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An Overview of the NTFP Sub-Sector in Vietnam

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FOREWORD

NTFPs have provided essential, supplementary, and luxury materials to human communities for probably as long as humans and forests have co-existed. But even today NTFPs continue to play vital roles in the livelihoods of communities living in and around forests all over the world and have increasingly important roles in national economies, especially for tropical countries.

Documentary evidence of international export of NTFPs—from the Indonesian islands to China—dates as far back as the 5th century (De Beer & McDermott, 1996). In the past couple of centuries, governments, traders and scientists have collected and compiled extensive information on NTFPs, particularly for the purposes of extraction and trade among colonial regimes. As Neumann & Hirsch (2000) say, "by the end of the 18th century, a global network of naturalists and institutions was in place that was able to acquire and disseminate knowledge of economically useful tropical plants" (p.3).

The past couple of decades has seen a reinvigorated interest in NTFPs, particularly in light of their potential contributions to forest and biodiversity conservation; poverty alleviation and upland development; and women and ethnic minority groups in development. NTFPs can be harvested sustainably with low-impact on forests, provide important sources of income and subsistence materials to communities living in and around forests (often poor, upland and/or ethnic minority communities, and the primary collectors are often women) and, as such, provide important incentives for local conservation and management of these forests and their biodiversity. Indeed, the overlap of NTFPs into each of these domains has given promise to efforts for integrated conservation and development. The enormous success of certain NTFPs on international markets, such as rattan and bamboo, has also created interest in their potential contributions to local and national economies.

Vietnam shares many of these concerns. Among the Government of Vietnam's top priorities are national economic growth, poverty alleviation (particularly for upland communities and ethnic minority groups) and forest conservation, as evinced in the recent Forest Development Strategy, 5 Million Hectare Reforestation Program and Comprehensive Poverty Reduction and Growth Strategy. However, the NTFP sub-sector is still budding in Vietnam. Many of the tasks for NTFP research and development have been dispersed among offices and departments under the Forest Sciences Institute of Vietnam (FSIV, under the Ministry of Agriculture and Rural Development [MARD]) and a small research centre for "forestry specialty products" (which is loosely translated in this document as the "Non-Timber Forest Products Research Centre") in the laboratory and pilot sites through the case studies.

In 1998, MARD, through the Non-Timber Forest Products Research Centre (NTFP-RC) and IUCN-Vietnam and with funding from the Royal Netherlands Embassy, embarked upon an integrated conservation and development project for the Sustainable Utilisation of NTFPs, whose primary aim was to build-capacity for the NTFP-RC. Through the course of implementation, the NTFP Project played a key role in generating an understanding of the NTFP sub-sector, including the production of a sub-sector analysis (De Beer, Ha Chu Chu & Tran Quoc Tuy, 2000), policy

review related to NTFPs (Bui Minh Vu, Pham Xuan Phuong, Nguyen Van Tuynh & Nguyen Duc Xuyen, 2001), development strategy for the NTFP-RC (Do Dinh Sam, Nguyen Van Tuan & Le Thanh Chien, Guido Brokhoven, Chun K. lai and Gary King) and by providing key inputs into the Forest Sector Support Program and its consequent Forest Development Strategy (see the NTFP Project's external evaluation by Le Thac Can, Huynh Tuu Boi & Vu Ngoc Long, 2001).

The current sub-sector review is based on a previous sub-sector analysis (De Beer et al., 2000), the policy review (Bui Minh Vu et al., 2001) and an overview of NTFPs in Vietnam (Vu Van Dung, Hoang Huu Nguyen & Trinh Vy, 2002). The book begins with Part I, which mainly describes and analyses the current situation of the NTFP sub-sector and its legal framework in Vietnam. Chapter 1 introduces the debates over definitions and classification of NTFPs, followed by an overview of the major constraints and potentials to NTFP production and development in Vietnam. Chapter 2 gives a brief history of government institutions responsible for NTFPs and reviews the capacities and potentials of major stakeholders and institutions. Chapter 3 provides an extensive review of the legislative and legal framework, particularly as they relate to the inputs and outputs of NTFP production. Finally, Part II is dedicated to profiles of various NTFP species under different categorizations that are currently and/or traditionally important to Vietnam.

The compilation of this book has tried to combine creating a comprehensive and coherent overview of the NTFP sub-sector, while maintaining the integrity of individual authors' contributions. This was accomplished by basing each chapter on the authors' previous work, supported with contributions from others and the editors' commentary, as appropriate. However, conglomeration of these various voices and the starkly contrasting styles of the authors does not always make for fluid reading, especially from chapter to chapter. De Beer et al.'s style is as succint and analytical as Bui Minh Vu et al.'s style is encyclopaedic and descriptive. Vu Van Dung et al.'s focus on products and classifications adds yet another dimension to style. Thus, the book is presented for two types of readers, as a cover-to-cover read for the very interested reader in NTFPs or on a pick-and-choose basis for those with more specified interests.

On the whole, I believe that the combined work of these authors has produced a substantial—and first—introductory document to the issues, potentials and constraints facing the development of the NTFP sub-sector in Vietnam.

Prof. Dr. Do Dinh Sam

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ACRONYMS

ADB	Asian Development Bank
BAROTEX	Bamboo Rattan Export Company
BRDC	Bee Research and Development Centre
CITES	Convention on International Trade of Endangered Species
CREDEP	Centre for Research and Development of Ethno-medicinal Plants
DARD	Department of Agriculture and Rural Development
FAO	Food and Agriculture Organisation
FIPI	Forestry Inventory and Planing Institute
FSIV	Forest Sciences Institute of Vietnam
ICDP	Integrated Conservation & Development Project
IEBR	Institute of Ecology and Biological Resources
IUCN	International Union for the Conservation of Nature and Natural Resources
MARD	Ministry of Agriculture and Rural Development
MFor	Ministry of Forestry
MPRC	Medicinal Plant Research Centre
NaForimex	National Forestry Import-Export
NedCen	Non-state Economic Development Centre
NITM	National Institute of Traditional Medicine
NTFP	Non-Timber Forest Product
NTFP-RC	Non-Timber Forest Products Research Center
NWFP	Non-Wood Forest Product
RTCCD	Hanoi Research and Training Centre for Community Development
SIDA	Swedish International Development Agency
SIERES	Sub-institute of Ecology, Resources and Environment Studies
SNV	Netherlands Development Organization
SFE	State Forest Enterprise
UNDP	United Nations Development Program
UoH	University of Hanoi
VFGD	Vietnam Forestry General Department
WWF	World Wildlife Fund

Contents

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Part I. Non-Timber Forest Products Sub-Sector in Vietnam

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1 An Introduction to NTFPs in Vietnam

By Vu Van Dung, Hoang Huu Nguyen, Trinh Vy and Nguyen Van Tap; and Jenne de Beer, Ha Chu Chu and Tran Quoc Tuy

1.1 Introduction[1]

Non-Timber Forest Products (NTFP) comprise various groups of products derived from forests, including rattan, palm leaves, bamboos, medicinal plants, oils and resins, tannin, dyes and products from wild fauna. Despite long-standing use of NTFPs by communities living in and around forests, governments and businesses worldwide tended to view forests predominantly as timber resources and neglected NTFPs. In the past half-century, exploitation and use of NTFPs have increased, contributing to industry and modern sub-sectors such as electronics.

In addition, NTFPs have important social and economic values, especially to mountainous peoples in developing countries, who often depend on NTFPs for income and sustenance. NTFPs have created job opportunities for hundreds of thousands of people in mountainous areas and contributed to hunger eradication and poverty alleviation in Vietnam. NTFPs also contribute to protecting human health, the environment and biodiversity resources.

This chapter begins by presenting different definitions and categorizations of NTFPs and the debates surrounding them. Then it provides an overview of the issues and constraints facing development of NTFPs in Vietnam.

1.2 Definition

Several definitions exist of what is a Non-Timber Forest Product (NTFP), or sometimes called Non-Wood Forest Product (NWFP). In simple terms, these definitions refer to all products that people harvest from forests, excluding timber or wood. "Wood" refers to the stem, branches and roots of trees characterized by lignified, water-conducting, strengthening and storage tissues. "Timber" is composed of wood in forms suitable for heavy construction, sawn wood or that exceeds a specified width and thickness (Chandrasekhan, 1995). Thus, according to the latter definition, NTFPs includes fuelwood, carving wood, pulp, and small wood for light construction.

The Asia and Pacific NWFP Expert Consultation held in Bangkok in 1991 proposed the following definition:

> *NWFPs forest products consist of all biologically renewable products, except timber, fuelwood and charcoal. NWFPs are harvested from forests, forested lands and arboreal plants. Therefore, other products such as sand, rock, water and eco-tourism are excluded from NWFPs.*

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This group of experts emphasised that eco-tourism is not an NWFP, in opposition to arguments that NWFPs include forest-derived services such as fishing, camping, wildlife watching and excursions (Chandrasekhan, 1995).

Recently, J.H. De Beer, a widely cited author on NTFPs, gave this definition:

> *NTFPs are comprised of biological resources derived from raw materials that are non-timber and harvested from forests for human use. They may consist of foods, medicines, spices, essential oils, resins, milk, tannin, dyes, ornamental plants, wild animals (live animals or their products), fuelwood, and other raw materials such as bamboo, rattan, small arborous and fibrous plants.*

Notably, De Beer includes fuelwood among NTFPs.

In June 1999, this definition was offered at a conference sponsored by the Food and Agriculture Organization (FAO):

> *NTFPs consist of biological resource derived products that are non-timber, harvested from forests, forested lands and arborous trees.*

In sum, the term "NTFP" is difficult because "it is defined not by what it is, but by what it is not" and is often of little help as an analytical category because of the immense variety among NTFPs (Neumann & Hirsch, 2000, p.1-2). What remains important is the term's specific recognition of a multitude of forest products and/or their uses that are often ignored by businesses and government (in favour of industrial timber), but can play important roles in national and local economies, forest and biodiversity conservation, poverty alleviation and upland development, and women's and ethnic minority issues.

1.3 NTFP Classification

There are various NTFP classification systems worldwide. Some have been developed on the basis of life forms of floral species producing their products, such as timber trees, shrubs, herbs, climbers and lianas, etc.; and others have developed on the basis of their original distributions.

The NTFP classification system adopted at the Bangkok Conference (FAO, 1991) consisted of six categories:

1. *Fibrous products:* bamboo, rattan, fibrous leaves and trunks and grasses
2. *Food products:*
    a. *Vegetable based products:* trunks, buds, roots, tubers, leaves, flowers, fruits, nuts, spices, oil seeds and fungi
    b. *Animal products:* bee honey, wild meat, fish, snails, clams, edible bird nests, eggs, edible insects
3. *Vegetable based drugs and cosmetics*
4. *Extractive products:* gums, resin, oleoresin, latex, tannin, dyes, fat oils and essential oils

5. *Animals and non-edible animal products:* mulberry silk, live animals, birds, insects, hairs and feathers, skins, ivory, horns, bones and shellac (red lac-insect resin)
6. *Others* (e.g., bidi leaves, which Indians use to wrap tobacco)

Four years later, Chandrasekharan (1995), an NTFP expert for the Food and Agricultural Organization (FAO), proposed a classification system of these four major categories, each with its own sub-categories:

1. Live plants and their components
2. Animals and animals' products
3. Processed products (spices, vegetable oils and resins)
4. Forest derived services

Prior to these international efforts, the "List of Special Forest Product Species Under Sectoral Unified Management," attached to Decree 160 (12/1984) on the unified management of specialty forest products, was the first NTFP classification system to be formally recognised in Vietnam. The list classifies NTFPs into two major categories, Forest Flora (Category 1) and Forest Fauna (Category 2). Each of these categories is divided into sub-sections, as follows:

Forest Flora

- Resin, essential and fat oils, and tannin trees (e.g., pine, cinnamon, anise, cajuput, mangrove, canarium, eucalyptus, benjoin)
- Medicinal plants (e.g., including *Morinda officinalis*, *Amomum spp*, *Homanolena occulta*, *Polygonum multiflorum*, *Codonopsis javanica*, Eagle wood, *Fibraurea recisa*)
- Trees/ plants used as raw materials for handicrafts (e.g., rattan, bamboo, *Corypha lecomtei*, etc.)
- Trees/ plants used for industrial materials (e.g., shellac, pine resin, gums)

Forest Fauna

- Wild animals harvested for leather, feathers, bones, ivory, flesh, musk, nectar and pharmaceutical products (e.g., elephant, tiger, panther, wild buffalo, wild ox, deer, python, snake, giant lizard, gecko, monkey, gibbon, porcupine, wild bees, precious birds, and other animal species)
- Products processed from the raw materials that are derived from animals

Despite the erroneous inclusion of shellac (processed from resin of red lac insect) under floral products, the NTFP classification system testifies to the progress in the understanding of NTFPs in Vietnam.

