INTRODUCTION

60% of natural land of Vietnam is classified as forestland, most of which is found in Northern mountainous area, Central, and Central Highland. Mountainous and forest areas are home to minority ethnic groups where terrain is strongly dissected, transportation and road network is poor, and socio-economy - less developed. People's livelihood in mountainous and remote areas is still difficult characterized as low awareness, backward farming system, and shifting cultivation tradition. This is one of the main reasons attributed to forest resource depletion causing adverse impacts on country’s socio-economy as well as environment.

For the last few decades, forest and forestry have considerably contributed to country post war reconstruction supplying many valuable products to national economy. However, due to improper understanding forest resource has been overexploited which consequently, causes rapid reduction of forest volume and area. Many of rare and valuable forest fauna and flora species are in danger of extinction. Market economy has also adverse impacts contributing to forest resource degradation in terms of quantity and quality. In some areas like Northwest, Northern and Southern Central Coast irrational forest exploitation together with slash and burn practice have eliminated protection role of watershed forest causing soil erosion, leaching, flood and frequent flash flood which threaten property and life of people living in the area and in lower basin.

Development orientation of forestry in the coming period is shifting economic structure from traditional exploitation-oriented forestry to people forestry with focus on protecting, restoring and developing forest to secure environmental protection, conserve natural forest area, biodiversity, and rare and valuable forest fauna and flora; developing medium and small scale processing industry with advanced technology and equipment in close connection with compact material forest in order to improve economic efficiency of forest; mobilizing labour potential, creating job opportunities contributing to poverty alleviation, improving livelihood of mountainous people, socializing forestry, attracting investment sources; promoting forest role and contribution of forestry economy to the national economy.

Therefore, the formulation of Vietnam’s Forestry Development Strategy, period 2001 – 2010 is highly important and necessary to identify orientations for sustainable forest resource management, for forestry economy organization through implementation of national programmes/projects hence contributing to the country industrialization and modernization.

PART I
REVIEW OF FORESTRY ACTIVITIES DURING 1990 – 2000 PERIOD

For the last few decades, forestry sector has made significant contributions to national defense and economic development. In recent years, under the direction of the Party and the Government, with effective cooperation from other sectors, concerned authorities and people’s support forestry sector is changing in a positive way shifting from resource exploitation centered forestry to social forestry with forest protection and development as a core task. The government management in forestry sector has progresses with further management decentralization. A set of legal documents has been formulated creating a legal framework for forestry activities. Forest is better protected and developed, the sector’s economic structure is positively changing contributing to a sustainable agriculture, improving mountainous and rural socio-economy, and ensuring national defense.

I. REVIEW OF FORESTRY DURING 1990 – 2000 PERIOD

1. Current Status of forest resource and forest land use

According to 1999 forest inventory as carried out under Instruction 286/TTg dated 2nd May 1997 by the Prime Minister, total forest area countrywide is 10.9 mil ha accounting for 33.2% of the total natural land of the country, of which natural forest accounts for 9.4 mil and plantation forest 1.5 mil ha.

Forest is not evenly distributed among regions. Regions where forest area occupies more than 2 mil ha include Central Highland, Northeast, and Northern Central. Regions where forest area is from 1 – 1.5 mil ha include Southeast South and Southern Central Coast. Regions where forest area occupies less than 1 mil ha are Northwest, Mekong River Delta, and Red River Delta. Total national timber volume is 751.5 mil m$^3$ and 8.4 bill bamboo stems (table 1a, 1b)

With the above forest volume, criteria of forest area and average timber volume per capita of Vietnam is set at low rank with 0.14 ha and 9.8 m$^3$/person (whilst the respective world criteria is 0.97 ha and 75m$^3$ of timber/person.)

As compared to 1990 statistics, the national forest cover increased from 27.8% to 33.2%. Forested area increased by 1.61 mil ha, of which natural forest increased by 1.2 mil ha. However, forest volume and quality virtually have not improved if not degrade as the result of illegal logging of valuable timber species (table 1c).

Plantation forest area increased by 2 times as compared to 1990. Northeast is the region with largest plantation forest (478 thousand ha), the following is Northern Central. Regions with plantation forest area from 160 – 200 thousand ha are Mekong River Delta, Southern Central Coast, and Southeast South. Regions with plantation forest area less than 80 thousand ha are Northwest, Red River Delta, and Central Highland.

Total plantation timber volume is 30.6 mil m$^3$ occupying 4.1% of total national timber volume and 96 mil bamboo stems – 1.1% of national bamboo volume.

In general, forest plantation performance has not met requirement, low forestation rate (only 60 – 75%), low yield (averagely 8 – 10 m$^3$/ha/year), and thus low productivity. However, plantation forest is significant in meeting demands for industrial, domestic wood and firewood therefore easing pressure on natural forest. At present, plantation forest can only supply small timber. With regard to plantation species, indigenous species have not been sufficiently studied and yet not planted on large scale, exotic and fast growing species like Eucalyptus, Acacia and Pines still domain (accounting for 54% of total plantation forest area).

Bare land and denuded hill area is still high with about 8.3 mil ha occupying 25.1% of the total area countrywide. Most of this land concentrates in Northern upland area (about 4.3 mil ha, occupying 41.6% of natural area of the region), followed by Northern and Southern Central Coast (about 2.8 mil ha, occupying 29.4% of natural area of these 2 regions) (table 1a).

In the past time, forestry sector had implemented forest classification into 3 types. For special use forest, 95 forests including 12 national parks, 64 nature reserves, and 18 cultural, historic forests have been established. Forested area within special use forest is 1.5 mil ha (occupying 13.8% of the total country forest), of which natural forest accounts for 96% and plantation forest – 4%. Regarding protection forest, 6 mil ha have been planned for protection purpose, of which 5.6 mil ha is watershed protection forest, the rest are sand fixing,
wave break and environmental protection forests for urban and industrial areas. However, at present, according to national forest inventory, area planned for protection forest is rather high, about 8 – 9 mil ha. Of which, existing forest is 5.3 mil ha (occupying 48.6% total forest area countrywide), natural forest occupies 89.9% and plantation forest 10.1%. Regarding production forest, formerly it was planned with the area of 9.6 mil ha, however due to various reasons this forest frequently varies over the time. At present, existing forested area is 4.04 mil ha (occupying 36.7% of the country forest area), of which natural forest is 78.4%, and plantation – 21.6%.

2. Forest management, protection and development

Progresses have been made in forest management, protection and development in recent time, slash and burn reduces, forest exploitation is put under strict control, forest plantation and rehabilitation is improving.

From 1993 – 1998, programme 327 which aimed at restoring forest, establishing protection and special use forest, supporting construction of infrastructure was implemented. Results achieved: allocating 1.6 mil ha of forest land to households for protection; rehabilitating 1,368,600 ha forest (including 638,500 ha of new plantation and 748,100 ha of natural regeneration forest); planting 119,940 ha of industrial crops and fruit tree; raising 53,025 domestic animals; resettling 92,420 households to project areas; upgrading and newly constructing 5,000 km of road; building 86,400 m² of schools, clinics; and reclaiming 24,900 ha of land.

The advantage of 327 programme is that household is recognized as a target group for investment and credit scheme. This facilitates project owners in capital withdrawing. Benefits of stakeholders are clearly stipulated. However, the programme failed to correctly identify 3 forest categories in the field, this therefore led to mis-investment. In many provinces the programme was considered as poverty alleviation therefore, investment was scattered; investment rate is set on average basis, loan disbursement is slow, repayment regulation is not clear and strict.

Following 327 programme, 661 is carried out from 1998 – 2010 with the aim to plant 5 mil ha of forest including 2 mil ha of protection and special use forest (1 mil ha of new plantation, 1 mil ha of natural regeneration) and 3 mil ha of production forest (of which 1 mil ha of industrial crops and fruit trees). In 1999, first year of this programme, 200,000 ha including 70,000 ha of protection forest were planted despite of difficulties and constraints.

661 programme has proved number of advantages such as: investment structure, payment for protection contract, and clear and appropriate incentive policy. However, there are still shortcomings to be surmounted e.g. investment and credit as well as beneficiary policies towards production forest, forest seed policy, collateral for taking loan, tax favours and land lease.

