '000lm) and bamboo (in '000 pcs).  
1/= based from average recovery rate of 56% from log to veneer.
  - Roundwood production four years 2005-2030 was based on projected supply from various sources reflected in Table 45 with percentage distribution from 1990 to 2000 data.
  - A 10 % increase in the production of subsidiary accounts every 5 years is projected.

**Table 3.52. Export-Import of major wood products, status quo (in '000 cu m).**

<b>Commodity</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
<b>Export</b>					
Roundwood	51.0	-	20.0	600.0	1,200.0
Lumber	77.0	120.0	172.5	269.5	421.1
Veneer	47.0	5.0	-	-	-
Plywood	176.0	2.2	-	-	-
<b>Import</b>					
Roundwood/log	381.2	584.8	773.4	1,022.8	1,352.7
Lumber	3.7	358.5	474.1	627.0	829.3
Veneer	0.1	119.3	157.8	208.7	276.0
Plywood	3.1	1.0	1.3	1.8	2.3
<b>Tot. fin. Prod. import</b>	<b>6.9</b>	<b>478.9</b>	<b>633.3</b>	<b>837.5</b>	<b>1,107.6</b>
<b>Balance</b>					
Roundwood/log	(330.2)	(584.8)	(753.4)	(422.8)	(152.7)
Lumber	73.3	(238.5)	(301.6)	(357.5)	(408.1)
Veneer	46.9	(114.3)	(157.8)	(208.7)	(276.0)
Plywood	172.9	1.2	(1.3)	(1.8)	(2.3)

Source: PFS, 2000.

Note: 2005 to 2030 projected wood imports based on 15 % increase per five year period.

### 3.2.4.6 Wood Products Demand

As sure as the population increases and with the advent of industrialization, wood products demand is also expected to steadily increase through time. Based on 2000 Philippine wood consumption data, the country required 1.991 mil cu m of round wood which were then directly converted into different finished products (Table 3.53). Assuming that imports of finished and semi- finished wood products were translated into roundwood requirement, the country then could have consumed around 2.949 mil cu m. By the year 2030, total roundwood requirements of the country would peak at 3.805 mil cu m. Considering further the log requirements of imported wood products, a total of 6.020 mil cu m of roundwood would be required by the country by that year.

Table 3.53. Wood and other wood/forest products demand 1990-2030.

<b>WOOD/PROD. DEMAND</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
<b>Adjusted Total Roundwood 1/</b>	<b>3,505.8</b>	<b>2,949.0</b>	<b>3,732.7</b>	<b>4,735.2</b>	<b>6,019.9</b>
<b>Total Roundwood</b>	<b>3,492.0</b>	<b>1,991.3</b>	<b>2,466.1</b>	<b>3,060.1</b>	<b>3,804.6</b>
Sawtimber ('000 cu m)	2,652.4	968.8	1,166.0	1,403.3	1,689.0
Peeler logs ('000 cu m)	111.4	21.7	26.1	31.4	37.8
Pulpwood	335.0	400.0	481.4	579.4	697.3
Poles ('000 cu m)	12.0	16.0	19.3	23.2	27.9
<b>Fuelwood (million cu m)</b>	<b>32.4</b>	<b>40.9</b>	<b>50.1</b>	<b>61.4</b>	<b>75.5</b>
<b>Subsidiary accounts</b>					
Lumber ('000 cu m)	844.7	508.5	655.6	846.7	1,095.0
Veneer	49.1	297.3	373.2	469.3	591.4
Plywood ('000 cu m)	400.1	287.0	347.4	420.5	509.0
Wood-Based Panels					
Particle Board ('000 tons)	-	2.6	17.1	19.6	21.9
Fiberboard ('000 tons)	-	53.0	63.0	72.4	80.7
Rattan (million lm) /b	27.0	45.2	53.8	61.7	68.9
Large diameter	10.8	18.1	21.5	24.7	27.5
Small diameter	16.2	27.1	32.3	37.0	41.3
Bamboo-big dia (mil culms)	5.9	13.8	16.4	18.8	21.0

1/ - Adjusted total roundwood requirements include import of finished and semi-finished products converted into log requirement considering a 50 % conversion efficiency for all products.