Other categories of NTFPs important to Vietnam, but not specifically identified in the above classification systems are 1) species of trees/ plants containing toxic substances, 2) ornamental plants and 3) wrapping leaves for food and other products.

1.4 Issues and constraints to NTFP production and development in Vietnam[2]

This section gives short descriptions of the NTFP sub-sector in Vietnam and identifies fields of interest to different groups of stakeholders. The section is based on semi-structured interviews with key informants representing different organizations and government institutions during a period of consultancy for which the authors were employed.

1.4.1 Nature of the NTFP sub-sector

Rural households and upland communities

The importance of NTFPs to rural households in Vietnam cannot be overestimated. This applies in particular to the 8.5 million people of ethnic minorities, who mainly live in upland areas. In these societies, gathering, hunting and fishing are traditionally all vital adjuncts of forest farming. Despite sweeping socio-economic changes of modern times, particularly the increased availability of manufactured and other substitute materials, NTFPs continue to play an important role in the livelihood of ethnic minorities and rural households.

This is particularly true for poorer and more remote households with less access to the advents of modernity. As shown in a study with Dzao and Tay communities living in the mountainous areas around Ba Be National Park, fuelwood, bamboos, fodders, forest vegetables, basic medicines and a variety of other life-enhancing products (e.g., ornaments, aromatic substances, teas) continue to provide essential and supplementary materials for livelihoods (Morris, 2002). *Table 01* shows how NTFPs continue to contribute to the cultural and spiritual life of Tay communities, as indicated by the variety of ingredients used to make specific types of cakes for celebrating festive occasions. Many of Tay festivals have become integrated with Kinh festivals. Ones that are distinctly Tay are indicated with an asterisk.

Table 01. Tay festivals and the NTFPs used to celebrate them

Name of festivity	Date	Name of cake	NTFP ingredients
Tet (Lunar New Year)	1/1	*Peng Ben* cake	Rush leaf
*Dap noi**	30/1	*Peng Khi Ma* cake	Pinnate leaf, yellow daisy, *artemisia vulgaris* leaf, *gnaphalium affine* leaf
So slam	3/3	Sticky rice with ant-eggs *Banh troi* cake *Banh chay* cake	Ant larvae, dyes for sticky rice (*liquidambar formosana* leaf for black, orange leaf for red, *mormodica cochininensis* fruit or saffron root for yellow, ginger leaf for blue)
So ha	5/5	*Peng Khun* cake	*Thysanolaena latifolia*
Srip shi/Srip ha buon chat (Mid-year festival)	15/7	Pinnate leaf cake *Banh Khuc* cake Banana cake Banana root cake	Pinnate leaf Banana leaves Dried banana Dried forest-banana roots

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Ram trung thu (Autumn moon festival)	15/8	Fruits	Banana, grapefruit, persimmon
So cau[*]		*Peng khau mau*	Banana leaf
New rice festival[*]	10/10	*Peng dec* Young sticky rice	 Young bamboo culms

Source: Morris, 2002

Finally, NTFPs can create important economic opportunities for communities in remote mountainous areas, with often simple technologies for collecting, planting and pre-processing. For example, households in Bac Ha District in Lao Cai have begun to grow *Amomum aromaticum,* harvesting on average 200-300 kg of fruit per year and, in some cases, as much as 500-1000 kg. The latter is equivalent to 20-40 million VND, which is 10-20 times higher than rice cultivated on the same area, according to the market current price of 70,000-150,000 VND per kg (Nguyen Van Tap, 2001).

Trade

The NTFP sub-sector as a whole, including collecting, cultivation, trade and processing, gives employment to hundreds of thousand of people, including inhabitants of urban areas (Van Tien 1991:14). A significant part of the NTFPs harvested is entering the home market for direct consumption or for use in industries, which produce for the home market. It is impossible to assess the real total value of NTFP exports from Vietnam because most of it, including a large volume of endangered plant and animal species, leaves the country unregistered (see Donovan, 1998). The picture is further complicated by the fact that a considerable part of Vietnam's NTFP export is in fact re-export from Laos and Cambodia. The overall trade is in the hands of a few state and provincial companies and numerous small private traders (see further Raintree, 1999; De Beer, 1992).

However, some statistics on trade and production are available from major NTFPs. *Table 02* testifies to the large volumes of NTFPs harvested annually in Vietnam. Even these statistics are likely much less than actual volume because they exclude large amounts harvested by households and individuals.

Table 02. NTFPs harvested from 1995 to 1999

Products	Unit (trees)	1995	1996	1997	1998	1999
Bamboo	Thousand stems	67,026	720,858	174,189	172,649.5	171,000
Neohouzeaua dullooa	Thousand stems	108,500	104,779	105,175	248,310.2	150,000
Phyllostachys spp.	Million stems	15,600	24,664	2,649.2	12,197.3	100,000
Rattan	Tons	28,500	25,975	25,639.2	80,097,2	65,700
Pine resin	Tons	5,350	1,348	6,387.3	6,776.8	7,182
Anise fruits	Tons	1,870	6,672	9,896	9,500	5,000
Cinnamon	Tons	7,790	3,658	3,954.2	2,100	2,900
Bamboo shoots	Tons	32,500	30,887	13,789	?	?

Source: MARD, Ha Chu Chu, 2001

Through export and processing of NTFPs, each year MARD and Ministry of Health contribute over 1.5 billion USD to total national exports (see *Table 03*). According to these figures, the total value of NTFP exports exceeded that of exports in fisheries, which was third only after petroleum and textiles.

Table 03. Value of Vietnam's NTFP exports in 1996

NTFP products	Total value (million US$)	Share
Bamboo	37.6	2.5
Rattan	119.0	7.9
Cinnamon (in bark and powder)	95.6	6.3
Essential oils	312.5	20.7
Turpentine and rosin	49.6	3.3
Mushroom	206.5	13.7
Pharmaceuticals (originated from medicinal plant and animal)	689.9	45.6
Total	15.107	100.0

Source: Ha Chu Chu, 1996

NTFPs also provide important input materials for Vietnam's industrial sub-sectors, particularly paper industries. The national government intends to develop one million hectares of forest to supply raw material for 0.5 million tons of paper and pulp by 2005, and around 2.0 - 2.5 million tons for 2010Among it there is 30% production by bamboo materials. Pine oleoresin plants have an estimated capacity of 5,000 tons per year, and essential oil factories are to be developed in the future. Results from the past 20 years show that plantations for pine resin (*Pinus merkusii*) have increased twofold (from 30,631 ha in 1980 to 74,929 ha in 1997), anise (*Illcium verum*) plantations have expanded by five times (from 2,678 ha in 1980 to 14,133 ha in 1997), and cinnamon (*Cinnamomum cassia*) plantations have increased by 11.5 times (from 5,353 ha in 1980 to 61,820 ha in 1998).

Furthermore, 88 bamboo-processing and 36 rattan-processing enterprises have been developed (see *Annex A*).

During the last ten years, traditional craft villages have been rehabilitated and developed rapidly, with an annual growth rate of 8% per year. 1,450 craft villages exist nationwide (Nguyen Quang Trung, 2001). Many of these villages depend on NTFPs for raw materials, particularly bamboo and rattan. Because handicrafts are often labour intensive, bamboo and rattan processing alone has created an estimated 200,000 - 400,000 jobs.

The forest resource

In the past, Vietnam disposed of vast forest reserves of different types characterized by high species richness. About 12,000 species of plants are estimated to occur in Vietnam of which only 7,000 have been described, while up to 1,000 plant species are known to be endemic to the country (Vo Quy, quoted in Ministry of Forestry, 1991:42). There are more than 11,000 vascular plant species, 1,000 moss species, 2,500 alga species, 826 big mushroom species, 276 animal species, 828 bird species, 258 reptile species, 82 amphibian species, and 3109 fresh water and salt water fish species, 1340 insect species. While conducting an inventory in a standard plot of closed-canopy tropical evergreen forest — a high value forest type in North-Central Vietnam — there were over 100 timber species and over 100 shrubs, herbs, climbers and secondary plants, including many NTFPs. At the moment, the use of more than 6000

plants has been identified in Vietnam. Vietnam's richness in biodiversity is mirrored in the plethora of NTFPs collected for manifold purposes from the country's forests (see Petelot, 1952).

However, in the last decades the total area under closed forest cover has declined rapidly. There is much debate over the main causes of deforestation, but they are most commonly attributed to logging, agricultural expansion, and shifting cultivation. Shifting cultivation was a major cause of deforestation by lowlanders who got involved in upland agriculture in large numbers and whose agricultural practices were inadequate for upland plots. Forest decline and other factors are leading in many locations to over-exploitation of NTFP resources in the remaining areas, and to a decline in the abundance and quality of those resources (i.e., decreasing forest biodiversity) with consequent hardship for rural populations.

Interest in NTFP development
Since independence, there has always been occasional interest in NTFP development among policy makers, foresters and scientists in Vietnam. However, these products were defined as 'minor forest products' and as such also got minor attention. Furthermore, NTFPs were almost exclusively approached for their potential contribution to the national economy, especially for industrial use and as a source of export revenue. From this perspective, primary concerns were to secure sufficient supply of raw material; improve post-harvesting technology to produce higher standards of semi-processed materials or end products; and understand better foreign markets and the development of more sophisticated marketing skills. These concerns still play an important role in renewed discussions relating to NTFP development. For example, a relatively new angle from which NTFPs are approached in Vietnam—although closely linked to the supply of raw materials concern—is incorporating selected NTFPs in large-scale reforestation programs.

Meanwhile, interest in the potential of NTFP development is increasingly driven from other perspectives. More recent approaches, while not necessarily antagonistic to the former, tend to give high priority to either biodiversity conservation and/or local people's livelihood concerns.

1.4.2 Policy development

While the different departments under MARD are involved in a heroic struggle to integrate new and old approaches concerning NTFP development in its policies, these efforts appear to be seriously hampered by a lack of (access to) reliable data. In addition, there seems to be a lack of direction for further development. Different departments work with different objectives that are not always consistent. Weak feedback and linkage with centres of expertise in Vietnam further aggravates the situation. Some of this confusion is transmitted to lower echelons, adding to the diversity of interpretations of national policy. There is without doubt a crying need for general and more specific information at the policy decision-making level. Perhaps even more urgent is the demand for expert input into the formulation process for an all-compassing NTFP development strategy at the national level.

A detailed review of policies and the national legal framework for forestry and NTFPs is presented in Chapter 3.

1.4.3 Supply of raw material

The perceived shortage of raw material of certain NTFPs is primarily a concern of enterprises and institutes involved in processing (e.g. National Institute for Traditional Medicine). It seems that awareness of threatening shortages often becomes a concern too late, because of a lack of monitoring of NTFP resources, as well as a lack of contact with the primary producers, (i.e. collectors and cultivators). The catchword for addressing the supply constraints is large-scale ex *situ* cultivation. However, plans for encouraging the cultivation of certain assumedly valuable species tend to be launched without previous extensive site specific trials and with little previous consultation of farmers. Sometimes, the bottleneck may lie at the other side: cultivation is promoted, but without previous scouting of the market and hence, the danger of oversupply in relation to weak demand.

1.4.4 NTFPs in reforestation and forest conservation

The on-going reforestation effort in Vietnam has entered a new phase with the launch of the "National five million hectare reforestation programme" (1998-2010). The program has been designed and will be largely implemented by MARD. Several international donors (such as ADB, UNDP, the Netherlands Embassy) and other international organisations (WWF, IUCN) have established a partnership with the government to support the programme.
The agreement hase been signed between Government- Donors Partnership to commitment on supporting to the Five Million Hectare Reforestation Programme. There are 18 donors including Government, NGO, Instututions who has been signed on it such as EC, WB, ADB, JBIC, UNDP, FAO, WWF, IUCN, OXFAM/GB, CARE, SNV, BIRDLIFE, FFI (vu Van Me, 2001).
Addition, On the identification of the priority scientific research sectors on the 5MHRP, the Parnership Group supporting programme and the participants from all level in VIetnam have identified that the potential NTFPs on sustainable utilization sesearch, which should be top priority on the near future (Proceeding workshop, Nov. 2001)

Contrary to the previous national reforestation plan, the current programme contains a substantial NTFP component, covering about 10% (480,000 ha) of the total land area affected with a total investment of 3,620 billion VND (see *Table 4*).