Sedentarisation and socio-economic development programmes for remote and disadvantaged communes have positive impacts of livelihood of local population who are living in mountainous areas and support forestry sector in protect and develop forest.

Scatter tree planting has been carried out continuously and steadily helping to solve demands for firewood especially in the period when the natural forest is closed down.

During the period of 1986 – 1990 an average of 400 – 450 mil trees/year was planted, and from 1991 up to date 350 mil trees are planted annually.

Approximately 8.0 mil ha of forest have been allocated (73.3% of total forested land) to different economic sectors, of which 3.6 mil ha to state enterprises, 2.1 mil ha to protection and special use forest management units, 2.0 mil ha to households, and 0.2 mil ha to other economic sectors. The rest of nearly 3.0 mil ha of forest (27.4% of forested land) have not been allocated.

Many good sedentarisation and forest protection models have been established (so far nearly 2 mil of roamer ethnic people have been resettled).

Until 1993, about 23,000 km of forest road had been constructed serving forest exploitation making forestry sector a pioneer infrastructure builder in mountainous and remote areas. However, forest road network has seriously degraded since forest enterprises have no financial resource for maintenance.

3. Forest harvest, processing, and marketing industry
Harvest: in general, annual wood and firewood volume exploited throughout the country negligibly. The country wood harvest in 1995 was about 2.8 mil m$^3$, reduced to 2.1 mil m$^3$ in 1999, highest was in Mekong River Delta and Northeast (0.5 mil m$^3$). Country’s firewood harvest in 1995 was 30 mil ster, reduced down to 25 mil ster, highest harvest was in Northeast and Northern Central (from 6.6 – 8.4 mil ster), followed by Northwest (2.9 mil ster) (Yearbook 1999).

Early 1990s, in order to prevent degradation of natural forest, annual wood harvest from natural forest was cut down from > 2mil m$^3$ to 620,000 m$^3$ in 1996. In recent years it is further cut down to about 300,000 m$^3$/year.

Conflict between supply and demand for wood and firewood is a great challenge in the coming time when forestry sector has to fulfill the target of protecting natural forest and at the same time meeting basic needs of people. The optimal solution to this problem is to mobilize people to implement scatter tree planting with selected tree species.

Production of forest products such as pine resin, cinnamon bark, anise fruit, rattan, shellac, Aleurites montana, phyllostachys, and other medicinal plants supplement to the list of Vietnam’s forest products. Export of anise flower increased from 750 tons in 1995 to 8,5000 tons in 1997, while export of cinnamon in 1997 was about 3,400 tons decreased half as compared to that of 1995 (1999 Yearbook). However, exploitation of these products is mainly based on existing resources without proper development investment, which consequently leads to decline in production and dwindling in area.

Processing: timber and forest product processing industry is developing into a countrywide network with more and more economic sectors involved including 1,200 business enterprises (including foreign invested enterprises) with total processing capacity of 1.6 mil m$^3$ of timber/year. Processing factories now can produce wide range of products, of which furniture and sawn timber – 60%, chips – 25%, low quality artificial board – 11%, fine wood arts – 4%.

Turnover of timber and forest products in 1996 was 4,550.8 bill VND, of which export was 212.2 mil USD; in 1997 the figure was 4,712.5 bill VND, of which export was 225.2 mil USD; in 1998 – 4,424.4 bill VND, of which export was 191.4 mil USD (1999 Yearbook). In 2000, export turnover was estimated to reach 200 mil USD.

Traditional professional villages which are specialized in producing high quality furniture and fine wood arts supply a considerable amount of goods have not been attached with due attention and yet not been planned in accordance with development strategy of the sector.

Consumption market: So far marketing is not an issue of concern since supply of forest products e.g. timber, bamboo, is still far to meet demands. Fine wood arts, high quality furniture, and special forest products such as pine resin, anise, other essential oils are partly consumed in domestic market, partly exported to regional markets (Northeast, Southeast Asia), to Eastern and Northern Europe, and America. Exceptionally, the marketing of cinnamon bark is difficult since its quality is lower than that of regional countries.

4. Research and human resource development

Forestry sector had prepared a project “Vietnam’s Forestry Review” which was introduced in the conference “National Forestry Action Programme”. During this process series of reports on Vietnam’s forest status and leading principles for forestry development and list of projects need for support from other countries and international organizations were produced. The sector also formulated a development strategy for Vietnam’s Forestry to year 2000.

Many of research studies, baseline surveys on forest were carried out and achievements were made serving as a basis for formulating important forestry development programmes of the Government. Several issues had been addressed facilitating forest development such as identifying suitable tree compositions for economic zones, site matching for forest planting, restoring mangrove ecosystem, pine forest, Dipterocarpus forest, limestone mountain forest ecosystems, forest breeding, application of advanced technologies especially biotechnology for high quality reproduction e.g. tissue culture, cutting reproduction, application of informatique technology, remote sensing in forest survey, forest resource monitoring.

Professional training system consists of 10 universities and schools including 1 university, 3 secondary forest schools and 6 vocational forestry technical schools. In the past time, large number of managers, scientists, technical workers have been trained, and forestry extension service has been strengthened to support production. Human resource development in forestry sector is progressing, however, there are still shortcomings revealed such as strategy for forestry human resource development has not been formulated,
professional forestry labour is insufficient, mostly seasonal and not skillful.

International cooperation also substantially contributes to implementing of national forestry programmes, as well as supporting in technology, equipment, and staff training. International organizations such as PAM, SIDA, UNDP/FAO have provided support to Vietnam’s forestry in afforestation, policy, institutional, equipment improvement, staff training as well as providing information on forestry development of regional countries and of the world.

5. Forestry policy and institution

In recent years, the Government has issued many important legal documents forming a legal framework for forest management, protection and development for instance, Law on Forest Protection and Development (1991), Land Law (1993, 1998), Environmental Law (1994); Resolutions and Decrees of the National Assembly and the Government; Decisions, Instructions of Government Prime Minister. Besides, regulations on tax exemption for forest plantation land, import tax on material wood have also been formulated in order to encourage economic sectors like collectives, individuals involve in production, processing, protection and development of forest.

Current legal framework shows positive signs such as easy and worry-free for farmers in forest land use, more benefits from forest; favourable legal environment encouraging investors putting their money in forestry development, and farmers investing more labour in forest tending; equal opportunity for state forest enterprises and other economic sectors in forestry business and forest development. However, this legal framework still reveals adverse impacts and defects for examples there too many documents, regulations regarding forest plantation, forest development consequently, forming a too complicated, cumbersome and overlapping framework.

II. CONSTRAINTS AND CHALLENGES

Vietnam’s forestry has made significant achievements in the past time, however, there are still constraints and challenges affecting the development of the sector which need to be tackled.

1. Constraints

   1. National forest cover increased from 28.2% in 1995 to 33.2% in 1999 yet forest quality degrades, average volume of natural forest is 76.3 m$^3$/ha, plantation forest – 20.8 m$^3$/ha. Natural forest degradation caused by increasing gap between supply and demands for forest products especially timber, firewood has caused serious impacts on environment and ecology, soil degradation, increased soil erosion, and flood damaging agriculture production and people’s livelihood.

   2. Unstable land use planning makes it difficult to demarcate boundary between agricultural and forest land. Identifying and classifying of 3 forest categories especially protection and special use forests are not carried out on strong scientific basis leading to scatter and ineffective investment. In some places production forest is classified as protection on order to get investment from Government budget. Many of provisions of the existing Regulation on management of 3 forest types are not relevant.

   3. There are still shortcomings in land allocation and management. About 73.3% of forest land have been allocated but no economic momentum created for forest owners to actively protect and develop forest.

   4. No master plan prepared for material area in connection with processing industry and marketing; close collaboration, coordination between area planning and sectoral planning is missing resulting in unproductive implementation of the plan.

   5. Forestry technology development is not corresponding to potential of the sector in general, and to that of each ecozone in particular. Biotechnology like tissue culture, cutting breeding, and seed improvement in order to gain high yielding species, or sloping land farming techniques have not been widely applied.