Notes:

1. 1990 - 2000 wood products demand are actual production based on PFS plus imports with adjustments to sawtimber to include informal productions.
2. Informal productions was estimated at 607.8 thousand cu m, 1990 MPFD.
3. Fuelwood demand is based on 0.566 cu m/capita (FAO, NRMP, 1988)..
4. 2005 - 2030 wood demand based 2000 figures with increase based on population increase which is progressively decreasing at a rate of 0.15 percent every 5 years due to effects of products substitution (demand shift), efficiency in use, and more environmentally concious consumers.
5. Projection of bamboo used the low estimates of 1990
6. Rattan demand based on actual productions + 40 % adjustments for unreported harvests.
7. Bamboo demand excludes small diameter culms like boho, etc., PFS figures with adjustments from informal harvests (100%) and private land productions (300%).

### 3.2.4.7 Supply and Demand Balance

Considering the total potential legal supply from our forest resources, the country will be experiencing as it is already experiencing at present, serious supply deficit on all wood products fronts except for particle board where surpluses were still incurred (Table 3.54). This would continue to be so throughout the planning period. The projected deficit in wood supply is the direct result of disallowing sustainable access to available natural supply of timber, particularly in residual dipterocarp forests.

As regards to other non-timber forest products (NTFP), the country is also likely to encounter deficits in these areas. There would be continuing shortage of rattan poles in the future. Large diameter bamboo also incurred surpluses in the 1990s to 2000 but would likely encounter deficits beginning year 2005 as continuous increase in demand would likely surpass the available supply.

However, considering that the vast timber resources in residual forests would be tapped sustainably, the wood balance scenario would be reversed towards surpluses. Based on the analysis, the country can still sustainably access at least 2.512 mil cu m of wood from residual forests by the year 2005. This can be attained by allowing other modes of forest disposition as allowed by the Constitution to sustainably access from natural forests. Considering harvests from other sources such as forest plantations, the country could still produce a surplus of 1.572 mil cu m which can be readily exported in various finished forms (Table 3.55). But due to projected decrease in the residual forests in the amount of 38,400 ha per year as estimated by ENRAP (1992), deficit would still be incurred in the year 2025 and beyond. However, strict protection of residual forests; e.g., targeting a zero decrease by 2005 and beyond, no deficit in wood supply would be experienced by the country until year 2050. Table 3.56 shows the summary of wood supply and demand balance scenarios highlighting the wood balance results under the status quo and sustainable forestry conditions as also illustrated in Figures 3.8 & 3.9.

Table 3.54. Supply and demand balance (status quo, without imports).

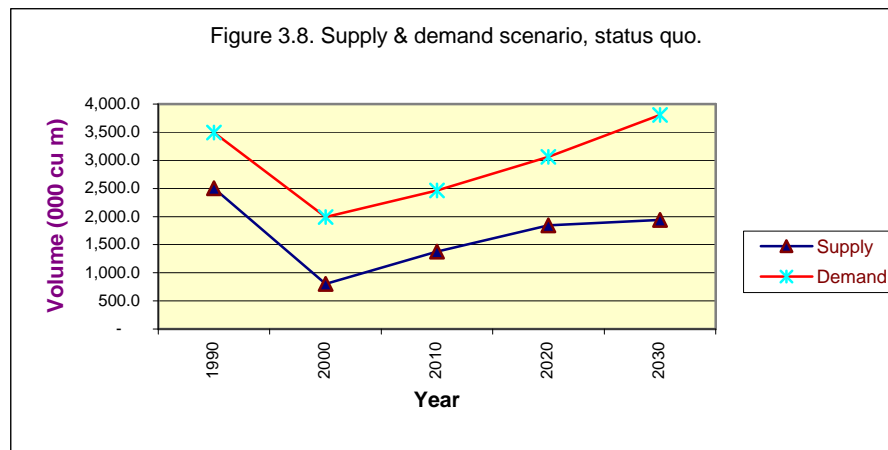
<b>Products</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2020</b>	<b>2030</b>
<b>Total Roundwood</b>	(989.0)	(1,191.5)	(1,089.1)	(1,218.1)	(1,862.6)
Sawtimber ('000 cu m)	(607.8)	(606.8)	(164.9)	(64.2)	(277.1)
Peeler logs ('000 cu m)	-	0.1	33.7	48.6	46.6
Pulpwood	-	-	(175.5)	(170.2)	(265.9)
Poles ('000 cu m)	-	-	(9.1)	(9.6)	(13.5)
<b>Fuelwood (million cu m)</b>	(9.5)	(15.8)	(22.4)	(31.1)	(42.2)
<b>Subsidiary accounts</b>					
Lumber ('000 cu m)	(3.7)	(358.5)	(474.1)	(627.0)	(829.3)
Veneer	(0.1)	(119.3)	(157.8)	(208.7)	(276.0)
Plywood ('000 cu m)	(3.1)	(1.0)	(1.3)	(1.8)	(2.3)
Wood-Based Panels					
Particle Board	17.0	37.4	31.3	39.0	49.0
Fiberboard	-	(53.0)	(63.0)	(72.4)	(80.7)
Rattan (million lm)	(7.7)	(12.9)	(14.7)	(14.5)	(11.6)
Large diameter	(3.1)	(5.2)	(5.9)	(5.8)	(4.7)
Small diameter	(4.6)	(7.7)	(8.8)	(8.6)	(6.9)
Bamboo (million culms)	7.1	0.6	(0.6)	(1.4)	(1.8)