Table 04. Planned area of NTFP Plantation in Five million hectare reforestation program.

NTFP Plantation	Planned areas
Cinnamon	65,000
Anise	20,000
Pine (*Pinus spp*.)	140,000
Bamboo	200,000

Source: MARD, Five million hectare reforestation program, 1997

The inclusion of NTFPs into the plan seems a positive development, as compared to earlier large reforestation efforts, which almost exclusively focused on the planting of a few exotic tree species. However, the range of NTFPs considered is rather small and as the plan seems quite ambitious, one can only hope that implementation will be preceded by thorough studies into particularities.

In protected areas (PA), population pressure and high demand for forest products are among the greatest challenges facing forest conservation in Vietnam. NTFPs with such characteristics as easy growth, quick harvest, and high economic value may help communities

living in and around forests to increase income and reduce collecting pressures. Good examples exist of communities managing forests to cultivate *Cinnamomum cassia, Amomum aromaticum,* and *Illicium verum* in forests. For example, if *A. aromaticum* had not been grown under forest canopies, thousands of hectares of well-grown forests would have been converted into swidden cultivation lands in Lao Cai and Ha Giang provinces. This type of *in-situ* cultivation can both improve living standards of communities and provide them with incentives for conserving forest (to secure their source of income), thereby integrating conservation and development objectives.

Ex-situ cultivation of endangered NTFP species has also shown encouraging efforts. The growing of thousands of plants of Ngoc Linh ginseng (*Panax vietnamensis*) in Tra Mi District (Quang Nam Province) and *Fokienia hodginsii* species in Sa Pa (Lao Cai Province); and the raising of spotted dear (*Cervus nippon*) in Ha Tinh, 500 sambars in Buon Ma Thuat District (Dak Lak Province), and python *(Python molorus)* and crocodile *(Crocodyle siamensis)* in the Mekong Delta have contributed significantly to local economies of communities around important forest areas.

NTFPs are also seen as a key element in buffer zone management. Most projects tend to pay some attention to NTFPs, at least on paper, but it seems that so far the effort to address NTFP development in practice is very much at the beginning such as activities of the NTFP project in buffer zone of Na Be National Park, Bac kan Province and Ke Go Conservative Area in Ha Tinh Provicne and more information could be see " Buffer Zone management in Vietnam, D.A. Gilmour & Nguyen Van San (1999).

1.4.5 Market information and post-harvesting technology

The need for up-to-date information relating to international markets (including trends, quality standards and access requirements) is a concern primarily expressed in trade circles, but is increasingly expressed in 'conservation and development' initiatives, as discussed below. It is widely felt that Vietnam is at a considerable disadvantage in this field compared to major competitors such as China.

Another disadvantage is believed to apply to the standards of post-harvesting technology, including storage, grading and primary processing. The main bottleneck here seems to lay in the limited capacity for extension of appropriate technology to small and medium industries located in the countryside.

1.4.6 Conclusion

The interest in NTFP development has slowly increased during the last decade. The interest reflects different perspectives, as it is triggered by:

- perceived shortages of raw material
- increased competition from abroad
- needed input in reforestation programs as well as needed input in efforts directed at poverty alleviation
- upland rural development and conservation

MARD policy documents also reflect increased interest in NTFP development, but inconsistently and so far it has hardly affected the overall research agenda in the country. The

importance of NTFPs in relation to support of local people's livelihoods, as well as the need to better understand and improve local resource management are mentioned in 'Conservation & Development' project documents, but often with minimal allocation of expert time to address the issues.

Table 05 summarises main concerns and needs from the perspectives of different stakeholder groups. For this purpose, stakeholders are divided into two categories: i) those located close to forests; and ii) those based in urban areas.

Table 05. The stakeholders in NTFP development and their major concerns

i) Near the forest base	**Main concerns & needs**
Local communities	Access to forest, food & income, being consulted about interventions
Local authorities	Strengthen the local economy, improve living conditions
Rural development projects	Strengthen the local economy, improve living conditions
Park management	Decrease pressure on resources in national parks, nature reserves
Conservation projects	Decrease pressure on resources in national parks, nature reserves
Rural enterprises	Access to market information, processing technology
ii) Urban based	**Main concerns & needs**
Policy makers	Access to information and input for strategy development
Urban enterprises	Supply of raw materials, product development, export markets
Research institutes	Able to strengthen capacities for new challenges
Funding agencies	See projects

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2 Institutional Capabilities in NTFP Research and Development

By Jenne de Beer, Ha Chu Chu and Tran Quoc Tuy with contributions from Chun K Lai, Do Dinh Sam, Vu Van Dung, Hoang Huu Nguyen and Trinh Vy

2.1 Introduction

This chapter offers a preliminary overview of relevant expertise available in Vietnam in the fields of NTFP-related research and development, including a general assessment of current strengths and weaknesses. Furthermore, priority areas to be strengthened are identified and indications are given for potential collaboration between various organisations and the Non-Timber Forest Products Research Centre (NTFP-RC) under the Forest Sciences Institute of Vietnam (FSIV).

Chapter 1 presented the demand for expert assistance in rather broad terms and as such reflected the points of view of major stakeholder groups. The present chapter attempts to make a breakdown of institutional capabilities in NTFP research and development that need to be addressed in order to attain a comprehensive understanding of the potential role of NTFPs in sustainable rural development. That understanding will eventually allow for appropriate advice and assistance towards the concerns expressed by various stakeholders.

The chapter begins with a brief history of NTFP-related governmental institutions to provide background for the emergence of NTFP research and development. Then, on basis of discussions with key stakeholders, institutional capability aspects are covered in the following areas: strategy development; basic information (biological, product information, social economic and trade); community development; income generation; subsistence use; legal aspects; resource management; product development and post harvesting technology. Finally, some conclusions and recommendations are given to further research and development in the NTFP sub-sector.[3]

2.2 Brief history of NTFP related governmental institutions in Vietnam[4]

The process of NTFP development in Vietnam could be divided into three periods: 1) prior to the establishment of the Vietnam Forestry General Department (VFGD) in 1961; 2) from the establishment of VFGD to the establishment of Ministry of Forestry (MFor) in 1973; 3) from the establishment of MFor to the establishment of the Ministry for Agriculture and Rural Development (MARD) in 1995, which combined the former Ministry of Water Resources, Ministry of Agriculture, and Ministry of Forestry; and finally, 4) after the establishment of MARD.

- During the first period, although NTFPs were mentioned in many legal documents, NTFP-related activities happened on a small scale, including processing, and in an isolated manner. At that time, government and industry considered NTFPs only as secondary products.

- Over the second period, NTFP development took a great step in all aspects, including policies, organisational arrangement, cultivation, research, processing, and trading. A separate division, directly under VFGD, became responsible for formulating policies and monitoring NTFP development. The most noticeable development was the presence of a

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national authority, Vietnam Forestry Company, which later became the Special Forest Product Export Company (similar to a corporation). These developments indicate positive changes in recognition of the important potential of the NTFP sub-sector.

VFGD focused on promotion of some specific NTFPs, such as shellac and resin (oleo-resin and essential oils) for domestic demand and export, especially to fulfil a memorandum of agreement with the former Soviet Union. In addition, a Special Product Division in VFGD was made responsible for management and providing guidance for production and trade of forest specialty products (as NTFPs were then described).

However, in the third period, when VFGD was changed to Ministry of Forestry (MFor) in 1973, the Special Product Division structure was dismantled and specific tasks for NTFP management and development were delegated to different departments and institutions. One exception was the Ha Dong based Forestry Special Products Company in Ha Tay Province, which continued to specialize in production and trade of specialty forest products under MFor. However, the Company did not manage all products and all lower level enterprises. The Company focused on activities such as lac cultivation and processing of shellac, gum and glue; processing and supply of colophan, turentine oil, phanerpentine oil, *Aquilaria crassna*; and trading of some specialty products, namely cardamom, *Codonopsis*, bamboo shoots, etc.

With the growth of the Forestry Special Products Company and further intentions to meet both domestic and export demands for NTFPs, MFor proposed the establishment of the Forest Products Export Company (Decision 230/CP, 11/1976) to replace the Forestry Special Products Company. The Special Forest Products Export Company strengthened its organisational structure consisting of many afforestation yards, processing workshops, factories, enterprises, trading bases, and notably, a research centre. Later, arrangements for processing, import-export activities, and companies for special products export were made according to region. In the North, the Forest Products Processing Association No. 1 and the Forest Products Import-Export Corporation merged to form the Forest Products Export Company, internationally known as NaForimex I (National Forestry Import-Export companies).

Before the formation of MARD in 1995, all NaForimex companies throughout the country and all Forestry Industry Associations under MFor and the Forestry Machinery Corporation merged to form the Vietnam Forest Products Corporation, which was later renamed as the Vietnam Forestry Corporation and remains to this date under MARD.

- During the three period, the Vietnam Forestry Corporation worked primarily in the areas of afforestation, processing, providing forest products, machinery and construction materials for export, including NTFPs. Enterprises under the Vietnam Forestry Corporation operating in the areas of trading or processing either shifted to pure trading or expanded to other products, forming a distribution network throughout the country. Beside the Vietnam Forestry Corporation, many other businesses under ministries (e.g., Ministry of Trade, Ministry of Health) and under provincial and municipal governments have also been working on trading and processing of NTFPs. These businesses include the Bamboo Rattan Export Company - BAROTEX, Agriculture Products Company (Ministry of Trade), Pharmaceutical Company (Ministry of Health), Forest Product Export Company - FOREXCO (Quang Nam Province), Dinh Lap Afforestation Yard (Lang Son Province), Long Dai Forestry Company (Quang Binh Province), Uong Bi Pine Resin Company (Quang Ninh Province), Essential Oil Workshop (National Center for Science

and Technology). In the current open market economy, businesses and households also take part in NTFP exploitation and trading. According to incomplete statistical data by the Customs General Office, there are more than 1,000 enterprises and households involved in the NTFP sub-sector.

In regard to research activities, during the time of MFor, research was conducted at the Forestry Research Institute, which later became the Chemical and Specialty Forest Products Faculty. In 1978, MFor founded the Specialty Forest Products Research Sub-Institute under the Special Forest Product Export Company, which was then under NaForimex I. In 1995, the Special Forest Product Research Sub-Institute was transferred to the Forestry Research Institute and renamed to the current Non-Timber Forest Products Research Center (NTFP-RC).

The diversity of NTFPs has attracted many institutes and research centres, such as the Pharmaceutical Product Institute, NCST (Tropical Institute, Institute of Ecology, Institute of Ecology and Biology Resources, etc.), Forestry University, and Thu Duc Agriculture and Forestry University. However, no faculty has ever specialized in NTFP training in any university or college. NTFP is only one subject offered in university curricula and teaching documents are limited to only a few major NTFPs.

2.3 Strategy development

NTFP-related issues are addressed in a segmented way and on an *ad-hoc basis* (e.g. in projects). A comprehensive overview of the sector is nowhere available. In the view of the authors of this report, enhancing capacity to contribute to strategy development on different levels is a top priority, but most urgently on the national policy making level.

2.4 Basic information

2.4.1 Biological (species identification, reproductive biology, dispersion, abundance, etc.)

At present, specific NTFP-related expertise is limited, but there is sound basis to expand this expertise on request. The institutes FIPI and IEBR are important backstopping contacts for NTFP-RC and most willing to co-operate in the future and develop a common research agenda. IEBR, among other things, boasts a well-stocked library, including *Flore d'Indochine,* a mature herbarium and an organized biodiversity database.

2.4.2 Product information (identification of physical and chemical properties of raw materials, actual and potential applications)

This can potentially be carried out at the Institute of Chemistry and Institute of Biotechnology (both under the National Institute of Science and Technology) and Department of Chemistry, University of Hanoi (UoH). Good personal contacts between the NTFP-RC and the institutes mentioned already exist.

2.4.3 Social economic (role of NTFPs in rural households)

Overall capacity to carry out (participatory) surveys is small. However, the Marketing Unit of NTFP-RC itself and some of the newly established research NGOs, such as CREDEP and RTCCD, have built valuable experience in this field over the past few years. The said NGOs expressed willingness to team-up with NTFP-RC in a common effort to improve methodologies, adapted to on-the-ground situations in different parts of Vietnam.