   6. Harvesting, processing and using of timber, forest products are wasteful and ineffective. Most of raw material for processing industry come from natural forest; the processing capacity is higher that supply; low recovery rate (about 2 – 2.5 m$^3$ of log/1 m$^3$ of product). Processing technology for plantation wood is backward; poor quality product, high production cost, less competitive.
7. Unable to establish a stable market for forest product, weak marketing capacity. Though new policies on investment, tax are formulated access to credit source of small and medium scale processing enterprises is still limit, tax is not rational (for some commodities differentiation is from 0 – 5%)

8. Government management over forestry of professional authorities is still overlapping (especially at local level between provincial forest development department and provincial forest protection department, between district agriculture and rural development office with forest protection station). This leads to loose coordination and direction, unclear responsibility assignment among different levels. Besides, forestry management staff at local levels is insufficient.

9. Forestry organizational structure is not stable, slowly adapted. State forest enterprises are facing with many difficulties, management mechanism is not well reformed to match current situation. Appropriate policies supporting new economic sectors such as household economy have not been formulated. Forestry extension service is weak, not able to respond development of social forestry.

Main reasons attributed to the above constraints are:

- The government policies enacted during the past time are not complex and sufficient enough to mobilize existing potential, not able to create driving force for forestry development, not encouraging economic sectors engage in forestry activities.

- Institutional as well as management capacity of the existing mechanism are still limited. Awareness about the role of forest and forestry of forest communities even part of forestry staff is insufficient.

- The government’s as well as the whole society’s investment in forestry is not corresponding to potential and role of forestry in the national economy.

2. Challenges

1. Forestry activities are taking place on large area (60% of the country area) with high, sloping and strongly dissected terrain, poor transportation infrastructure, sparse population, low awareness of local people. Those are constraints for development investment.

2. Current supply of raw material from natural forest is very limited while people’s demand for wood and firewood is rapidly increasing. Therefore, it is required to import material wood from regional countries under the context where those countries tend to limit exporting log.

3. Implementing commitment to AFTA competition in production, import, export of processed products, especially paper and artificial board which are included in the 5 mil ha programme will be tougher.

4. High need for human resource training but enrolment of schools in this field is limited. Students after graduation have to work in remote, mountainous areas where working conditions are hard while incentive policy is not appropriate.

5. Livelihood of forestry staff and workers are difficult. Lack of capital and job opportunities, low income have adverse spiritual and material impacts on labourers.

6. Investment security in Vietnam is not highly ensured, while on the other hand, low profitability of investment in forestry, high risk, long production cycle combine to discourage foreign and national investors putting capital in forest plantation programmes.

PART II

FORESTY DEVELOPMENT STRATEGY FOR THE PERIOD 2001 – 2010

I. ANTICIPATIONS

1. Environmental anticipations
Many world conferences on environment have been held to discuss global cooperation in order to cope with environmental degradation. In these conferences, it is recognized that forest play very important role for today environment and ecology, which has the global, regional and trans-boundary nature. However, environmental issue must be first and foremost addressed within each country’s territory. In the common tendency of the world today, more and more attention is paid to indirect, intangible value of forest which is recognized essential for sustainable global development. According to conception of some developed countries like Japan, Germany, Russia ecological value of forest contributes a substantial portion as compared to minor ratio of economic value in the whole consideration.

In practice, during past years natural calamities such as drought, flood frequently occurred in many countries in the world, and in Vietnam especially in Northwest, Northern and Southern Central Coast, and Mekong River Delta had caused severe material damage and human casualties. Therefore, by urgent and focal means Vietnam aims to raise its forest cover up to 43 – 44% by the year 2010 in order to secure national environment and the country sustainable development.

2. Forecast on the demand for forest products

Based on population, economic growth and changes in consumption preference it is forecasted that during 2001 – 2005 demands for forest products are as follow: 9.3 mil m$^3$ of wood, and about 24.5 mil ster of firewood; for the period 2006 – 2010: 16.4 mil m$^3$ of wood and 19.0 mil ster of firewood (Project on promoting forest plantation, greening bare land and denuded hills, towards natural forest closing. Ministry of Agriculture and Rural Development (MARD), 6/1997).

<table>
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<tr>
<th>Demands</th>
<th>Unit</th>
<th>2005</th>
<th>2010</th>
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<tbody>
<tr>
<td>1. Pit wood</td>
<td>10$^3$ m$^3$</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td>2. Paper material</td>
<td>10$^3$ m$^3$</td>
<td>4,500</td>
<td>8,000</td>
</tr>
<tr>
<td>3. Material for artificial board</td>
<td>10$^3$ m$^3$</td>
<td>1,500</td>
<td>3,600</td>
</tr>
<tr>
<td>4. Construction wood, and wood for household use</td>
<td>10$^3$ m$^3$</td>
<td>3,000</td>
<td>4,500</td>
</tr>
<tr>
<td>5. Firewood</td>
<td>10$^3$ ster</td>
<td>24,500</td>
<td>19,000</td>
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Regarding special forest products for period 2001 – 2010 the demand is forecasted as follow: 300 – 350 thousand tons of rattan, bamboos, 40 thousand tons of pine resin, 30 thousand tons of anise flower, 5 thousand tons of shellac, 1 thousand ton of dipterocaps sap, and 1.5 thousand ton of medicinal plants.

In the coming time domestic wood supply mainly come from harvest of scatter trees, existing plantations and partly from natural forest. However, with present capacity national forest is not able to meet demand, therefore it is needed to import wood, processed wood products as well as material for paper production.

The average import volume for 2001 – 2005 is forecasted to mount up to 1 mil m$^3$ of wood, 20,000 tons of rattan; 2006 – 2010: 500,000 m$^3$ of wood and 30,000 tons of rattan.

Wood market in Asia is quite tense due to limited supply (total log export volume is about 16.3 mil m$^3$, total import volume is about 66.7 mil m$^3$). Therefore, it is required to actively seek supply source in order to secure import of necessary woods at reasonable price. Main wood import sources can be Malaysia, Laos, Cambodia, Myanmar, Russia, and Canada.

Besides, it is necessary to speed up forestry economic restructuring on the basis of comparative advantages of each zones so that to the year 2010 sustainable and stable supply of forest products to national economy will be ensured.

3. Forecast on the market for forest products

It is for sure that all of wood forest products (natural and plantation forests), bamboo, and non-wood forest products (NWFP) either in its raw form or processed are marketable (domestically and abroad); especially for
paper, artificial boards, domestic use wood.

With current productivity to the year 2010 our forest is not able to meet domestic demand therefore, export of raw material is not feasible. Supply processed products like paper, artificial board is still behind domestic demand.

High quality furniture, fine wood arts, and non-wood forest products (anise, cinnamon, shellac, rattan, phyllostachys) are partly supplied for domestic market, the rest are exported for foreign currency. In coming years, priority should be given to regional markets (Japan, Korea, Taiwan) which are already familiar with Vietnam's products. Besides, it is possible to expand export to Northern America, Middle East, Russia, SNG, and Northern European countries. In the long run, marketing, market survey and consumption pattern studies should be carried out in order to produce well marketable commodities.

II. VIEW TOWARDS FORESTRY DEVELOPMENT

Agriculture and rural development is the basis for the country's stability in socio-economy, and the impetus for rapid and sustainable socio-economic development of the country. The overall objective of agriculture and rural development strategy to 2010 is: "building a strong and sustainable commercial agriculture, where scientific and technical achievements, clean and high technology of the world are widely applied to rural and agriculture production making it highly competitive on domestic and world markets; rural area with modern infrastructure, well structured economy, developed agriculture, industry and service sectors; step by step industrialized, modernized, urbanized rural with secured employment, no poverty, civilized, democratic and equal society; and everybody enjoys prosperous life".

To reach this objective the forestry sector has to strengthen forest resource protection restoration and development, ensure environmental and ecological security for the country’s sustainable development; step by step secure supply of forest products for domestic demand and development of processing industry; create employment, raise income of people in remote areas thus contributing to rural industrialization and modernization.