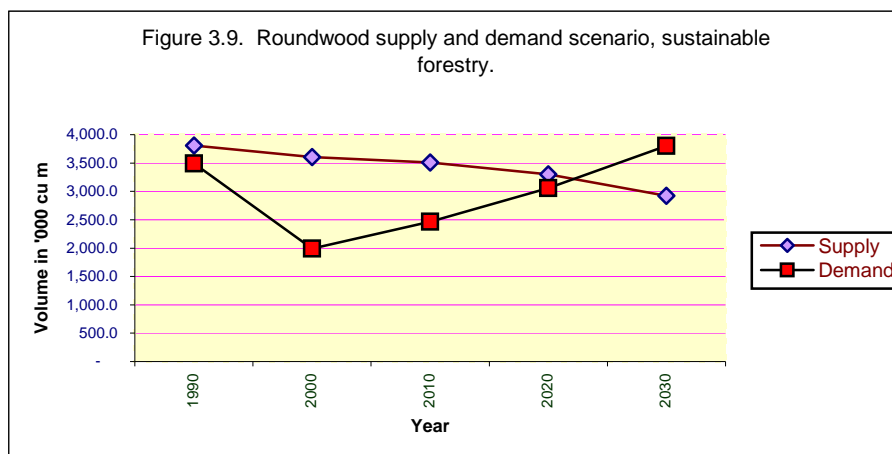
Table 3.55. Roundwood supply and demand balance, using sustainable cut from residual forests ('000 cu m).

Source	1990	2000	2010	2020	2030
Residual Forests	3,221.3	2,699.9	2,323.6	1,947.3	1,570.9
Forest Plantations	306.0	568.0	792.6	960.6	960.6
PLTPltns	280.0	336.0	392.0	392.0	392.0
<b>TOTAL</b>	<b>3,807.3</b>	<b>3,603.9</b>	<b>3,508.2</b>	<b>3,299.9</b>	<b>2,923.6</b>
<b>Roundwood Demand</b>	<b>3,492.0</b>	<b>1,991.3</b>	<b>2,466.1</b>	<b>3,060.1</b>	<b>3,804.6</b>
<b>Balance</b>	<b>315.3</b>	<b>1,612.7</b>	<b>1,042.1</b>	<b>239.8</b>	<b>(881.1)</b>

Table 3.56. Summary, supply and demand balance.