2.4.4 Trade (statistics, valuation of NTFPs, and domestic, regional and overseas market information)

The statistics produced relating to NTFPs are very unreliable (underreporting, double counting, etc.). Some market information relevant to NTFPs is available from the Ministry of Trade, with various companies/ traders and with NedCen (which has an export information database, among other things, covering such information as potential markets, market development, market access issues, trade regulations, importers in the various markets, etc.).[5] (5)

2.5 Community Development

Community Development in relation to NTFPs aims at possible interventions to enhance local management and use of NTFP resources through the strengthening of local organisational capacities and facilitating skill development of the people involved. Such interventions, in order to be viable, must be based on an understanding of local peoples' existing social and cultural values and incorporate traditional knowledge systems and practices. In Vietnam, with its great ethnic diversity and vast differences in local circumstances and customs, we cannot assume that what works in one place will automatically work elsewhere. Special attention is needed to secure equitable distribution of benefits from NTFP exploitation, particularly to see that the poorest segments of society and women are not excluded from these benefits.

RTTCD and a broad range of national and international agencies are involved in community development one way or another. But in terms of promoting forest related economic development at the community level, it seems to be at an initial 'experimental' stage. These experiments can only hope to mature and find wider application elsewhere in the country, if a major investment is made in the capacity for social economic and applied ethnological expertise. Meanwhile, regular exchanges of experience within Vietnam and with initiatives elsewhere in Southeast Asia are essential in this complex, but important, field.

2.6 Income generation/ marketing

Linked to the former issue, many projects in buffer zones and in the uplands address income generation through the sale of NTFPs to a certain extent. However, the expertise involved tends to be minimal. NTFP-RC itself has a small, but competent marketing unit, which gives research input to the two project sites and does consultancies for WWF and has been asked by others. CREDEP also has a fledgling marketing unit, focusing on the market for phyto-medicines. However, the said units are not equipped to sustain long-term/ routine monitoring of market trends, nor carry out analyses of the efficiency of marketing systems and be aggressively involved in product promotion. In this field, sharing of experiences and joining forces is not only a possibility, but also an urgent need.

2.7 Subsistence uses including food and fuel

Food security (or broader livelihood security) related to hunger alleviation is a stated priority of MARD. In relation to NTFPs, it implies, among other things, considering subsistence needs in forest rehabilitation. The aspect is addressed in surveys carried out by the Marketing Unit of NTFP-RC, SIERES and others. A subsistence aspect that is relatively well covered (e.g. by FAO's RWEDP) is the collecting of fuelwood for household energy needs. However,

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in general there is still little experience in incorporating subsistence uses of food from the forest and other NTFPs into forest management and rehabilitation plans.

2.8 Legal aspects

Legal aspects concerning NTFPs include the capacity for understanding customary arrangements for access to forests and usufruct rights to specific products and how these relate to the framework of government regulations for the same. Special attention is needed for understanding the impact of the current system of forest land allocation on ethnic minorities in general and minority women in particular (Sowerwine, 1999). Other relevant legal aspects refer to restrictions, rules and regulations, affecting the trade in NTFPs and to laws regulating bio-prospecting (see Chapter 4 detailing legal framework).

2.9 Resource management

This may be defined as the process of making and enacting decisions with regard to the use and conservation of forest resources within a certain territory. Apart from access arrangements mentioned in section 2.8, attributes of sustainable forest/ NTFP resource management are:

- basic understanding of forest ecology (including the role of the fauna)
- insight in local knowledge, values and traditional practices referring to the forest in general and the NTFP harvest in particular
- insight in the processes locally of planning, decision making and monitoring
- insight in other activities and land uses that affect the NTFP resource
- technical information relating to the introduction of best harvesting techniques and assessment of maximum harvest volumes under particular harvesting regimes
- technical information relating to natural regeneration, enrichment planting, agroforestry, and cultivation in home gardens.

Organisations, which cover one or more of the above mentioned aspects, are the NTFP-RC, FIPI, SIERES, CREDEP and the Medicinal Plant Research Centre in Tam Dao. However, much more work in this respect is required.

The NTFP Project has also commissioned a feasibility study for *Collaborative Management of Special-Use Forests in Vietnam* (Scott, 2001). The study notes that many legal and policy documents support community-oriented approaches and that, in reality, community forestry is practised and informally recognised. However, community forestry within special-use forests (or collaborative management) has not been addressed. Forest protection departments at central and local levels recognise current management problems, but the solutions put forward tend to "focus on ways of keeping people out of special-use forests [and] fail to consider the opportunities for greater involvement of communities in management" (p.29). Finally, the study notes the progress of community forest initiatives in recent years in Vietnam and suggests the Community Forest Management Working Group as a possible national forum for fostering further dialogue and opportunities.

2.10 Product development

Several institutes are successfully involved in NTFP-related product development. But all together, they focus on a rather narrow range of products. Among others, there are phyto medicines, essential oils, bamboo and handicraft items (see *Table 06*).

Table 06. Selected institutes involved in NTFP-related product development

Involvement in NTFP-related product development	Institutes
Phyto medicines	National Institute for Traditional Medicine and Institute for Materia Medica
Bamboo & 'agricultural residues'	Xuan Mai Forest University
Essential oils	EnterOil, Institute of Chemistry
Handicraft	CraftLink, NedCen

2.11 Post harvesting technology

In general, technologies of grading, cleaning, drying and packaging are very simple. Small-scale producers of NTFPs often lack access to improved technologies that could increase their productivity and competitiveness. Because of poor pre-processing, income of NTFP harvesters is reduced. For example, inferior quality of some herbs can lower the product price. Storage techniques are backward due to lack of facilities (drying is mainly done in the sun, some medicinal tree parts are deteriorated when the weather is not favourable, e.g. rain). Moreover, many harvesters often sell NTFPs unprocessed because they either need money immediately or because they lack knowledge of processing techniques. Organisations involved in this field are NedCen and NTFP-RC. See also *Annex B* for technical details on the processing of selected NTFPs.

2.12 Conclusions

It appears that for some aspects relevant to the concerns identified in Chapter 1, capacity in Vietnam is quite well established, while for other important aspects capacity is either weakly developed or almost non-existent.

In general, information is scattered and interdisciplinary linkages are dormant or weak. Information on biology, product development and post harvesting technology is relatively strong; while information on resource management is limited, particularly for detailed knowledge on what works where and with whom. Information on legal aspects is overall still weakly developed, but appears to be getting increased attention. Some institutes and individual researchers are working on tenure-related aspects. As for market research, the Marketing Unit of NTFP-RC is competent, but small in relation to its future tasks. Other organisations, which have marketing units, meet the same constraints. Information on food security in relation to the forest and subsistence uses of NTFPs by local communities is underdeveloped, while socio-economic development extension to the village level, and improving functioning of first chain in production channel is at an embryonic stage. Finally, some specialist institutes, notably the Bee Research and Development Centre, dispose of

integrated expertise and know-how of a broad range of aspects relating to the product group they cover.

Co-operation between stakeholders does take place on a limited scale and on an *ad hoc* basis. However, some promising initiatives have emerged recently, such as the 'Integrated Conservation & Development Project' (ICDP) network. Willingness for collaboration with NTFP-RC is great, notably among other centres of expertise. Most of the institutes that we contacted see their expertise as complementary to NTFP-RC and general interest exists to participate in future workshops organized by NTFP-RC.

In *Table 07*, capacities, priorities and potential for collaboration with NTFP-RC are summarised.

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Table 07. Capacities, priorities and potential for collaboration

Aspect	Institutions involved	Weaknesses/ Strengths in Vietnam	Capacity Development Priorities	Potential for Co-operation
Biology	FIPI, IEBR	NTFP expertise limited, but sound basis for expansion	++	Very good, personal contacts exist
Market research	RC-MU, CREDEP, FSI, NedCen	Sufficient skills, but no resources for in-depth studies	++	Potential for collaboration to be further explored
Community development	RTCCD, BRDC	At initial stage	+++	Willingness to share experiences
Income generation/Marketing	NTFP-RC, Craft Link, BRDC	Most projects want quick results. For success long term involvement needed	+++	Willingness to share Experiences
Subsistence Uses, incl. food & fuelwood	Fuelwood: FAO, SNV	Aspect included in surveys, but no follow-up	++	To be further explored
Legal aspects	Ford, Inst. for Folk Culture studies, SIDA	Process of land allocation is not always transparent. Limited knowledge about customary access rules	+++	To be further explored
Resource management	NTFP-RC, FIPI, SIERES, CREDEP, MPRC	At initial stage	+++	ICDP exchange = Promising
Product development	NITM, Xuan Mai University, Craft-Link, NedCen	Expertise available for medicines, bamboo and handicraft	+/-	Good
Post harvesting technology, quality control/improvement	NTFP-RC, NedCen, UoH, Inst. of Chemistry	Relatively strong. Good basis for development of inter-mediate technology	+	Good, contacts already established

+++ High priority
++ Medium priority
+ Low priority
- No immediate priority

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3 Policy and legal framework

By Bui Minh Vu, Pham Xuan Phuong, Nguyen Van Tuynh and Nguyen Duc Xuyen

3.1 Introduction

During the period from 1990 up to now, the State issued as many as 116 legal texts relating to the management, protection, use and development of forests, including NTFPs (see *Annex C*). However, most of these policies are scattered in chapters, articles or clauses of those legal texts. In this chapter, we summarise the main policies relating from that period that affect the production process of NTFPs. The chapter is divided into two sections, based on policies for 1) the inputs and processes of production and 2) outputs of production. This method of classification, however, is only a general approach because many policies impact both input and output. Meanwhile, other policies cover only a particular type of activity in the process of producing NTFPs.[6]

3.2 Policies impacting the input and the process of production

3.2.1 Land policies

Policies on the allocation and lease of forestry land

a) Land and forest allocation:

The *Law on the Protection and Development of Forests*, passed by the National Assembly on 19 August 1991, was the first legal instrument that created a legal basis for the introduction of policies relating to forestry, including land policies. Article 2 of the Law makes it clear that "*The State shall conduct uniform management of forests and forestry land. The State shall allocate forests and forest land to organisations and individuals (hereinafter "forest operators") for the purpose of a stable and long-term protection, development and use of the same under the State's master-plans and plans*." The law adds that the nation's entire territorial forests are categorised into three types of forest based on their main purpose of use, namely protective forest, special-use forest, and productive forest.

Decision 08/2001/TTg of the Prime Minister of the Government on the management of the three types of forest stipulates that "*Protective forests are divided into only two classes, highly essential and essential*". It follows that secondarily essential protective forests are regarded as productive ones. Based on the above 3-type categorisation, the State shall elaborate policies suitable to each type of forest, such policies covering the allocation, leasing and contracting of forest land and including investment and profit-distribution policies.

Article 1 of the amended Land Law, approved by the National Assembly on 2 December 1999, provides that "*Land belongs to the ownership of the entire people and shall be uniformly managed by the State. The State shall allocate land to organisations, households and individuals for stable and long-term use whether or not with land use charge being imposed.*"

The State allocates land to the following users without collecting a land use charge:

- households and individuals directly engaged in forestry, agricultural and fishery production from which they earn most of their living
- the management committees of protective and special-use forests

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As regards the *allocation of forestry land*, Government Decree 163/CP dated 16 November 1999 on the allocation and lease of forestry land states that "*the State shall allocate to households and individuals only forestry land planned for construction purposes and for the development of productive forests, secondarily essential upstream protective forests and scattered upstream protective forests where conditions are not sufficient for the establishment of protective forest management committees. The forestry land rations to be granted to households shall be decided by the provincial-level People's Committee but shall not exceed 30 hectare for a period of 50 years. If upon expiry of the period the land user, who has properly complied with the laws on land and on the protection and development of forests, wishes to continue the use of the land, the relevant competent state body shall consider continually granting the land to that user for further use. In a case that the land user plants forest trees with a cycle exceeding 50 years, the land will continue to be allocated for further use*." Circular 62/TTLT dated 6 June 2000 issued by the Ministry of Agriculture and Rural Development and the General Department of Land Management, which provides guidelines for the implementation of the said Decree, stipulates further that where forestry land with natural forest thereon is allocated to organisations, households and individuals, a statement about the forest's situation is required to be made in accordance with the provisions of Decision 682B/QĐKT dated 1 August 1984 of the Minister of Forestry.

b) Policies on the lease of forestry land

Government Decree 163/1999/CP stipulates that the State shall grant a lease of forestry land to organisations, households and individuals for forestry production purposes, including land planned for the development of productive and secondarily essential upstream protective forests and special-use forestry land for sight-seeing and eco-tourism business. The duration for a lease of forestry land shall not exceed 50 years. If a need arises for duration of over 50 years, the Prime Minister of the Government shall take a decision, but the extended duration will not exceed 70 years. If upon expiry of such extended duration the land user still wishes to lease the land, the State may consider a further extension of the duration, provided that the land will be used for the permitted purpose. The People's Committees at district level shall decide on an allocation of forestry land to households and individuals while the provincial-level People's Committees shall allocate and lease forestry land to organisations.