Based on this objective for agriculture and rural development, the implementation of forestry development strategy 2001 – 2010 has to follow basic principles as presented hereafter:

1. Forestry development is linked with national sustainable development

The country’s sustainable development is the warrantee for sustainable socio-economic activities, social security and national defence. In the context of socio-economic growth it will have both positive and negative impacts on the environment. Environmental change must be monitored and assessed in order to come up with solutions to control negative impacts and necessary costs for environmental protection.

Restoring, protecting and developing vegetation cover in watershed protection, special use and production forest are direct and long term requirement for sustainable development of forestry economic zones as well as for other economic sectors such as agriculture, water resource, fisheries, tourism, and energy.

1.1 Comprehensive and systematic forestry development based on economic structure shifting, in-depth development to respond to diverse demands of national economy

Develop forestry based on economic structure shifting from resource exploitation centered to comprehensive and systematic development with focus on protecting, restoring and developing forest resource, establishing sustainable ecosystem, enhancing environmental protection role, conserving gene pool, biodiversity, and ensuring forest product supply.

In-depth development means encouraging all economic sectors take part in forest protection and development, productive forest management where state economic sector takes a leading role. At the same time forest resource should be used in an effective manner to assure long term benefit of the whole society and of forestry population as well

1.2. Forestry economic development based on application of advanced technologies to production; processing industry, advanced equipment and technology development are linked with concentrated material area in order to increase economic efficiency of forest and forestry economy.
Science and technology should be recognized as a drive for production, a decisive factor for production efficiency. Forestry should responsively adopt experience and advances of the world, and be able to integrate into region and the world. A holistic and scientific view from land use planning to classification of 3 forest types, and protection and development of each types should be equipped.

Medium and small scale processing industry development is actually a drive for commodity economy, and promoting specialization of forestry business. Parallel with setting up stable national protection forest stand it is needed to speed up establishment of raw material forest in linking with processing industry in order to improve economic efficiency of forest, create more employment, reduce production cost responding to domestic and export demands.

1.3. Comprehensive forestry development linked with conserving and upholding traditional culture of ethnic groups, continuously promoting human resource

Forest areas are home to Vietnam’s ethnic communities. In all places, ethnic communities are the subject in its broadest sense, and the most important and crucial resource for the whole dynamic process. Under the Party’s direction, over the last half century, our people of all ethnic joined in solidarity to protest expatriate invaders, overcome difficulties of life and severities of nature to survive and develop. Those are the nature, the unfadable identity of any population living in mountainous area.

Forestry development is the work of the whole nation, however it directly affects minority ethnic groups. Forestry development is main impetus to implement government policies on socio-economic development in remote and disadvantaged areas therefore ethnic policies must be ultimately realized. Cultural identity of each ethnic must be conserved and promoted. Attention should be put on local human resource training hence enabling upland and rural areas keeping pace with urban.

III. DEVELOPMENT OBJECTIVE OF FORESTRY IN PERIOD 2001 – 2010

1. Overall objective

Pursuant to the above viewpoint, the objective of forestry development for the period 2001 – 2010 is: Building up a people’s forestry; strengthening forest protection, restoration and development to secure environmental protection function, protecting natural forest, conserving biodiversity, protecting rare and valuable forest fauna, flora; applying scientific and technical advances, high technology to forestry production to meet diverse demands of national economy; contributing to poverty alleviation, improving livelihood of ethnic people living in forest areas, creating strong basis for national defence.

2. Immediate objectives

To the year 2005 establish a stable national forest stand; basically complete forest land allocation and contract; complete planning forest product processing network in connection with material area; organizing 1 mil households engaged in forestry production through agro-forestry; creating employment for 2 mil labourers. To 2010, forestry business routines organized, 3 mil households engage in forestry sector, creating employment for 6 – 7 mil labourers. Forest and forestry become an important economic sector in midland and upland areas.

Main tasks and criteria

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<tr>
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<tbody>
<tr>
<td>National forest cover</td>
<td>38 – 39%</td>
<td>43 – 44%</td>
</tr>
<tr>
<td>Protection forest establishment</td>
<td>5.7 mil ha</td>
<td>6 mil ha</td>
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<td>Special use forest establishment</td>
<td>1.7 mil ha</td>
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<tr>
<td>Production forest establishment</td>
<td>5.9 mil ha</td>
<td>8 mil ha</td>
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<td>Forest management and protection</td>
<td>10.9 mil ha</td>
<td>13.3 mil ha</td>
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IV. ORIENTATIONS FOR FORESTRY DEVELOPMENT TO 2010

1. Orientation for forestry development by 3 categories:

Based on natural conditions (slope, elevation, landform, climate, hydrology), socio-economic conditions (development level, demand for forest product, sustainable agriculture development), and on diverse characteristics of forest (different forest types, rare, valuable and endemic fauna and flora species), to the year 2010 striving to establish 16.0 mil ha of forest countrywide occupying 48.3% of the total country area, of which:

- Protection forest: 6.0 mil ha, occupying 18.2% of the total country area
- Special use forest: 2.0 mil ha, occupying 6.1% of the total country area
- Production forest: 8.0 mil ha, occupying 24.3% of the total country area

By 2010 the actual forested area is about 14.2 – 14.4 mil ha (the rest is open plantation forest) making the country’s forest cover of 43 – 44% (table 2).

Protection forest:

In the coming time, focus is put on establishing 6 mil ha of protection forest of highly critical and critical protection categories including 5.6 mil ha of watershed protection forest, 180,000 ha of coastal protection forest, 150,000 ha of sand fixing forest, and 70,000 ha of landscape and environmental protection forest for big cities and industrial zones. Less critical protection forest as planned formerly will be reclassified as production forest.

Watershed protection forest: during 2001 – 2010 ongoing projects will be reviewed and rearranged, at the same time more forest will be planted for river basins in Northern mountainous areas (Da, Gam, Thao, Tien Yen, Quay Son rivers), Northern Central (Giang, Ben Hai, Thach Han rivers), Southern Central (Bung river), and Central Highland (Ba, Sesan rivers).

Special use forest:

Our tropical forest ecosystem is very abundant and diverse. This has been proved by recent findings of fauna and flora. In coming time, focus is put to improve and complete construction of approved special use forests, and at the same time, invest to establish new nature reserves in Northeast (Tay Con Linh, Bat Dai Son, Thien Hoa Ba Bien), Northwest (Hoang Lien Son), Northern Central (Dak Rong), Central Highland (Kong Chu Rang). In addition, attention should also be paid to wetland area in Red River Delta (Van Long) and Mekong River Delta (Lu ng Ngoc Hoang).

In situ conservation should be applied to protect endemic habitats in special use forest system, especially those situated in strict protection zone. As for non-forested area, main measures to be taken is protecting for natural regeneration in combination with enrichment planting of indigenous and valuable species of each region (about 269 thousand ha); on the other hand forest protection should be enhanced to prevent negative intervention into forest. As for bare land area (206 thousand ha), new forest plantation is needed.

<table>
<thead>
<tr>
<th>Forest protection for restoration</th>
<th>0.8 mil ha</th>
<th>0.8 mil ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>New plantation</td>
<td>1.6 mil ha</td>
<td>1.8 mil ha</td>
</tr>
<tr>
<td>Scatter tree planting</td>
<td>300 mil trees/year</td>
<td>300 mil trees/year</td>
</tr>
<tr>
<td>Wood production</td>
<td>9.35 mil m³</td>
<td>17.5 mil m³</td>
</tr>
<tr>
<td>Firewood production</td>
<td>24.0 mil ster</td>
<td>16.7 mil ster</td>
</tr>
<tr>
<td>Export turnover</td>
<td>500 mil USD</td>
<td>1,000 mil USD</td>
</tr>
</tbody>
</table>
Production forest

Total production forest planned for 2001 – 2010 is 8 mil ha countrywide, of which forested area is 4.04 mil ha, and non forested area is 3.96 mil ha.

With regard to existing natural forest, in the coming time it is required to strengthen management, protection and to prevent negative intervention into forest. For degraded natural forest (885 thousand ha), forest enrichment with appropriate silvicultural measures should be promoted.