Wood Accounts	1990	2000	2010	2020	2030
<b>Status Quo Scenario</b>					
RW Supply with imports	2,503.0	799.7	1,377.0	1,842.0	1,942.0
Demand	3,492.0	1,991.3	2,466.1	3,060.1	3,804.6
<b>Balance</b>	<b>(989.0)</b>	<b>(1,191.5)</b>	<b>(1,089.1)</b>	<b>(1,218.1)</b>	<b>(1,862.6)</b>
<b>Sustainable Scenario</b>					
Potential Supply	3,807.3	3,603.9	3,508.2	3,299.9	2,923.6
Demand	3,492.0	1,991.3	2,466.1	3,060.1	3,804.6
<b>Balance</b>	<b>315.31</b>	<b>1,612.69</b>	<b>1,042.07</b>	<b>239.78</b>	<b>(881.08)</b>





### 3.2.4.8 Policy Implications/Recommendations

- Sustainable management of natural forests allowing sustainable access to harvest timber from residual forests

The position of gradually phasing out timber harvesting from natural forests is specifically detrimental to the forest industry and the forestry sector in general. Statistics show that even without legal logging from natural forests, forest destruction continue to flourish. For the last 10 years already, natural forest harvests by legitimate TLAs average only around 5,000 ha annually. Yet, forest destruction still rings to a hundred thousand hectares or so annually. On the contrary, putting portions of residual forests into sustainable management would reap tremendous benefits for the society, both in economic and environmental terms.

This national wood balance study shows that with enough safeguards, a sustainable harvest from residual forests (within production forest zones) can be afforded providing enough wood that would eliminate a major bulk of importation. One of the key safeguards would be the strict protection of residual forests (and all forest stands for that matter) to prevent their conversion into non-sustainable non-forest uses. Even without legal logging, residual forests are still being lost due to population pressure.

Forest science shows that natural forests can be permanently perpetuated. Actual residual and wildling counts in 5 year old logged-over forests done in Basilan and Zamboanga del Sur showed numerous regenerations (33,000 and 17,500, respectively, FDC, 1992), a number enough to regenerate a logged-over area even without human assistance. Studies in Samar Islands (SAMBIO, 2000) showed that the volume of matured residual forests even approximates old growth volume, hence, can be sustainably managed.

The first step in securing sustainable wood supply is to identify and delineate on the ground all public forest lands in the country. The next step is the identification and delineation of permanent production forests throughout the country which will form part of permanent production forest estate, to be maintained and managed as such at all costs. All forests needed for production purposes shall be identified on the grounds of current legal status of the area, biophysical characteristics which can support sustainable production of various forest goods, socio-economic viability and environmental soundness. This process would afford our society, especially the poor and marginalized upland dwellers, vast opportunities to benefit

from sustainable forest management. On the same hand, this process puts in equal importance, identification and delineation of all forest areas needed for protection purposes.

The next step is to develop sustainable forest management plans over these areas, whoever the managers are. Whatever appropriate planning strategy applicable to the area (e.g., participatory and gender sensitive planning, etc.) must be observed. Areas with existing plans shall continue to implement them, or such plans be improved in the purview of current realities in the local and international arena. Likewise, plans within specific management units must conform with the overall larger plan of the watershed of which such management unit is located. Basic to these processes is the capacitation of the planners and would be implementers of the basic tools in science of forest management.

The last step is to implement the plan and see to it that the plan works. There must be effective and accountable managers who can execute the plan and endeavor to attain the overall goal of benefiting from forest resources in the area.

- Developing forest disposition models and implementation of JV, CP, PS

As the traditional forest licensing system has been outmoded and/or outlawed under the 1987 Philippine Constitution, other modes of forest resources utilization like direct production by the State, joint venture (JV), co-production (CP), and production sharing (PS) must be developed and implemented along the idea of improving legal access to forest resources. It is foreseen that with the active involvement of the government in the direct management of forest resources, all open access areas will be developed and the rate of forest loss would be diminished.

- More focused plantation development and plantation renewal

There is a world of difference between plantation development for purposes of forest rehabilitation and plantation development for commercial timber production. The former requires management regimes which would enhance the protective and ecological values of plantations and of the forests over time, while the latter would require management regimes which would enhance the commercial value of the product over a specific rotation. Nevertheless, both require careful planning and execution starting from choice of species, seed selections, nursery operations, site preparations, outplanting, silvicultural treatments and subsequent management interventions; in order to attain optimum benefits for intended beneficiaries. Thus, plantation managers must be aware and equipped with the necessary skills in tending the plantations to attain its desired outcome.