Organisations, households and individuals to whom the State allocates or leases forestry land shall be issued a land use rights certificate. Organisations, households and individuals who currently use forestry land that was not allocated or leased to them prior to 1 December 1999 may be considered to be allocated or leased land and issued a land use rights certificate, provided that the land is under no dispute and is used for permitted purposes.

c) Rights to exchange, transfer, lease, sub-lease, inherit, create security over, and make a capital contribution in the form of land use rights

According to the Land Law (amended 2 December 1998), farmer households to whom the State has allocated agricultural, forestry and fishery land and/or water surface for long-term use have the rights to exchange, transfer, lease, sub-lease, inherit, create security over, and make a capital contribution in the form of, land use rights. Government Decree 17/CP dated 29 March 1999, which details these provisions of the Land Law, and Circular 1417/TT-TCĐC dated 18 September 1999 of the General Department of Land Management, which implements the said Decree, have provided in detail for the following issues:

- the conditions for an exchange of the land use rights in respect of agricultural and/or forestry land by households and individuals;
- transfer and receiving a transfer of the land use rights;
- and lease and sub-lease of land.

In addition, Government Decree 17/CP also provided for the rights to inherit land use rights, create security over land use rights, and make a capital contribution in the form of land use rights.

Policies for the contracting of agricultural/ forestry land

Government Decree 01/CP dated 4 January 1995 on the contracting out of agricultural, forestry and fishery land states that the State organisations to which the State allocates land shall contract out the land to organisations, households and individuals. The duration for agricultural land to be contracted out is 50 years, if for perennial trees, or 20 if for annual trees. For forestry land, the duration is 50 years if protective or special-use forests and equal to the life cycle of trees if productive forests. Decision 202/TTg dated 2 May 1994 of the Prime Minister of the Government on hired protection of forests, reforestation and re-plantation provides that:

> *For special-use forests*: where forests require strict safeguarding, the protection responsibility shall only be assigned to households scattered around who have not or are unable to relocate to another place. Where a need arises for a restoration of the ecology, forest operators shall contract out the responsibility to protect, replant and expand forest areas to households in conformity with the State's annual funding plan.
>
> *For protective forests*: in highly essential and essential upstream areas, the hired safeguarding, replanting and renewal of forests must comply with the master-plan approved by the competent authorities. In secondarily essential areas, the schemes to restore the ecology for special-use forests will apply.

Master plan of the development of NTFPs

Inter-ministerial Circular 28/TT-LT dated 3 February 1999 of the Ministry of Agricultural and Rural Development and the Ministry of Finance implementing Decision 661/TTg dated 29 July 1998 of the Prime Minister of the Government on the objectives, duties, policies for and organisation of the project to plant five million hectares of forests for the period up to 2010 provided for focal regeneration and developing an additional one million ha of protective and special-use forests, including the replanting by local people of perennial industrial trees, fruit trees and speciality trees. Where protective forests are to be planted anew, industrial, fruit and speciality trees may be planted in a mix with perennial trees. In addition, some species that are capable of growing fast and fertilising the soil may be planted, which can account for a maximum of 2/3 of the number of trees per hectare (i.e. around 1,200 trees).

It follows from the above decision that NTFPs may be raised in special-use forests (in ecology restoration areas) and protective forests (namely highly essential and essential protective forests). However, with respect to special-use forests, Decision 08/2001/TTg, which provided for the management of the three types of forests, states that forests can be replanted only in case of necessity. And if this is the case, trees planted must be of local origin and the relevant competent authority must approve the project.

In another scheme, around 400,000 ha of NTFP forests out of three million ha of productive forests will be planted with cinnamon, anise, resin-supplying pine, oleander, wild jujube, oil camellia, shoot-supplying trees, etc., and around one million ha will be covered with perennial industrial and fruit trees. Some provinces will raise some species of trees that serve as materials for industry, for example bamboo, *neohouzeaua* and nodding bamboo. In short, NTFPs may be raised and developed mainly in protective and productive forests.

4.1.2. Investment policies

Investment policies toward special-purpose and protective forests

Decision 327/CT of the chairperson of the Council of Ministers (now the Prime Minister of the Government) contains a number of mind-sets and policies on the use of vacant land, bare hills, forests, coastal alluvium strips and water surface became effective from 15 September 1992 and then was amended and supplemented by Decision 556/TTg dated 12 September 1996. The focus of the programme was to protect the areas of existing forests and plant new protective forests (whether highly essential or essential). Special-use and productive forests were no longer funded by the financial sources then available to "programme 327", but instead fell within the scope of application of Decision 264/CT dated 22 July 1992 of the chairperson of the Council of Ministers (now the Prime Minister of the Government). As far as investments are concerned, Decision 556/TTg made it clear that funds directly from the State budget for the purpose of hired protection, replanting and planting anew of protective and special-use forests will account for 60% of the total financing of the programme, followed by non-interest bearing loans (12%), infrastructure development support (12%), etc. The average investment in growing and caring was 1.5 million VND/ha in the first year. Decision 556/TTg, therefore, was the first legal instrument to set a rate of remuneration (around VND 50,000/ha/year) for protecting and replanting of forests. The Decision also specified the levels at which non-interest bearing funds might be lent to households and other expenses.

Decision 661/1998/TTg (on the objectives, tasks and policies for and the organisation of the realisation of the project to plant anew 5 million ha of forest) replaced Decision 327/TTg and came into force on 1 January 1999. In regards to investment policies, the decision made it clear that the State's investment funds will continue to be invested to hire the protection of special-use and highly essential and essential protective forests at a remuneration rate of VND 50,000/ha/yr for a duration not exceeding five years. To hire the raising and replanting of forests in combination with additional planting, a rate of no more than 1 million VND/ ha will be applied for a duration not exceeding six years. An average financial support of two million VND will be provided to organisations and households who at their own expenses have covered productive forests with especially rare and precious wood having a life cycle of more than 30 years. Finally, a support for the development of highly essential and essential protective forests will be granted in the amount of 2.5 million VND/mo. Circular 28/TT-LT dated 29 September 1998, which provided guidance for the implementation of Decision 661/1998/TTg, went further with the stipulation that if the household that contracted the duty to grow any additional industrial, fruit or

speciality species of tree on an area that is aimed to promote natural regeneration, the rate will be only 50,000 VND/ha/yr per annum and the duration of investment will be five years.

Investment policies toward productive forests

From 1990 until now, investment policies toward productive forests, including specialty product forests, represent the provisions contained in Decision 264/1992/CT and the Law on the Encouragement of Domestic Investment.

Decision 264/CT took effect on 1 January 1993 and was then repealed by Decision 661/1998/TTg which became effective on 1 January 1999. According to Decision 264/1993/CT, forest operators are permitted to borrower credit loans for investment purposes at preferential interest rates in the first cycle, equal to 30-50% of normal rates (depending on the species of trees and ecological features of area). These loans are for growing trees with production cycles of less than 20 years to provide materials for industry. After the first cycle, forest operators must repay both principal and interest. From the second cycle onwards, forest operators wishing to obtain loans will be granted loans at normal rates. The State will invest budget funds in the activities of protecting and developing forests that supply large-sized or precious wood having a production cycle of more than 20 years. Forest operators will have to return the funds to the State as soon as they exploit the product. This, in actuality, means that the interest rate is 0%.

The Law on Encouragement of Domestic Investment was first introduced in 1 January 1995 and the latest amendments were made on 20 May 1998. The amended Law on Encouragement of Domestic Investment, which took effect on 1 January 1999, and the legal texts implementing it stipulate that the State will establish an investment support fund and export support fund to finance medium- and long-term loans at preferential interest rates and issue guarantees in respect of investment credits. The law defines the fields and geographical areas to be entitled to investment incentives, namely:

- those areas that are entitled to investment incentives (List A)
- geographical areas with poor socio-economic conditions (List B)
- geographical areas with especially poor socio-economic conditions (List C).

As far as forestry is concerned, the investments in the following fields of business are included in List A: afforestation, focal replanting of forests; growing of perennial trees (including industrial trees, fruit trees and curative trees) on waste land, reclaimed land and bare hills; raising of aquatic products in virginal waters; reclaiming and extensive use of cultivation land for agricultural, forestry and fishery production; processing of agricultural/forestry products and provision of technical services that directly serve agricultural/forestry activities; traditional trades (artistic products from the various species of bamboo); production/trade in goods and services for export that account for more than 30% of the enterprise's portfolio in the financial year. The planting and focal replanting of forests carried out in mountainous areas, islands and areas facing poor conditions, as included in List B and List C, are to be considered for an incentive. Thus, almost all investments in the planting, protection, and focal replanting of forests meets the conditions for investment incentives both in the interests of business and geographical position.

Apart from the investment policies for general application nationwide, the State of Vietnam in recent years promulgated a number of policies toward a number of projects sponsored by the international community. For example, Decision 141/2000/TTg on investment and benefit enjoyment policies applicable to households, individuals and communes participating in the projects to establish forestry zones and manage upstream protective forests in Thanh Hoa, Quang

Tri, Phu Yen and Gia Lai Province, and Decision 28/2001/TTg, which amended the above decision, stipulate that the State will fund 100% of the cost of afforestation and focal replanting of forests in combination with planting of forestry trees in protective forests, with investment rations to be decided by the provincial-level People's Committees. The State will provide support in investing in the planting of forestry trees (including concentrated forests, scattered trees and combined agricultural/forestry trees) in productive forests at up to 1.9 million VND/ha, with the specific investment rations to be decided by the provincial People's Committees. Finally, the State will provide support, amounting to 5% of the total investment level, for the purpose of upgrading mixed gardens and reclaiming and improving land within project areas. Policies are also introduced with respect to PAM forests, which are forests to be planted with non-refundable aid from the Federal Republic of Germany under inter-governmental agreements.

3.2.2 Credit policies relating to forestry

There are two types of credit to be extended to support forestry activities, namely the State's preferential credit and commercial (conventional) credit.

State's preferential credit

With a renovation schemed launched in 1990 in the field of construction investment, a shift was made from a non-recoverable allocation mechanism to a capital-lending mechanism for part of State budget's funds for capital construction. This scheme applies to those production, trading and service industries which are capable for a recovery of investment capital and aims to boost production, encourage enterprises to make investments and, on their own, borrow funds, repay loans, and be responsible for their investments. The Government, under the scheme, will set up a lending plan for investment projects that they encourage. As a support to investors in the spirit of the Law on Encouragement of Domestic Investment (as amended), the Government then issued Decree 43/1999/NĐ-CP dated 29 June 1999 on State's credit for investment and development. According to this decree, there are three forms of State's investment credit, namely investment loan, post-investment interest support, and investment credit guarantee.

a) Investment loans

Investment loans are granted to investment/development projects capable of directly recovering the investment capital in all economic sectors and include those in the fields and industries specified in List A, those in geographical areas facing difficult conditions as specified in List B and List C attached to Decree 51/1999/NĐ-CP. These projects include projects:

- to establish processing facilities for agricultural, forestry and aquatic products, projects to develop concentrated material-supplying forests;
- to plant perennial industrial trees;
- to raise aquatic products and milk cows;
- to produce goods for export, especially those using a huge number of labourers.

b) Post-investment interest support

Investors may only receive interest support (i.e. preferences in interest rates) if they have satisfied the certain conditions, for example: they have been granted investment incentives by the competent state body under the Law on Encouragement of Domestic Investment; the project has not obtained any loan or State's investment credit.

c) Investment credit guarantees:
Beneficiaries of this scheme are investors in projects eligible for investment incentives under the current stipulations of the Government implementing the Law on Encouragement of Domestic Investment (as amended in May 1998) who have not been granted any investment loans and who are not permitted to obtain, or have obtained only a small portion of, the State's investment and development credit.