For non-forested land, which is not capable for natural regeneration reforestation is urgently needed in order to increase cover rate. For this area intensive forest planting should be applied (for 2.96 mil ha) to respond to demand for industrial material and for people’s domestic consumption. Capital intensive investment, and new species should be introduced so that by 2005 plantation forest can reach minimum yield of 15 m3/ha/year and > 20 m3/ha/year by 2010. For non-forested land with natural regeneration potential (1 mil ha), protection for natural restoration is needed.

In the coming time, following material forests need to be planted: paper material forest (640 thousand ha), material for artificial board (400 thousand ha), pit wood forest (56 thousand ha), timber forest for furniture and construction (450 thousand ha), material forest for export wood chip (200 thousand ha), special forest products including pine, cinnamon, anise, Aleurites montana (225 thousand ha), bamboo forest (60 thousand ha), and industrial crops, fruit trees (about 900 thousand ha).

Generally speaking, all of forest categories mentioned above have protection function and contributing to sustainable national economy. The stable national forest stand at the time being is 8 mil ha including 6 mil ha of protection and 2 mil ha of special use forest, most of which are natural forest and distributed on high and slope area. They play important role in watershed protection, and at the same time crucial for conservation of valuable and rare flora, fauna germplasm, habitat, wildlife species. Besides, 8 mil ha of production forest which is developed in light of econo-ecological view is an important component for building up a sustainable environment.

To reach the set objectives for 3 forest types above from 2001 onward following task have to be carried out:

- Protecting existing forest: 10.9 mil ha, of which 9.4 mil ha of natural forest and 1.5 mil ha of plantation
- Enriching degraded forest: 1.85 mil ha, of which protection forest is 996 thousand ha, production – 855 thousand ha
- Forest protection for restoration: 1.6 mil ha including 336 thousand ha of protection, 269 thousand ha of special use, and 1 mil ha of production forests
- New forest plantation – 3.48 mil ha, of which production forest is about 2.96mil ha.

(For more details see table 3 A: forestry production 2001 – 2010)

2. Orientation for forestry development by different zones:

Forestry development planning towards 2010 is based on specific conditions of each econo-ecological zones such as physical characteristics (geographical location, elevation, slope, soil, climate etc.), socio-economic conditions in order to prepare land use structure (3 forest categories), tree species, and to identify leading product.

To uphold strength of each zone thus creating specific products which are marketable domestically and exportable, development orientations for each zone are formulated.

2.1 Northwest

This is the highest and most sloping zone with Da river system, highest hydro-power source, which is the main power supply for the country industrialization and modernization. Despite of this rich potentials it remains one of the less develop regions with poor infrastructure, very low forest cover (about 27%), and large bare land (1.95 mil ha). Priority investment should be given to the region.

Main tasks of forestry in this region:
Establishing and protecting watershed protection forest system to conserve and supply water for hydropower works in the area. Establishing material forest serving paper and artificial board industry, timber forest for people’s domestic use, firewood forest in lowland areas like along Da river, along main roads (Road 6). In addition, attention should be put to establishing nature reserves (Muong Nhe, Xuan Nha, Hang Xia – Pa Co, Hoang Lien Son) in order to conserve wildlife and gene pool.

- Striving to increase forest cover of the whole region up to 59.3% by 2010.
- Speeding up farm economy creating more commodities for society, contributing to poverty alleviation, and improving farmers’ income. Focusing on large timber species e.g. Fokenia hodginsii, Chukrasia tabularis, Teak, Talauma doi, material trees for processing industry (pine, eucalyptus, acacia, Bamboo luong); special trees (mother tree for shellac, aleurites montana, rattan), and fruit trees, medicinal plants.
- Constructing wood processing factories: producing paper pulp, artificial boards, construction lumber, furniture; and restoring traditional professional villages.

### 2.2 Northeast region

Situated on territory of 13 provinces where terrain is high, steep and strongly dissected this region is watershed of many big river systems (Red rive, Thai Binh, Cau, Thuong, Lo, Gam rivers.) and many large lakes (Thac Ba, Nui Coc, Ba Be, Cam Son), and is home to many different ethnic groups. Commodity production and infrastructure are less developed. Current forest cover is 35.1% while bare land area is large (2.34 mil ha). This region is potential for forestry production, but development is still limited.

Main tasks of forestry in this region:

- Establishing and protecting watershed protection forest system in the area. In addition, attention should be put to establishing national park (Ba Be, Tam Dao), nature reserves, historic and beautiful landscapes serving scientific research, tourism, and recreation purposes. Focusing on planting valuable tree species such as Fokenia hodginsii, Chukrasia tabularis, Taxus wallichiana, Castanopsis) to conserve gene pool and supply raw material for traditional professional villages.
- Planting industrial forest, and special trees for export: pit wood (coal mine area in Northeast: Quang Ninh, Lang Son), material forests for paper (Bai Bang, Viet Tri), artificial board (Thai Nguyen, Viet Tri, Cau Duong), domestic use wood, firewood for local population, for Ha Noi, Hai Phong. Main plantation species are Pines, Acacia, Eucalyptus, Manglietia, Styrax, Canarium, Castanopsis, Cunninghamhia sinensis, bamboo); fruit trees (Trung Khanh Chestnut, Canarium) and medicinal plants (morinda.)
- Striving to increase forest cover of the whole region up to 45.1% by 2010.
- Constructing wood processing factories: producing paper pulp, artificial boards, construction lumber, furniture; processing essential oil, and restoring traditional professional villages.

### 2.3 Red River Delta region

This is the agricultural production area where population have technical knowledge. This is an economically dynamic area in the North. Current forest cover is 6.6%. This is not a focal forestry area but has strong influence on forest and forestry of Northern upland in terms of consuming forest products and exchanging goods between lowland and upland.

Main tasks of forestry in this region:

- Utilizing all kinds of land for forest plantation creating forest belt to minimize damage of storm, wind and improve environment. Planting coastal protection forest to prevent damage caused by storm, protect sea dyke, architectural works and forest plantation for land incursion.
- Protecting and improving national parks Cuc Phuong, Ba Vi, Cat Ba and historical and beautiful relics serving research, conservation and tourism purposes.
- Promoting scatter tree planting movement in order to partly meet local demand for domestic wood, firewood, and material for fine wood art processing (planting rattan for fencing around home and garden)
2.4 Northern Central region

Situated on territory of 6 provinces stretching from Thanh Hoa to Thua Thien Hue, where terrain is high, steep and dissected by many streams and rivers which are normally short and directly run into the sea. This is the area of frequent storms, floods which cause huge material loss and human casualties. This region is potential for forestry development, local people are experienced in forestry, however, present forest is not enough to fulfill its watershed protection function (forest cover rate is only 41.8%), while bare land area is very large (1.48 mil ha).

Main tasks of forestry in this region:

- Establishing and protecting watershed protection forest system for rivers and reservoirs in the area to retain water serving production and livelihood of local people, controlling flood for lower basins; at the same time establishing coastal protection forest, sand fixing forest, land slide protection forest, and protection for coastal architectural works. Constructing and protecting national parks like Ben En, Phong Nha – Ke Bang, Bach Ma and nature reserves, historical and landscape forests; raising combined with conserving wildlife. Main species to be planted in watershed area are Chukrasia tabularis, Lim, Huynh, Talauma doi, Canarium, Castanopsis, in coastal area are Casuriana, eucalyptus, Acacia, draught tolerant neem tree.

- Planting large and valuable timber forest, material forests for paper, artificial board, domestic wood, firewood, and special forest product

- Striving to increase forest cover of the whole region up to 53.8% by 2010.

- Constructing wood processing enterprises: producing paper pulp, artificial boards, construction lumber, furniture; processing essential oil, and restoring traditional professional villages.

2.5 Southern Central Coast region

The region is characterized with many short rivers running directly into the sea and with Truong Son mountain range as western boundary and the sea as eastern boundary. The region is subject to frequent storms from the sea. Severe watershed forest destruction induces the region to frequent drought in dry season and flood in rainy season. At present forest cover is only 34.5%, while bare land area is rather large (1.06 mil ha). It is necessary to speed up forest plantation in order to rapidly increase forest cover thus contributing to surmount natural calamities and improve environment of the region.

Main tasks of forestry in this region:

- Establishing and protecting watershed protection forest system for big rivers and reservoirs in the area.