Based on the analysis, the country need not plant vast areas of land for timber plantation in order to satisfy plantation wood demand. Over the next ten years, it would need only around 460,000 hectares to satisfy plantation wood demand with plenty to spare for the export demand. Many regions of the country has comparative advantage with regards to attaining high plantation yield. The government must concentrate on these regions to attain economic efficiency. Some simple requirements, however, are needed to sustain positive wood balance. These are protection and improvement of existing plantations; improve efficiency in wood utilization; and aggressive renewal of harvested plantation areas.

- Rationalization of wood processing plants

Many wood processing plants in the country are not appropriate anymore, efficiency or location-wise. There is proliferation of some plants in some areas while wood producers in other areas need to transport their logs over long distances in order to process them. Processing



equipment are becoming obsolete due to the changing dimensions of raw materials and the environmental demand to be efficient is becoming louder. Thus, there is a need to rationalize the wood processing plants in the country. Among the basic considerations to be followed in this effort are as follows:

- Strategic siting of processing plants with few large integrated plants spread geographically and with appropriate number of small plants (e.g., mini band-sawmills and cement-board plants, etc. serving current timber producers in particular areas). This plan entails phase-out or non-renewal of inefficient and obsolete processing plants, plants with non-sustainable raw material sources, and those that are economically-isolated, hence very costly to operate. Likewise, this would also entail establishment of new plants to serve areas currently needing such facilities or would need such facilities in the future ( e.g., cluster of private land tree farmers, CBFM projects and other timber producers).
- Retooling of equipment, facilities and manpower to ensure high recovery and optimum quality of wood products.
- Backward, forward and lateral integration of the whole industry, from raw material producers to processing plants to market outlets. This would afford the actors in the industry access to vital market information, hence, economical flow of wood products.
- Setting up of enabling policy conditions for the rationalization effort. The process would necessitate a clear framework for rationalization through an executive issuance which will require technical support from the DENR such as identification of strategic areas where processing plants are needed, assistance in the dismantling and disposition of obsolete plants, incentives in the retooling of equipment, facilities and manpower, removal of non-tariff barriers imposed by log exporting countries through bilateral agreements, etc.
- Research and Development

The quest for improvement in production efficiency and product quality must be a continuing concern of the sector. One of the major concerns of forest based industries is how can plantation timber fit in the many raw material needs of the industry. Apparently, one of the most common plantation woods being produced in the country, which is gmelina, does not pass the basic standards of the industry in terms wood quality, and seasoning and grain properties. Moreover, many management prescriptions in the natural forests (e.g., AAC, cutting cycle, silvicultural treatments, etc.) are ought to be re-examined in view of the changing dimensions of raw materials, the social settings in which they are located and environmental demands of the larger society which affect many forest policy decisions.

### **3.5 Subsectoral Visions, Objectives and Targets**

Several subsectoral visions focusing on particular subsector were formulated during the regional workshops. These visions represent the long term aspirations of different stakeholders who attended the consultations:

- **Workshop 1 – Manila – July 7-8, 2003**
  - Watershed: Watershed as a sustainably co-managed ecosystem supporting the needs of empowered stakeholders living in harmony with nature.