Commercial credit and forestry activities
On 2 March 1993, the Government issued Decree 14/CP on granting loans to households for agricultural, forestry and fishery production purposes. It was the first legal text that promulgated a policy to grant loans directly to production households. Poor peasant households who did not have assets to use as security for loans might obtain long-term loans through a pledge of trust to grow and care forestry trees and process forest products for a term not exceeding 36 months. Decision 74 dated 17 March 1995 and Directive 02 dated 17 March 1995 of the Governor of the State Bank decided to establish a preferential lending fund to grant loans during the period from April 1995 to April 1998, whose duration conformed to production cycles but would not exceed 36 months, with a maximum loan amount of 2.5 million VND per household but without any requirement for security.

Decision 67/TTg dated 30 March 1999 of the Prime Minister of the Government on a number of bank credit policies aimed to develop agriculture and rural areas and Decision 148/TTg dated 7 July 1999 amending and supplementing the above decision, provided for granting of loans at commercial rates in respect of the following business activities: consumption, processing and exportation of agricultural, forestry and fishery products; and development of industry, handicrafts, trades and services in rural areas. Households engaged in agricultural, forestry and fishery production may obtain up to 10 million VND at normal interest rates and without any security for the loan, but they have to accompany the loan application by a certificate of the People's Committee of the commune, ward or township to the effect that the land is currently in their use and under no dispute. Households conducting farm economy or commodity economy activities may borrow more than 10 million VND on the condition that they comply with the stipulations on security for the loan. With respect to production/business co-operatives, the credit organisation, in each case, will adopt one of the following schemes: 1) the borrower may create a security for the loan in conformity with the requirements of the bank; 2) the borrower may create security over assets of the management board; and 3) the borrower may create security over assets formed from the loan up to the value of the co-operative's contributed capital. Banks will lend money according to the life cycles of plants and animals, with a maximum duration of 12 months if a short-term loan, 12-60 months if a medium-term loan, and more than five years if a long-term loan.

Decree 178/CP dated 29 December 1999 provided stipulations on security for loans obtained from credit organisations as follows: 1) The borrower may create security for the loan through a mortgage or pledge of its assets, or a third party guarantee (unless otherwise provided by law, when creating a mortgage of assets that are attached to the land, the borrower must also mortgage the value of the rights to use the land); 2) the borrower may create security for the loan with assets formed from the very loan obtained; and 3) the borrower who is an individual or poor household may obtain a loan upon a fiduciary guarantee (or pledge of trust) provided by a socio-political organisation

In addition to the above, the State carries out some national programmes for the same purposes, including preferential lending policies towards specific categories of borrowers.

Decision 132/TTg dated 24 November 2000 of the Prime Minister of the Government describing a number of policies to encourage rural trades, has particularized the provisions of the Law on Encouragement of Domestic Investment (as amended in May 1998) with respect to the development of trades, occupations and professions in rural areas, including the development of NTFPs. From the viewpoint of investment and credit, the following rural trades are eligible for investment incentives under the Law on Encouragement of Domestic Investment: 1) processing and preservation of agricultural, forestry and fishery products; 2) manufacturing of wood and bamboo articles and handicrafts. The eligible borrowers include households, individuals, co-operative groups, co-operatives, private enterprises, joint stock companies, limited liability companies and partnerships (hereinafter "rural occupation unit"). A rural occupational unit that does not meet the conditions for borrowing a loan to be backed by security may borrow funds under the regulations on third party's guarantees. It may also obtain funds from credit organisations under a fiduciary guarantee to be provided by a socio-political organisation pursuant to Decree 178/CP dated 29 December 1999 on security for loans obtained from credit organisations.

A rural occupational unit that elaborates a sound project which is approved by the district-level People's Committee may borrow investment loans, receive post-investment interest support and/or credit guarantee as contemplated by Decree 43/CP dated 29 June 1999 of the Government.

3.2.3 Scientific/technological development and agriculture encouragement policies

Scientific/technological development policies

Decision 661/TTg dated 27 June 1998 emphasises the selection, cross-breeding and importation of highly efficient forestry plants capable of adapting to the local conditions and on the techniques of intensive planting of forests. It also encourages breeder-supplying establishments of all economic sectors and supports investments in breeder development efforts. Inter-ministerial Circular 28/TT-LT dated 3 February 1999 of the MARD and Ministry of Finance, which particularized the provisions of Decision 661/TTg, specifies that:

> *For special-use forests:* As a matter of principle, it is necessary to select those plants that conform to the objective of restoring the primitive ecological system. Such plants would be species of local origin, and the main method would be the promotion of the natural regeneration process.
>
> *For upstream protective forests:* Apart from big-sized wood-supplying trees, it is possible to grow industrial trees, fruit trees and specialty trees, mainly for protection purposes. The density will be around 1,600 trees per ha, comprising around 600 main-purpose trees and 1,200 supporting land-improving ones. Where protective forests are located along rivers and sea dikes, the trees should be suitable to the protection purposes and be combined with the most possible economic benefit for the growers.

Agriculture encouragement policies

The agriculture encouragement policies are contained in Decree 13/CP dated 2 March 1993, which promulgated "Regulations on Agriculture Encouragement Work" and inter-ministerial Circular 02/LB-TT dated 2 August 1993, which particularized the above decree. According to these legal documents, a State-monitored system for agriculture/forestry encouragement will be established from the central to district levels with managers being in State's salary payroll and a network of agriculture encouragement activists operating at communes pursuant to contracts. The State encourages and permits the establishment of voluntary agriculture encouragement

organisations by research/training institutions, associations, socio-economic organisations and individuals both inside and outside the country.

3.3 Policies impacting the outputs of production

3.3.1 Policies relating to the exploitation of forests and benefit sharing

Policies relating to the exploitation of NTFPs

The Law on the Protection of and Development of Forests dated 12 August 1991 emphasised that the exploitation of forest plants and the hunting of forest animals must comply with the stipulations of the State on the management and protection of forest fauna and flora, and that rare species of forest fauna and flora must be managed and protected under a special regime.

The stipulations on the bio-forest technical solutions applicable to wood and bamboo supplying forests (known as QPN 14-92) attached to Decision 200-QĐ/KT dated 31 March 1993 of the Ministry of Forestry (now MARD) stipulates that all bamboo forests will be exploited on the basis of selective trees. Mass exploitation of bamboo forests are allowed only where bamboo massively deteriorates, or if young trees have already been regenerated. Such massive exploitation may only be done at an interval of 2-4 years and an amount from ¼ - ⅔ of the forest's total number of trees. Bamboo shoots may be harvested at the end of the shoot-bearing period.

Decision 08/2001/TTg, which promulgated the regulations on the management of the three types of forests, provided for the exploitation and use of these forests:

> *Special-use forests:* an intensive use of wood (i.e. fading or fallen wood trees) where the special-use forest is one of cultural, historical or environmental significance. The management board of the forest may, by itself or by hiring organisations, households or individuals, provide tourism and eco-travel services. It is strictly prohibited to use any land, and especially controlled forests of a national park, for leasing, contracting or joint venture purposes or that otherwise change the natural position of the forest.
>
> *Protective forests that are natural forests:* It is permitted to intensively use any trees that are dry, infected by pests, over-aged, or that are situated in an excessively dense area at a rate not exceeding 20%, and to intensively use any fallen trees and left-over wood in order to facilitate the natural regeneration. In regard to the former, an exception is made for all kinds of wood specified in Group IA of the list attached to Decree 18/HĐBT dated 17 January 1992 of the Council of Ministers (now the Government), which promulgated the list of rare forest plants and animals and the regime for managing and protecting them. It is also permitted to make best use of products other than wood and bamboo provided that this does not affect the protecting capabilities of the forest, except for the forest products specified in Group I attached to Decree 18/HĐBT. Bamboo forests that have reached a coverage rate of more than 80% can be exploited at a maximum rate of 30%, together with the exploitation of bamboo shoots.
>
> *Protective forest that are replanted forests:* Where their development is financed by the State, it is possible to exploit supporting trees and to cut down the number of trees where the density is higher than the stipulated level. However, the exploitation rate must not exceed 20% and, after harvest, forest cover must be more than 60%. When the main-purpose trees are eligible for exploitation, it is permitted to exploit them on a selective basis and at a rate not exceeding 20%. Where the persons who contracted the forest

development work make investments in planted forests, they can annually exploit up to 1/10 of the area on which they have succeeded to plant the forest.

Productive forests that are natural forests: Forests operators may make best use of forests through the improvement of forests, such as cutting down the number of planted trees, collecting of dry or fallen wood, and exploiting standard wood and other forests products under the forest operation plans as approved by the relevant competent authority.

Benefit sharing policies

Decision 202/1994/TTg on hired protection, focal regeneration of forests and afforestation stipulates that forest operators will guide and assist hired households in matters relating to seeding and breeding (covering wood-supplying, specialty, industrial and fruit trees) and assist them by way of granting loans for the development of family economy. Hired operators, apart from remuneration in cash or in kind, are also entitled to side-products of the forests contracted out to them and to combine this business with their cultivation production and enjoy all products so derived.

Decision 145/1998/TTg of the Prime Minister of the Government, which promulgated the regulations on the management and use of forests planted with funds financed by PAM, states that where PAM forests are planted on land that is planned for productive forest purposes or forests serving as protective forest for particular village or commune, forest operators will have the sole ownership rights over the forests developed by them and have the rights to transfer, inherit and create security interest over the forest as well as to exploit and use products coming from it. Forest operators are required to contribute to the communal budget an amount of money equivalent to 100 kg of rice per ha, if they grow perennial trees to be exploited a single time, or 3% of the value of the products made every year if perennial trees are to be exploited annually (through the extracting of resin or gathering of fruits) and must regenerate the forests within one year of exploitation.

According to Decision 162/1999/TTg of the Prime Minister of the Government on benefit enjoyment policies applicable to households who participate in forest planting projects financed by non-refundable aid from the Government of the Federal Republic of Germany, households participating in those projects will be issued a long-term land use rights certificate pursuant to the Land Law:

- be entitled to participate in deciding on the tree composition, planting techniques and timing and method for exploitation;
- have the right to own the forests planted by themselves; and have the rights to transfer, inherit, create security interests over the forests;
- to exploit and use forest products under the regulations applicable to productive forests.

Households and individuals exploiting forests are required to pay to the communal budget an amount of money equivalent to the value of 50 to 100 kg of rice for perennial trees to be exploited a single time, or 2% to 3% of the value of the products derived every year if perennial trees are harvested yearly.

Decision 661/1998/TTg on the objectives, duties and policies for and organisation of the project to plant anew five million hectares of forest stipulates that for productive forests, choices should be made on species of high economic value (including perennial industrial trees, fruit trees,

speciality trees, and curative plants) and with the capability to provide large coverage of land. The organisations, households and individuals to whom the State allocates or leases the land, in pursuance of the plan approved by the provincial authorities, may decide their composition. Households undertaking the responsibility to protect and regenerate forests as well as develop protective forests will, in addition to receiving remuneration in accordance with law, be entitled to collect side-products and exploit wood in the forests. In the case of special-use forests they will enjoy fixed remuneration (as set forth in the investment policies section).

According to Decision 08/2001/TTg promulgating the regulations on the management of the three types of forests:

> *Special-use forests:* an intensive use of wood (i.e. fading or fallen wood trees) where the special-use forest is the one of cultural, historical or environmental significance. The management board of the forest may, by itself or by hiring organisations, households or individuals, provide tourism and eco-travel services.
>
> *Protective forests:* In the event that the State provides funds and hires organisations and individuals to protect, restore or plant anew forests, they will receive remuneration from the management board based on the results achieved and be entitled to exploit dry wood and side-products. In case of organisations and individuals doing forest regeneration in combination with additional planting of forests, they may enjoy all side-products on condition that this does not affect the forest's coverage.

In the event that households secure funds to restore forests or to develop forests anew on plain land by themselves, they will enjoy 100% of agricultural and forest products when the forest becomes available for exploitation.

Households and individuals, participating in the management and operation of productive forests that are natural forests, can exploit wood and forest products in accordance with the above stipulations in addition to:

- enjoy 100% of their income after repaying all loans and interest (if any) and taxes in accordance with law;
- use up to 20% of the non-forest land area allocated to them;
- take a lease of any such land for agricultural/forestry production.

Decision 141/2000/TTg is based on investment and benefit enjoyment policies towards households, individuals and communes participating in the project for the zoning of forestry areas and the management of upstream protective forests in Thanh Hoa, Quang Tri, Phu Yen and Gia Lai. Decision 28/2001/TTg amending and supplementing the above Decision stipulate that households and individuals who accept to be hired to safeguard protective forests will be permitted to exploit wood and side-products under the forest coverage, except for products of Group I in the list attached to Decree 18/HĐBT dated 17 November 1992 of the Council of Ministers (now the Government).