- Planting material forests for paper, artificial board, domestic wood, firewood, and special forest product for export.

- Striving to increase forest cover of the whole region up to 48.4% by 2010.

- Constructing wood processing enterprises: producing paper pulp, artificial boards, construction lumber, furniture; processing essential oil, and restoring traditional professional villages.

2.6 Central Highland region

Central Highland is considered as the roof of central and southern provinces. It is the origins of big river

- Striving to increase forest cover of the whole region up to 8.6% by 2010.

- Constructing forest product processing enterprises, especially restoring traditional professional villages (high quality furniture, mother of pearl inlaid art, lacquer painting).
systems like: Ba, Dong Nai, Sesan rivers which supply water to many hydrologic works and hydropower plants. Natural forest area in Central Highland is largest throughout the country where forestry activities are most dynamic, however, uncontrolled forest conversion for agriculture purpose is the issue of most concern. Current forest cover rate is 53.2%, but bare land area is still large (20.1%). Local potential should be further mobilized, linkage with big economic centers like Ho Chi Minh, Da Nang cities should be tightened to accelerate development of the region.

Main tasks of forestry in this region:

- Protecting watershed protection forests to control soil erosion and leaching, regulate water for reservoirs thus minimizing drought and flood in lower basin. Protecting Yokdon national park and nature reserves to conserve valuable fauna and flora gene pools, and wild animal herds of Central Highland.
- Investing in intensive plantation forests for paper, artificial board, domestic wood, firewood, and special forest product (pine resin, Ngoc Linh ginseng, boi loi); tending and maintaining Dipterocapus forest in order to harvest sap serving needs of some industries.
- Focusing on planting rare and valuable species: Cam lai, cam lien, giang huong to supply material for professional villages for high quality furniture and fine wood art processing.
- Striving to increase average forest cover up to 61.6% by 2010.
- Implementing rational forest exploitation in parallel with regeneration and strict application of forest management option. Step by step increasing utilization of standing trees from 65% as of present up to 70 – 80% in order to save forest resource.

2.7 Southeast South region

The region is characterized with many big rivers and reservoirs, dense population with high technical level. Socio-economic activities in the region are most dynamic as compared to other regions countrywide. Current forest cover is 35.5%.

Main tasks of forestry in this region:

- Establishing and protecting protection forest system for big rivers and reservoirs in the area in order to secure water supply for production and domestic use of local people. Focusing on protection of forest in provincial boundary areas where forest destruction most likely to occur. Establishing and protecting Con Dao national park, protecting and expanding Cat Tien national park, nature reserves, historical and landscape forests serving scientific research, tourism, and recreation purposes of population from big cities. Planting large timber species with high economic value such as teak, and dipterocapus species.
- Planting material forests for paper ensure sufficient supply to Tan Mai paper factory (Dong Nai), and to factories to be built in the future. At the same time establish material area for artificial board, domestic wood, and firewood meeting local demand
- Striving to increase forest cover of the whole region up to 37.1% by 2010.
- Setting up a complex processing network in the region including paper, artificial boards, construction lumber, high quality furniture, fine wood art, sap, oil, and restoring and expanding traditional professional villages in Ho Chi Minh city, Dong Nai, Binh Duong

2.8 Mekong River Delta

Consisting of the rest 12 provinces of Southwest South. This is flat lowland area and is the "rice bowl" of Vietnam. Local people have to co-live with flood and saline intrusion. The current forest cover is very low (6.8%) while bare land and alluvial land are plentiful (142,500 ha). The region enjoy great potential for development of agriculture and fisheries, however, forestry development is challenges by many difficulties.

Main tasks of forestry in this region:

- Implementing integrated fisheries-forestry production with appropriate system which ensure environmental protection on the one hand, and people's livelihood on the other hand. Encouraging
farming of reptile species for export.

- Restoring coastal protection mangrove forest ecosystem, restoring Malaleuca forest ecosystem on acidic soil in order to ensure stability and sustainability of coastal wetland ecosystem. Strengthening protection of Tram Chim wetland national park (Dong Thap), nature reserves, bird sanctuaries, historic relics, landscape.

- Planting forests for construction wood. Promoting scatter tree planting along canals, and roads.

- Striving to increase forest cover of the whole region up to 9.3% by 2010.

3. Orientations for forest product processing industry

3.1 Forest product harvest:

With existing resource and production targets for coming time, domestic supply of wood and firewood is mainly based on scatter trees, old and new plantations, well and medium stocked natural forest.

From now to 2005 the annual wood harvest from scatter tree is about 1.5 mil $m^3$, plantation forest – about 7.5 mil $m^3$ (averagely 300,000 ha/year), and natural forest – about 0.3 mil $m^3$. To the year 2010, annual wood harvest from scatter tree is about 2 mil $m^3$, plantation forest – about 15 mil $m^3$ (500,000 ha/year) and natural forest – about 0.3 mil $m^3$.

3.2 Wood and forest product processing:

Together with diverse and increasing demand for forest products such as paper, artificial board, construction lumber etc. wood and forest product processing industry becomes more and more important. The overall principle for wood processing industry of our country is to shift from physico-mechanical processing to integrated chemico-phsysico-mechanical processing, from utilizing material from natural forest to material from plantation, and processing should be market-oriented.

To meet the above requirements, during 2001 – 2010 processing industry has address following issues:

Developing forestry focusing on establishing concentrated material area, improving planting and material production techniques

- Carrying out planning and establishment of specialized and concentrated material area at large scale which is close to industrial zones and forest product processing factories in order to reduce collection, transportation costs; input cost reduction leads to reduced production cost thus improving competitiveness.

- Improving quality of material wood for processing industry. The most important measure is to strengthen seed handling, including production, management and sufficient supply of good quality seed.

Selecting appropriate processing technology development option for each region, each forest product. Hence, identifying scale and technology appropriate for each processing enterprise in accordance with supply potential of each area, therefore, promoting advantages of each region. Planning work has to be done 1 step ahead to guide plantation.

- Depending on material area medium scale fiber board factories with capacity of 30,000 – 54,000 $m^3$/year and small scale particle board factories with capacity of 5,000 – 20,000 $m^3$/year will be built. It is planned by 2005 there will be 9 particle board factories with total capacity of 153,000 $m^3$/year; 6 fiber board factories with total capacity of 183,000 $m^3$/year. By 2010 there will be 21 particle board factories with total capacity of 538,000 $m^3$/year; 10 fiber board factories with total capacity of 375,000 $m^3$/year (table 4A).

- For plywood factories using natural wood: existing factories will be improved and upgraded to be able to use plantation and import timber, total production is 50,000 $m^3$/year. No new factory of this type is built.
Apart from plantation wood, substandard wood and agricultural residues, cane residues of sugar fineries will be utilized to produce artificial board. It is planned to build cane residue particle board to produce 120,000 m³/year (table 4b).

Improving existing big paper mills (Bai Bang, Tan Mai) and other small mills, at the same time building new mills (Kon Tum, Thanh Hoa, Hoa Binh, Lam Dong, Can tho) (table 4 C).

Selecting appropriate models to link different groups of stakeholders including households, farms, processors, and entrepreneurs.

Creating linkage between economic sectors with processors in terms of right and responsibility for material forest plantation. Implementing regulation that compel all forest product processing enterprises to invest in forest plantation based on land planning of the government. Enterprises can then make plantation contracts with farmers and responsible for marketing of plantation products. Enterprises should secure at least 50% of material supply for its own processing for 5 years.

Combining processing at factories with on-farm processing; combining secondary processing at factories with primary processing at households and farms.

V. MAIN SOLUTIONS

1. Organizational solutions

To strengthen position of forestry in national economy following actions should be taken:

- More clearly assigning function and responsibility to authorities and forestry management institutions at all levels. Further promoting decentralization to local authorities, taking commune as basic unit for forestry development.

- Instructing and accelerating implementation of forest protection and development regulation at localities.

- Strengthening and reforming SFE to better protect and utilize existing natural forest and forest land. Forest enterprises have to shift production structure towards processing and service centered, or reorganize themselves to become trade business units serving as a core for socio-economic development in remote area. Carrying out further studies on diversifying ownership and business patterns of forest enterprises.