- Forest-based industries: A rationalized forest based industries with sustainable sources of raw materials, competitive-market products, and improved well being of workers and people in affected communities
- **Workshop 2– Los Banos, Laguna – July 10-11, 2003**
  - Forestry education and training: A globally competitive and excellent forestry education and training in R& D relevant and responsive to the changing needs of the forestry sector and society;
  - Research and Development: R & D Institutions that are effective, capacitated, responsive, efficient, competent and committed to people-centered sustainable forest management.
- **Workshop 3 - Iloilo City – July 22, 2003**
  - NWFP Production: Non-wood forest-based industries with sustainable supply of raw materials for the production of economically viable and globally-competitive products to uplift the socio-economic well-being of upland communities and other stakeholders without impairing the other ecological value of the area and for the nontimber forest products production.
  - NWFP Utilization: A progressive, productive, and globally competitive NTFP sector for sustainable resources and socio-economic development.
- **Workshop 4 – Cebu City – July 24-25, 2003**
  - Watershed: Developed watersheds sustainably managed by empowered stakeholders for prosperity.
  - Urban Forestry: An urban area with lush vegetations, cool and fresh air for the psychological, physiological, and economic well-being of the dwellers through sustainable management.
  - Mangrove and coastal marine resources : Mangrove, coastal and marine ecosystems that are productive, sustainable and contributing to socio-economic, cultural and ecological well-being of the coastal dwellers and other stakeholders.
  - Herbal Industries: A progressive, productive and globally competitive herbal industry from sustainable forest resources for socio-cultural and economic development.
- **Workshop 5 – Baguio City – July 31-August 1, 2003**
  - Watershed: A sustainably managed watershed in partnership with various stakeholders providing the necessary life support for hydro-ecological cultural and economic security.
  - Protected Area Management: A society of empowered, self-reliant Filipinos, well-informed of environment-development relationships, with state-recognized individual and collective rights specially of the indigenous peoples, and nurtured by their sustainable use of the country's biological resources.
  - Forest Biodiversity: Forest biodiversity sustainably managed for the present and future generations.
  - Pine and Mossy Forest: A sustainably managed pine and mossy forest resources providing benefits consistent with ecological stability for socio-economic well being.
  - Grazing and Pastureland: Grazing lands as sustainable source of health and wealth for the empowerment of Filipinos, through Community Based Forest Management (CBFM), corporate and other appropriate tenurial systems.

- **Workshop 6 – Butuan City – August 18, 2003**
  - Forest Plantations: Forest plantations having adequate supply of quality raw materials for wood-based industries that is globally competitive, ecologically and economically sustainable for poverty alleviation and in harmony with nature.
  - Forestry Investments: Integrated forest-based industry with sustainable source of raw materials producing world-class products with fully secured investments and promoting the welfare of the workers and local communities.
  
- **Workshop 7 – Davao City – August 20-21, 2003**
  - Community Based Forest Management: Improved quality of life of upland communities actively participating in sustainable forest management thru CBFM.
  - Criteria and Indicator and Forest Certification: Effective implementation of criteria and indicator for sustainable forest management.

**Annex 1** shows the results of the detailed subsectoral workshops results including specific activities, responsible agencies and time table for different courses of actions proposed to be undertaken

### **3.5.1 The Forestry Sector Vision and Objectives**

A synthesis of the various subsectoral visions revealed some common aspirations among the stakeholders. Among these are the common desire to sustainably manage the watershed and forest resources in a participatory manner for the benefit of the society. There is also the desire to be globally competitive in the forest-based industries particularly in the aspects of forest plantations and forest utilization. Another common vision is the provision of sustainable supply of goods and services for the upliftment of the economic welfare of upland communities. From the above visions, a common vision for the sector has been drawn as follows:

**Forestry Sector Vision:** A sustainably managed watershed and forest resources providing environmental and economic benefits to society with globally competitive industries contributing to the national economy and upliftment of upland communities' welfare.

Among the general objectives formulated to pursue this vision are as follows:

- To sustainably manage the watershed/forest by capable institutions with active participation of empowered stakeholders living in harmony with nature
- To rationalize forest based industries with sustainable sources of raw materials, producing competitive-market products, and actively promoting the well being of workers and people in affected communities
- To provide globally competitive and excellent forestry education and training in forestry;
- To enhance protective and biodiversity values of forests;
- To Improve the quality of life of upland communities actively participating in sustainable forest management thru CBFM.
- To enhance and improve decision making processes through adoption of improved MIS, a fully relevant M & E, continuing forest resources assessment, forest resources accounting, criteria and indicator and forest certification, etc.
- To enhance forestry institutions effectiveness, efficiency and competence in forest administration forest conservation and management, forest protection, forestry research and forestry extension ;

- To enhance policy situation that would endeavor to provide the right environment for sustainable forest management.