Households that are hired for forest regeneration work in focal areas are entitled to enjoy all trimming products and side-products, except for products of Group I in the list attached to Decree 18/HĐBT. In a case that a mix of various species of trees are planted in the protective forests with the number of protective trees exceeding 600 per ha, they will be entitled to enjoy 100% of any side-products of the forests. In a case that fruit trees, resin-supplying trees, or flower-

supplying tress are planted in the protective forests, they will be entitled to enjoy 100% of those fruits, resin and/or flowers when the forests are exploited. With respect to productive forests, forest operators are required to pay tax in accordance with law when exploiting the forests and contribute to the communal budget an amount of money equivalent to 50-100 kg of rice per ha (for perennial trees harvested a single time, e.g., timber), or 2-3% of the value of the products harvested (for perennial trees harvested annually, e.g., fruits). The provincial or municipal People's Committee decides the specific quantity or rate. Forest operators have the responsibility to replant the forests or apply regeneration techniques to recover the forests within two years after exploitation.

3.3.2 Policies on the circulation and consumption of NTFPs

The multi-price system will be abolished and steps will be taken toward a single-price, market-based system for forest products. The market will no longer be broken down according to administrative boundaries, allowing for the free circulation of forest products among the various regions in the country and with foreign countries.

Decision 19/2000/TTg which abolishes a number of permits and licenses that are contrary to the provisions of the Law on Enterprises, and Circular 896/BNN dated 30 March 2000 of MARD, which provides guidance for the implementation of the above Decision, make it clear that MARD will abolish wood and forest product processing permits currently required by enterprises. Provincial and municipal Departments of Agriculture and Rural Development will abolish certificates of wood and forest product processing permits for organisations, households and individuals that engage in this kind of business.

Circular 04/NN/KL-TT dated 5 February 1996 of the MARD, which provides guidance for the implementation of Decree 02/CP dated 5 January 1995 of the Government on goods and services prohibited from commercial transactions and goods and services to be subject to certain conditions for commercial transactions in the domestic market, specifies the species of wildlife animals and plants prohibited from exportation. It also states that the importation of any species of forest animals and plants must comply with the biological principles. The national regulations on inspection and shall be controlled by the import licenses to be considered and issued by CITES Vietnam on cases-by-case basis. The Forest Control Service of provinces will issue eligibility certificates to eligible traders as a basis for them to obtain a business license. The Forest Control Service will also consider issuance of permits to hunt, catch, exploit and transport wildlife animals that are allowed for domestic trade.

Decision 661/1998/TTg stipulates that all products exploited from planted forests, all kinds of bamboo and other side-products of natural forests, are allowed for free circulation in the market. Wood and forest products coming from regenerated natural forests that are productive forests of households and individuals, are also permitted for free circulation (unless listed in Decree 18/HĐBT). When exploiting and selling those products, the forest operators need only to notify the nearest Forest Control Service or the People's Committee of the local commune or township within ten days after they have obtained a certificate stating that the products are legal.

Decision 65/1998/TTg is provided for the exportation of wood and forest products and the importation of material wood and forest products. According to the decision, wood products may be exported if they are of legitimate origin, comprising artistic wood products made from natural forests (including those combined with bamboo materials), bamboo products combined with wood from planted forests, imported wood and domestic natural forest wood of Groups 3 to 8. Other NTFPs from forest flora are all allowed for export, except for those in Sub-Group IA in the list attached to Decree 18-HĐBT dated 17 January 1992.

Directive 19/CT-TTg dated 16 July 1999 on measures to strengthen the consumption of planted forest wood has: 1) permitted enterprises to export all kinds of planted forest products; 2) introduced tax incentives with respect to export wood products made of planted forest (in the first place handicrafts and deluxe household furniture); and 3) resolved the obstacles relating to the procedures to permit the transportation, consumption and exportation of planted forests wood.

Resolution 09/NQ-CP dated 15 June 2000 on a number of policies and mindsets for a shift in the economic structure and the consumption of agricultural products, has emphasised the development of specialty trees (*que, hoi*, etc.), wood-supply trees and plants serving as materials for handicrafts, the development of garden and home furniture, artistic wood products and bamboo articles mainly for export.

Decision 132/2000/TTg on a number of policies to encourage the development of rural occupations states that -based on the rural occupation development requirements in their localities- provincial authorities will set up plans to develop material-supplying areas to ensure sufficient on-the-spot supply of materials for agricultural, forestry and fishery production. This will stabilize the development of rural occupations. Where forest products are not named in the list of items prohibited from export, producers will not be required to declare the origin of the materials and will not be imposed any restriction on importation. Development of industry and handcrafts is encouraged if they manufacture or process materials for rural occupations. Rural occupational units are permitted to enter into joint ventures and joint operation arrangements with any individuals and organisations both inside and outside the country for the purpose of producing and selling their products.

Based on Resolution 09/2000/NQ-CP dated 15 June 2000 of the Government, the Ministry of Finance issued Circular 91/2000/TT-BTC dated 6 September 2000 to provide guidance on the exemption of value added tax and enterprise income tax at circulation stage, encourages the consumption of agricultural and forest products. Exempt from this tax are organisations and individuals engaged in wholesale trade (hereinafter "wholesale traders"). These traders do not have to pay VAT and enterprise income tax on the trade in agricultural and forest products that are produced domestically and have not undergone any processing. This policy will maintain in the succeeding years.

3.3.3 Tax policies relating to NTFPs

In line with the renovation policy and the development of a multi-sector economic, Vietnam's tax system has been substantially reformed through the introduction of a tax law and ordinance system for general application to all economic sectors. As a result of the two tax reforms in 1990 and 1996, Vietnam’s tax system comprises direct taxes, indirect taxes, and other duties, fees and charges. They are value added tax, special sales tax, export duty and import duty, enterprise income tax, income tax applicable to high-income earners, land use rights transfer tax, agricultural land use tax, house and land tax, royalty, franchise tax and profits remittance tax. Below is a summary of taxes that directly relate to forestry and NTFPs.

Royalty

Royalty is regarded as the price to be paid for the use of national resources. The Ordinance on Royalty was first promulgated on 30 March 1990 and then amended on 28 April 1998. According to this legal text, organisations and individuals of all economic sectors will have the right to exploit natural resources. Royalty rates vary considerably, ranging from 0-40% according to the group and type of resource. Higher rates are applied to resources for exploitation needs to be restricted. As far as forestry is concerned, natural forest products are subject to royalty. According to the Ordinance, the royalty rate will be 15-40% for all kinds of timber, 5% for wood,

10% for bamboo, 25% for *Aquilaria* and *ba kich*, 10% for cinnamon and anise, 5% for other plants, and 20% for forest birds and animals (to the extent that they are allowed for exploitation).

According to Circular 69/TC dated 27 November 1991 of the Ministry of Finance on the royalty collection, the following forest products are not subject to royalty: dried branches of trees to be collected by locals for home use and not for trade; dried branches collected in areas where intensive exploitation is allowed or for forest improvement purposes; forest products collected in forest gardens of organisations and individuals. People in communes with natural forests who are issued a permit to exploit forest products for home use and not for trade purpose may be considered a reduction of up to 50% in royalty. Ethnic groups in remote areas may be totally exempted from royalty.

Decision 661/TTg exempts royalty in respect of forest products exploited from those productive forests that are restored by focal regeneration methods. According to the decision, the goods circulation tax is exempted for forest products that are legally collected from planted forests and NTFPs exploited from natural forests.

Export duty and import duty

The Law on Export/Import Duty came to effect on 1 January 1999. According to this law, export duty and import duty are levied on goods being exported or imported through border gates of Vietnam and goods transferred from the domestic market to export processing zones and vice versa. Apart from generating a source of revenue for the State budget, export/import duty also helps implement the policies aimed to regulate and direct export/import activities and protect domestic production.

In implementation of Decision 1124/1997/QĐ-TTg of the Prime Minister of the Government on the exportation of wood and other forest products and the importation of material wood, the specific tax rates were elaborated in the Export and Import Tariffs, with distinctions being made between wood products of various origins. Export items made from natural forest wood are subject to a higher tax rate compared with those made from planted forest wood. Natural forest timber is subject to an average rate of 20%, while it is 15-20% for planted forest timber, 5% for wood foils and 0% for almost all products originating from planted forest. With a view to meeting the timber requirements of domestic production, the rates of import duty in respect to material wood and wood products were tailored in a reasonable way and at a moderate level to ease the difficulties facing enterprise that must import the same due to lack of supply in the domestic market. Preferential tax rates (ranging from 3-5%) and conventional tax rates (ranging from 4.5-7.5%) were introduced in respect of round wood, sawn wood and wood products.

Value added tax (VAT)

The Law on Value Added Tax, effective from 1 January 1999, is imposed on goods and services at the stage that they are imported and sold. With respect to afforestation activities and forest product market, the following points should be noted.

The list of 26 goods and business activities that are not subject to VAT includes: cultivation products (including planted forest products); unprocessed husbandry and aquaculture products made by the sellers themselves; planting, caring and improving of forests; technical assistance activities for forest planting purposes under any programmes and plans that use funds from the State budget; and equipment, machinery and materials imported under forest planting projects which are eligible for investment incentives or which are financed by ODA funds.

The rate of 5% is applicable to trade in unprocessed forest products (except for timber and bamboo shoots) and jute and bamboo products. The rate of 10% is applicable to all kinds of timber, bamboo shoots and products made of timber (except tools for learning, teaching, research,

experiments and children's toys, which are subject to a rate of 5%). The rate of 0% is applicable to export goods.

Enterprise income tax

The Law on Enterprise Income Tax became effective on 1 January 1999 in replacement of the Law on Profits Tax. It is levied on income of organisations and individuals engaged in the production and trade in goods and services that derive income. Enterprise Income Tax is not payable by households, individuals, agricultural co-operative groups and co-operatives that earn income from cultivation, husbandry or aquaculture products. However, farmer households and individuals carrying out production activities on a large scale and earn high income are therefore still required to pay this tax. Currently, according to the stipulations of the Government, they will have to pay this tax on the amount above 36 million VND if they meet the two conditions: 1) their commercial products' value exceed 90 million VND/yr and 2) their income exceeds 36 million VND/yr.

The bases for the calculation of Enterprise Income Tax are taxable income and tax rate. Taxable income comprises income from business activities and other income within one financial year.

There are two tax rate systems applicable to domestic investments and foreign investments. For domestic enterprises, foreign organisations and individuals doing business in Vietnam other than under the Law on Foreign Investment in Vietnam, the tax rate is 32%. During the first three years, enterprises operating in the fields of agriculture, aquatic culture and the like pay tax at a rate of 25% (i.e. the same rate at which the profits tax was payable). This is a temporary measure aimed to give time for them to adapt to the new mechanism. The law also set the tax rates of 25%, 20% and 15% to be applicable to investment projects in the fields and geographical areas facing poor conditions to encourage investment.

Enterprises with foreign invested capital and Vietnamese parties to business co-operation contracts under the Law on Foreign Investment in Vietnam pay tax at the basic rate of 25% and may be entitled to preferential tax rates of 20%, 15% or 10% for a period from 10 to 15 years, depending on how the conditions have been met. When remitting out of Vietnam their income earned from their investments in Vietnam (or retaining that income outside Vietnam), foreign investors must pay a profits remittance tax at a rate of 5%, 7% or 10% (which in the year 2000 was reduced to 3%, 5% and 7%, respectively). The specific rate depends on the specific criteria and conditions imposed for each project. The tax incentives include: preferential tax rates (i.e. the above-mentioned rates) and tax reductions and exemptions, which aim to encourage investment, application of technical advances, use of a large number of labourers, and to help cope with a number of social issues.

The current tax law with respect to land

a) Land rentals

Land rental system is applicable to all organisations and individuals that take a lease of land from the State for production/business purposes (except where domestic organisations and individuals are allocated land by the State for agricultural, forestry, aquaculture and salt-making purposes, in which case they do not have to pay land use charge, as mentioned above). This system is also applicable in cases where foreign investors or enterprises with foreign invested capital lease land from the State for agricultural/forestry production purposes.

Land rental rates applicable to domestic organisations and individuals are as determined in Decision 1357-TC/QĐ/TCT dated 30 December 1995 of the Minister of Finance, which is a percentage of the land price in the price frame that is issued by the provincial and municipal People's Committee based on the land price table set by the State. According to this price table,

the land rental payable by production, construction and transport enterprises is 0.5% while the rate is 0.7% for trading, tourism and services sectors.