- Reforming Forest Protection authority into Forest police to handle enforcement of forest protection law.

- Synchronous planning of material area with industrial zones and forest product processing factories. Identifying appropriate scale of processing factories in consideration of material area in order to bring into play advantage of each economic zone.

2. Scientific and technological solutions

1. Formulating oriented breeding programmes for main tree species of high economic value. Selecting and introducing new fast growing, and high yielding varieties to plantation programmes; establishing selected seed sources (seed orchard, seed forest); applying biotechnology in hybridization, propagation, developing new propagation methods (tissue, cutting) to supply good quality seed for production, gradually reducing unselected seed.

2. Carrying out study to restore natural forest, setting forth criteria for sustainable forest management; applying suitable silvicultural treatments to improve quality of natural forest aiming to enhancing environmental protection function, at the same time supplying wood and NWFP for the economy.

3. Identifying suitable species structure for typical sites of ecozones, selecting tree composition for protection forest, establishing SALT models typical for each zone in order to protect environment and improve livelihood of upland people.
4. Compiling technical instruction for intensive forest plantation based on land evaluation, silvicultural measures, forest fire and pest and disease control as well as harvesting and transporting of plantation products

5. Developing social forestry and strengthening forestry extension service; reviewing and replicating productive agro-forestry and sustainable forest management models to help local people improve their economic situation.

6. Carrying out studies on methods for quantifying direct and indirect values of forest to enable correct understanding and recognition of forest and forestry; carrying out research on domestic and abroad market.

7. Studying forest product and standardizing technology towards ISO will be priorities in order to produce forest products up to export standards.

3. Human resource development solution

3.1 Human resource must be developed in new approach combining traditional and modern training; linking training with practice, combining formal training with “training socialization” to keep pace with the era’s tendency “knowledge economy” which will take a leading role in the XXI century.

- **Expanding training of technical workers for state and private enterprises:** during 2001 - 2005 expanding training scale of 4 existing vocational technical training school and establishing new vocational schools in to double the amount of trainees (1,200 – 1,400 trainees/year). During period 2006 – 2010 establishing vocational schools under forestry corporations to train about 4,000 people/year.

- Enhancing technical training for above target groups: during 2001 - 2005 expanding training scale of existing secondary technical training school in order to increase the amount of trainees by 1.5 times (1,600 – 2,000 trainees/year). During period 2006 – 2010 establishing new secondary technical schools in focal forestry areas in order raise number of trainees up to 2,500 people/year.

- University and postgraduate training: during 2001 - 2005 number of graduate students is about 1,000 – 1,200 persons/year. During period 2006 – 2010 number of graduate students is 1,500 – 1,600. Master training from 2001 – 2010 is 80 persons/year, and doctor training – 40 persons/year.

- Retraining and refreshment training for management and administration staff: through in-country and abroad training in forestry management. Training topics are administration management, planning, finance, investment, monitoring and evaluation. By 2010, about 1,000 staff will be trained.

- Organizing professional retraining for staff working in forest protection field (who will be forest police latter on).

- Providing professional training in forestry for technical staff at commune and village levels, and farm owners in upland, midland and coastal areas. During 2001 – 2005 carrying out training for areas where agricultural, forestry development projects are implementing, from 2006 – 2010 expanding training to other areas.

3.2 Strengthening forestry extension service especially at local level. Main topics are disseminating forest and land allocation policies, main contents of Land law and Law on forest protection and development, government policies regarding forest and forest land; technical knowledge, farming techniques. Trying to have 1 “volunteer extensionist” per 50 households who will not receive formal government salary but partly supported government projects on extension, investment, or sedentarisation.

3.3 It is necessary to reorganize, strengthen, and expand training, improve training programme and curriculum of training system

- Reforming university training, strengthening collaboration between Forestry College and Forest Science Institute, and other forestry units.

- Establishing new secondary forestry and vocational forestry technical schools in forestry areas such as Northwest, Northeast, Red River Delta, Northern Central and Southern Central Coast, and Central Highland. In addition, it is possible to establish 5 vocational forestry technical schools under 5
corporation in forestry sector.

- Developing trainers team in order to respond to human resource development plan of the sector. Creating impetus (rights, and responsibilities) for training staff.

4. Policy solutions

4.1 Land policy

- Priority is given to land for watershed protection, coastal protection, and special use forest (9 mil ha) to ensure environmental protection and biodiversity conservation. On the other hand, it is necessary to plan concentrated material area where rights of forestry corporations, enterprises, SFEs over land use and forest resource must be clearly stipulated for long term production (red book issuing). Regarding other economic sectors, household, land use rights should be clearly stipulated as well to encourage their investment.

- Broadening and strengthening rights of land receivers, land tenee, simplifying formalities to facilitate land user realize their rights. Individuals, households who receive land are entitled to change trees, crops planted on their land if found contrast to land protection purpose; however, it is strictly forbidden to change land use purpose, especially that of natural forest.

- Enhancing government management in forestry. Appropriate measures to regulate transfer of land use right are needed (setting up pricing unit, formulating market regulations). Measures to make sure allocated land is productively used. Environmental norms should be set forth to facilitate selection of land use purpose.

4.2 Science and technology policy

- Together with government investment for science and technology, it is needed to mobilize involvement of economic sectors and different organizations in research, and science and technology transfer to serve forestry production.

- Focusing efforts to implement forest seed improvement programme. This is an important strategic solution to improve quality, efficiency and competitiveness of our forest commodities. Right from 2001 and throughout coming 5 – 10 year it is necessary to import high quality seeds with good properties; selecting breeding, testing, and propagating high quality forest seeds supplied for production.

- Reorganizing countrywide seed network to be able to respond to demand for high quality seed for forest plantation.

- Reorganising scientific research system including financial management and personnel mechanism to create scientific and technological breakthroughs; eliminating subsidy and fragmented research system.

- Promoting import of advanced technologies, especially seeds, machineries, equipment and modern processing technologies. Reducing and exempting tax for enterprises which employ new technology and equipment.

4.3 Investment policy

- Increasing budget investment for protecting and developing protection and special use forest system including forest protection, assisted regeneration, forest enrichment, new forest plantation; infrastructure construction; establishing seed orchard; research; human resource development; and forestry extension.

- Budget support for production forest where valuable and long cycle tree species are planted.

- Increasing government development credit, and improving lending procedures and credit policy in order to increase efficiency of this credit, and ensure investors' profitability when investing in production forest. Improving development credit management in terms of: interest rate, simply lending procedures, appropriate repayment.

- Form of credit provided depends on investment rate for each forest type, each species planted or
 provided depending on investment project

- Apart from annual government budget and credit scheme, policy to attract funding from world financial organizations (WB, ADB, IMF, GEF etc.), other governments is needed to enhance development of protection, special use forest system, to develop rural area in buffer zone of special use forest, and to implement household scale plantation project (PAM, Germany).

- Encouraging all economic sectors invest in forestry development (planting material forest, special use forest, constructing small scale processing factory). Government should have policy supporting investment capital of enterprises of economic sectors (private, state, joint venture), and investment support for farmer households.

- Working out regulations in order to increase financial resource through co-financing by groups of forest beneficiaries such as water resource, fisheries, agriculture, tourism, and energy.

4.4 Market and trade policy

- Formulating market strategy and reorganising forest product market, especially attention should be paid to market for NWFP. Promoting marketing and studying consumers’ preference to design suitable products’ mark. Formulating support policy for marketing of forest products produced by people.

- Implementing free circulation of forest products within the country, encouraging all economic sectors’ involvement in market, creating healthy competition and ensuring benefits of producers and consumers.

- Facilitating enterprises to export and import commodities which they have registered for business and fulfill export import formalities at customs office without any other license.

- Taking measures supporting enterprises’ export to new markets. Encouraging export of special NWFP, artificial board products, and fine wood arts processed domestically.

- Regarding import, applying suitable and time-bound protection mechanism to forest products and material potential for import substitutes, mainly by tariff barrier.

- Based on import tariff reduction schedule under ASEAN CEPT framework, it is recommended to reduce import tariff for log to 0% to encourage log import in order to create employment and reach set target for export.