### **3.5.2 Strategic Targets**

Among the strategic targets envisioned to set the sector in the right track are as follows:

- A fully responsive and capable PFA (public forest administration) within 10 years
- Forestry and related policies harmonized within 5 years
- Poverty in the uplands minimized to half within 15 years
- All forestland boundaries defined and marked, production and protection forests identified, surveyed and segregated within 10 years
- All forest lands under sustainable management and capable managers, all open access areas closed within 12 years
- A healthy, vigorous and responsible forest-based industries within 5 years
- Productive collaboration among DENR, LGUs and other watershed stakeholders, a responsible community of forest stakeholders participating in forestry development and management within 5 years
- All Regions starting to implement sustainable forestry within 1-5 years
- Sustainable production of clean water from watersheds, 150 watersheds prioritized within 2 years, all priority watersheds with integrated plans and management body within 5 years
- 1.5 million of residual forests under sustainable management, self sufficiency in wood 10 years,
- Permanent grazing land of at least 300,000 ha intensively and sustainably managed by 2010 onwards
- 460,000 ha of commercial forest plantations established within appropriate areas including CBFM projects, maintained and renewed within 12 years

### **3.5.3 Programs and Actions**

#### **3.5.3.1 Proposed Policy and legislations**

- A comprehensive and legislated national forestry policy, harmonized with other relevant policies on land, water, decentralization, rights of indigenous people and so on;
- A fully harmonised set of laws, rules, and regulations in the form of a Forestry Manual; Legislation of the Revised MPFD, adoption by Philippine Cabinet and NEDA;
- Legislation of a PFA as a line agency, reorientation of its function as: firstly, a land management agency and secondly, a forest resource management agency;
- Legislation of CBFM Special Account
- Creation of a National Council on Sustainable Forestry
- Creation of Forest Industries Development Board to oversee rationalization and development of FBI,
- Separation of authority and enterprise function of PFA, creation of National Forestry Board to oversee enterprise functions in forestry

#### **3.5.3.2 Strategic Priority Programs**

The following programs shall be pursued as prioritized:

- 1) Policy Reforms and Institutions Development
  - harmonization of forest other policies affecting the sector

- retrofitting the PFA as a line agency, and as: firstly, a land management agency and secondly, a forest resources management agency, separation of the authority and enterprise functions of the PFA
  - capacitation of forestry institutions, institutional reforms
  - National Council for Sustainable Forestry (NCSF)
- 2) Prioritization/watershed integrated land use planning simultaneous with forest boundary delineation
  - 3) MIS, IEC and R & D enhancement
  - 4) Sustainable management of residual forests, other natural forests, arresting forest destruction
  - 5) Forest area expansion through plantation development, ANR, other means
  - 6) Biodiversity and environmental programs
  - 7) Forest industries rationalization and development
  - 8) Sustainable management of grazing lands
  - 9) Full development of M & E and C & I system for all forest types and management systems
  - 10) CBFM as a cross cutting strategy in all forest management systems
    - enhancement of CBFM implementation
    - CBFM expansion, strengthening and expansion of existing sites, identification of new sites

Among the other strategic programs to be pursued are as follows:

- Strengthening and capability building of present and future watershed managers
- Control of deforestation, forest degradation and illegal activities in all forestlands;
- Resource creation through establishment of commercial forest plantations both in public and private lands; resource generation through appropriate market-based instruments, e.g., forest users fees, formulation, piloting and institutionalization of plough back mechanisms;
- Sustainable management of natural forests involving inventory, management plans, appropriate silvicultural regimes, etc.
- Minimization of wastes in forest utilization, value addition on forest resources both wood and non-wood;
- Carrying out institutional reforms including meaningful and democratic decentralization;
- Integration strong and appropriate social and institutional components in all forestry programs, e.g. , poverty alleviation, sustainable upland population, gender programs, etc., observing proper interface with other relevant programs
- Promotion of participatory/adaptive forest resources management, devolution of watershed to capable LGUs or organizations, e.g., model forest experience, eco-governance experience;
- Promotion of more pro-active forestry R & D, formulation of innovative financing strategies for R & D, participatory research involving communities and other stakeholders;
- Institutionalization of other decision support systems and tools, regional MIS, Regional Wood Balance Model as integral part of regional MIS, institutionalization of FRA/CFI, Natural Resource Accounting, etc.;