- It is recommended to set import tariff for wood and artificial board products of all kinds at 5% until 2010 to limit importing.

- Do not apply import licensing for log (except for that from Cambodia)

4.5 Human resource development policy

- Government should properly invest in training management staff in forestry so that by 2010 all these staff are basically trained.

- Investing to strengthen technical training system of the sector; granting full scholarship to farmers’ children, giving priority to minority children, and children of staff working in the sector who study in vocational schools, universities, and postgraduate study so that to facilitate them working for long term in SFEs, and management units of protection and special use forests.

- Supporting to carry out extension programmes related to environment and forestry. This work has to be done regularly mainly through short term training, on-site training and learning by doing activities.

4.6 Policy encouraging economic sectors participation in forest protection and forestry production

- Facilitating farmer’s access to and application of agro-forestry techniques to develop commodity forest products, at the same time ensure food security, raise income, and stabilize their living.

- Clearly identify area for concentrated industrial forest development for each commodity in order to meet
requirements of processing industry, and gradually change conception of farmers on forest commodity production. This is an important drive to encourage people’s engagement in forestry.

- Reducing interest rate for credit invested in material forest plantation by 0 – 50% that of the first cycle, at the same time increase loan ceiling and duration in accordance with production cycle of each species
- Exempting land tax for 2 production cycles for material forest
- Studying to issue policy on plantation forest insurance.
- Encouraging farmer household to develop forest garden, forest farm following RVAC model. Providing seedlings to support farmers plant tree and forest on allocated land; farmers are entitled to get benefits of products harvested.
- Supporting capital and seedlings for schools, local organisations and arm force to plant forest and scatter tree.
- Encouraging individuals and foreign companies to jointly plant material forest and/or rent land for forest plantation.

VI. PRIORITY DEVELOPMENT PROGRAMMES

During period 2001 – 2010, following forestry development programmes are in focus:

1. The five million ha reforestation programme

Objective: increasing forest cover to 43% in order to create sustainable ecosystem and protect environment; sufficiently supplying forest products responding to demands for domestic consumption and export; creating employment for people, contributing to poverty alleviation, gradually improving living standard of people, especially of minority people living in remote, border and island areas.

Activities: newly planting 2 mil ha of protection, special use forest, of which 1 mil ha is protected for regeneration combined with enrichment planting, and 1 mil ha of new plantation; newly planting 3 mil ha of production forest, of which 2 mil ha of material forest and special product forest, and 1 mil ha of cash crops and fruit trees; at the same time, developing forest product processing network throughout the country.

2. Sustainable forest management and development programme

Objective: protecting, developing and sustainably managing tropical forest resource of Vietnam, conserving valuable and rare fauna and flora germplasm, conserving species habitat and biodiversity; bringing into play environmental protection function of forest, at the same time supplying wood and forest products for economy.

Activities: carrying out forest land use planning at commune level. Studying natural forest restoration, working out criteria for sustainable forest management; applying suitable silvicultural measures to gradually improve quality of natural forest thus strengthening environmental protection function. Identifying suitable tree composition for typical sites of ecozones, selecting tree composition for protection forest. Establishing SALT models typical for each zone for environmental protection purpose (watershed, sand dune, coastal) contributing to improving livelihood of upland people.

3. Wood and forest product processing development programme

Objective: developing wood processing industry shifting from physico-mechanical processing to integrated chemico-physico-mechanical processing, especially shifting from using natural forest material to plantation forest material. Developing market-oriented processing industry, diversifying products to satisfy demands for domestic consumption and export as well. Contributing to protect natural forest, accelerating plantation forest development, creating more employment, increasing income, and improving livelihood of people in forest areas.

Activities: planning, developing material area; identifying scale, location, technology, and equipment for
processing enterprises by regions, and orienting production structure of wood and forest product processing industry countrywide.

4. Forest resource inventory, monitoring and assessment programme

**Objective:** carrying out comprehensive inventory, monitoring and assessing of forest resource at provincial, regional, and national levels; analyzing, and assessing changes of forest resources in Vietnam; identifying causes for forest changes, and completing models to forecast forest resource change, provide information, data to the Government and concerned sectors and adapting and formulating strategic orientation for national socio-economic development.

**Activities:** carrying out inventory to assess current status of forest resource, monitoring forest resource changes in terms of quantity and quality at provincial, ecozone and national levels. Establishing database of forest resource and updating annual changes. Periodically publishing country forest data and map.

5. Forest seed development programme

**Objective:** ensure sufficient supply of high quality seeds of leading forest species responding to demand of production. Applying new as well as traditional technologies, using hybrid vigor. Forming market-oriented forest seed service. Encouraging all foreign as well as national organisations, individuals to involve in research.

**Activities:** setting up breeding programmes oriented to main indigenous species of high value in national economy; selecting and using new fast growing and high yielding species. Establishing seed forest, seed orchard (botanic garden) throughout the country. Introducing necessary exotic genes and species in order to gain scientific and technological advances of the world. Applying biotechnology to hybridization of new, high quality and high yielding species (tissue culture, pure-breeding) to serve intensive material plantation for processing industry. Planning countrywide seed supply network. Disseminating seed knowledge to farmers through forest extension programmes. Working out a set of standards for forest seed testing.

6. Human resource development programme

**Objective:** building up human resource, training intellectual staff, skillful labour force, management staff who are able to handle new science and technology, and management tasks responding to increasing requirements of the more and more specialized forestry.

**Activities:** developing university and vocational training, speeding up training of skillful workers, providing forestry knowledge and techniques to commune and village technical staff, and farm owners in midland, upland, and coastal areas; at the same time training and retraining government staff and employees in order to strengthening management capacity. Improving quality and quantity of trainers, standardizing and modernizing training facilities.

VII. STEPS TO BE TAKEN

1. Period 2001 – 2005

Identifying in the field boundary and area of 3 forest systems (protection, special use, and production) as a basis for investment and development making sure to bring into full play functions and efficiency of each forest types.

Protecting existing forest area. Accelerating enrichment of degraded forests under forest enterprises which are able to do business. Promoting scatter tree planting campaign every year.

Mobilising all resources to implement 5 mil ha programme which was approved by the Government Prime Minister (Decision 661/QĐ-TTg dated 29/7/1998), putting attention to establish material area.

Basically completing land allocation and forest contract to organisations, and households putting forest and forest land under legal ownership. Mobilising all economic sectors to participate in forestry production, of which state sector takes the core role, and household economy is an important stakeholder.

Competing the planning of countrywide forest product processing network linked with material area, gradually
investing in advanced processing technology.

Reviewing institutional structure and policies related to forestry to recommend to Government, National Assembly for amending Law on Forest Protection and Development, and formulating forestry policies appropriate with development.

2. Period 2006 – 2010

Protecting existing forest area and fulfilling the 5 mil ha programme.

Basically finalizing projects on industrial material areas throughout the country. Completing enrichment of degraded forests. Promoting and continuing scatter tree planting campaign.

Completing the upgrading and constructing processing factories with advanced equipment and technology to save material, increase productivity and product quality.

Completing reformation of SFE, developing household and form economy to promote commercial forest products. Creating more favourable legal framework for forest and forestry development.

RECOMMENDATIONS

1. Recommending the National Assembly and the Government to amend Law on Forest Protection and Development and under law documents which are no longer suitable in the new context of the country development, amend existing laws, and to issue policy on plantation forest insurance.

2. Recommending the Government to issue regulations on national forest stand; issuing regulations on government administration, and government administrative authority for forest and forest land at different levels in accordance to existing laws. Issuing incentive policy for stakeholders involved in forest protection and development.

3. Recommending the Government to prepare investment plan on forest protection, restoration and plantation for the next few years for protection and special use forest. Prioritising remote, disadvantaged areas, where mainly poor minority ethnic people with backward farming tradition are living.

4. Recommending the Government to permit logging in accordance to annual forest increment; exporting processed wood products with given quota; to issue clear policies encouraging processing and exporting plantation timber.

5. Recommending concerned sectors and provincial, city people’s committee to collaborate and join efforts to halt illegal logging and export.

FORESTRY STRATEGY GROUP