With respect to the foreign investment sector, the Ministry of Finance issued a minimum and maximum price table to be applicable to each type of land, each geographical area and set the adjusting coefficients based on industry, position, and infrastructure development levels. After the introduction of the Land Law (in 1993), the Ministry of Finance had reduced land rentals two times in 1994 and 1998. In reality, almost all local authorities made further reductions in land rentals when applying the adjusting coefficients in an attempt to attract foreign investment in their localities. Foreign investors making investments in projects to grow industrial and agricultural trees pay land rentals at the lowest rates set in the price frame for the relevant type of land in use. Many policies were introduced on land rental reductions/exemptions. For example, foreign invested projects for planting forests are totally exempted from payment of land rentals so long as the project has not made any product. In addition, land rentals may be reduced by up to 90%, depending on the type of land as jointly determined by the Ministry of Forestry and the Ministry of Finance.

b) Agricultural land use tax

The Law on Agricultural Land Use Tax was passed by the National Assembly of IX Legislature on 10 July 1993 and came into force on 1 January 1994 in replacement of the Ordinance on Agricultural Tax dated 30 January 1989.

Taxpayers include organisations, households and individuals that use land for agricultural, forestry and aquaculture purposes. This tax is payable even if the land is not used after having been allocated to land users for agricultural production. According to this law, the tax is applicable in respect of land under annual trees, land under perennial trees, land combined with water surface used for aquaculture purposes, and land under planted forests. The tax is not payable in respect of land under natural forests, natural green fields that have not been allocated to anybody for use, residential land, and special-use land for which house and land charge is payable.

The bases for the calculation of the tax are the area, the class of land and tax rate fixed for one unit of area. The class of a particular plot of land is determined based on the five elements: the soil, the position, the topography, the climate, and irrigation capabilities. Land under annual trees and land combined with water surface used for aquaculture production are divided into 6 classes, and land under perennial trees into 5 classes. The tax rate is determined to be a quantity (in kilograms) of rice per hectare for each type of land.

3.3.4 Farm economy development policies

Further to Resolution 03/2000/NQ-CP dated 2 February 2000 of the Government on farm economy, the following legal texts were issued.

Inter-ministerial Circular 69/TTLT dated 23 June 2000 of MARD and the General Department of Statistics provides guidance on the criteria for identifying farm economy. According to this circular, the agricultural, forestry or aquaculture production household must meet both criteria to be regarded as a farm: 1) the average annual value of the commodity and/or service output is 40 million VND upwards, if in Northern and Central Coastal provinces or 50 million VND upwards, if in Southern provinces or Central Highlands; and 2) the production scale is relatively large and represents a pre-emption over household economy in the same production branch or economic region. For example, a forestry farm should have at least 10 ha, a perennial farm should have no less than 2 ha (if in Northern or Central Coastal provinces) or 3 ha (if in Southern provinces or

Central Highlands). For special agricultural/forestry products, for example mushroom or bee-raising, the criteria will relate to the value of the commodity output.

Circular 61/TT dated 6 June 2000 of the MARD, which provides guidance for master-planning farmer economy, emphasises surveying and closely monitoring the land fund currently used for agricultural/forestry purposes and put that waste land and bare hills may be put into agricultural, forestry or aqua-culture use through the functioning of farm economy. Account will be taken of the market and land conditions when deciding on the composition of the main species of plants and animals in the areas planned for farm economy, which may serve as a sample for farm owners. A stable forest composition will be determined in the areas planned for farm economy so that it can serve as a basis for the allocation of forests to farm owners or hiring them to protect forests. Appropriate processing technologies will be selected and then be made known to farm owners for application. Efforts will be made to establish a network of facilities capable of producing and supplying good seedlings and to protect plants and promote agriculture encouragement schemes in each locality.

On 14 August 2000, the Ministry of Finance issued Circular 82/2000/TT-BTC to provide guidance on financial policies aimed to develop farm economy. According to the circular, farm owners using waste land, bare hills and natural waters that are included in the farm economy development plan of the provincial and municipal People's Committee will be entitled to (provided that no investment was made in such land or waters) a reduction in land use charge, land rental and/or agricultural land use tax pursuant to Decree 51/CP dated 8 July 1999. This Decree implemented the Law on Encouragement of Domestic Investment (as amended on 20 May 1998). Farm owners who manufacture products for export or invest in the development of concentrated material-supplying forests, the growing of perennial/fruit trees, aquaculture or cow-raising, or who render supporting services or process agricultural, forestry and/or fishery products, will be eligible for obtaining a loan from the State's Development Support Fund at preferential interest rates, securing an investment credit guarantee and/or receiving post-investment interest rate support as contemplated by Decree 43/CP dated 29 June 1999 of the Government on the State's investment and development credit guarantees.

3.4 Conclusion

From 1990 until now, certain aspects of the policy and legal environment for the management and development of forest resources and NTFPs can be deemed appropriate.

Regarding the land policy, land has been allocated to farmer households to use on long-term basis for the purpose of agricultural and forestry. Households have the rights to use a part of allocated land for cultivating NTFPs, as well as rights to transfer, exchange, lease, inherit, mortgage and contribute funds equal to the value of land use right. The policy on contracting forest land has also changed in relation to NTFPs. For example, those who receive land for forest protection are allowed to plant trees yielding NTFPs, which are considered as important to the structure of plantation trees. In addition, they are allowed to use a maximum of 20% of non-forest contracted land area for agricultural production purpose including NTFPs. Those who receive contracts for forest protection and natural regeneration of forests are permitted to collect NTFPs. In the *five million ha reforestation programme*, the Government has made plans for plantations yielding NTFPs for the whole country and for each forestry economic region.

For investment and credit policy, the Government has promulgated the policy for generating capitals and lending to production households. The allocation of capital for NTFP production is applied following two forms, lending with preferential rate in accordance with the revised domestic investment incentive Law (1998) and commercial credit under various channels.

The tax policy on forest land applies to perennial trees with one crop harvest. The tax rate is on average 4% of the value of the sold products. Tax is exempted for open land and barren hills used for agricultural and forestry production purposes, and annual crop land converted to perennial crops (e.g., fruit trees). This has encouraged use of land for NTFP production.

Policies on exploitation and use of forests state that the forest owner is permitted to make use of NTFPs from protective natural forests and production forests. Households receive contracts for protection of protective forests. Besides direct benefits from protection contracts, they are also allowed to collect all products from thinning products; minor forest and agricultural products under shade; and flowers, fruits, resins, oils and bamboos. Exploitation of NTFPs from productive natural forests by natural regeneration exempts households from the natural resources tax.

As for the policy on circulation and marketing of NTFPs, the status of market division by administrative boundaries has been abolished. Products extracted from plantation forests, including NTFPs, can be freely circulated. Production and exportation of NTFPs are encouraged such as *Cinamomum*, anise, essential oils, shellac, Pharmacia plants, bamboo and rattan handicrafts.

However, there are still some remaining problems. The forest policy system is incomplete. No policy on NTFPs has been adopted so far. Most of the policies on NTFPs are scattered and brief among different chapters, articles and other provisions of legal documents. Some policies have not been updated and are inappropriate to the changing economic situation, such as policies on allocation, contracting, investment, credits, beneficiaries and so on. As a result, they do not create optimal conditions for key institutions and social groups for forest protection and management. The organisation for implementation work of policies is slow, partly due to lack of specific and timely guiding documents.

Some policies place strong emphasis on environmental protection objectives, but no solution is sought to increase income and stabilize the livelihood of the people living near the forest area through the development of NTFPs.

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Part II. Product Profiles

Selected NTFPs with High Values in Vietnam: Product Presentation

By Vu Van Dung, Hoang Huu Nguyen and Trinh Vy, Nguyen Van Tap

The Second Part of this book deals with selected NTFPs with high values occurring in Vietnam, including

- Fibre products: rattan and bamboo
- Food products: cinnamon, anise and *Amomum aromaticum*
- Medicines and cosmetics: *Amomum xanthoides*, *Panax vietnamensis*, *Morinda officinalis*
- Extractive products: pines, benzoin, essential oils
- Animal products: shellac and wild animals

These NTFP have current and/or traditional importance in Vietnam, as identified by the author (see also *Annex D*). During the implementation of the NTFP Project, the project has also developed a market analysis process for conservation and development to select high potential NTFPs, known as Market Analysis and Development (MA&D) For more detail on this analytical process and the NTFPs selected for the field sites of the NTFP Project, see Raintree, Le Thi Phi & Nguyen Van Duong (2002).

1. Fibre products

1.1 Bamboo

Composition of species, areas, and production

Bamboo is a group of woody plants that belong to the *Bambusoideae* subfamily and *Poaceae* family. Five hundred species of bamboo occur in five million hectares of bamboo forests worldwide. Most of them are in South and Southeast Asia. Over 102 species of 19 bamboo families occur in Vietnam. Bamboo is distributed from sea level up to 2000m of elevation (e.g., Fansipan, Chu Jang Sin).

According to Vietnamese inventories, bamboo forests and mixed arboreal forests account for 789,221 ha and 702,871 ha respectively, with 2000 billion trees that are geographically distributed as presented in *Table 08*:

Table 08. Bamboo forest areas in Vietnam

Region	Total area	Forest area	Bamboo forest area	Mixed bamboo forest
Country	32,894.398	10,915.592	789,221	702,871
Northeast	6,746.293	2,368.982	176,449	132,445
Northwest	3,572.365	963.441	57,218	49,989
Red River	1,266.254	83,638	80	0
Northern Central	5,130.454	2,135.649	172,999	99,110
Central Coast	3,301.624	1,139.291	27,519	2,517
Central Highlands	4,464.472	2,373.116	210,343	138,633
Northeast Mekong	4,447.622	1,581.000	144,613	279,877

Delta				
Mekong Delta	3,965.314	270,477	0	0

Source: National Forest Inventories, Jan 2001

Additionally, scattered bamboo grown by households in lowlands, midlands and mountainous regions make up a considerable stock of bamboo in Vietnam.

Uses and trend in uses of bamboo in Vietnam

As bamboo species are easily and fast grown and widely ranged, and due to their high technical features, bamboos are used for different sub-sectors. So far, 30 different uses of bamboo have been identified in Vietnam, but the most common uses of bamboo include handicrafts, building materials, and raw materials for paper mills.

a) Handicrafts

Every year, the amount of bamboo used for handicrafts domestic consumption and export increases. Investment should be made in improving the quality of Vietnam's bamboo products for export though selection of bamboo species as raw materials, technological innovation, and mechanization of processing.

b) Building materials

At present, 50% of building materials for housing in rural areas rely on bamboo. Species of bamboo with thick walls and a diameter of ten centimetres, such as *Dendrocalamus giganteus, D. aspera, D. latiflorus, D. membranaceus, Bambusa blumeana,* and *B. bambos* are appropriate to housing. Several northern ethnic minority groups used to roof their houses by *Phyllostachys pubescens*. This species makes roofing durable and nice. It is certain that bamboo will be used as key building materials for rural housing in Vietnam for a long time.

c) Raw materials for paper and fibres industries

Many Southeast Asian countries have used bamboos as raw material to feed the paper industry. While advanced countries' per capita paper production accounts for 250-300 kg per year, the figure in developing country is only 2-5kg. It is anticipated that Vietnam's paper industry will require larger amounts of bamboo and timber as raw materials for its production in the future. According to the National Forestry Development Strategy, Vietnam's annual paper and pulp production will reach 2-2.5 million tons by 2001.

d) Bamboo shoots

Bamboo shoots are a popular diet item for Southeast Asian people. Shoots may be fresh, dried or fermented. Most species of bamboo yield edible shoots, except some species with short shooting periods and hardened shoots. In Vietnam, shoots are harvested from primary bamboo species such as *Dendrocalamus giganteus, D. membranaceus, D. asper, D. latiflorus, Neohouzeaua dullooa,* and *Indosasa amabilis* in the north and *Gigantochloa nigo-ciliata, Bambusa procera, Cephalostachyum sp.,* and *Neohouzeua dulloa* in the south. In the past five years, a species of bamboo (*Bambusa ohlami*) has been imported from Taiwan for shoot production. This species yields a relatively high productivity, around 500 kg of shoots per hectare per year. There is potential to develop an export-oriented production of fresh shoots in the future.

Uses of bamboo have been increasingly understood. Experiments in wrapping leaf production from bamboo (for export to Taiwan), or active carbon production from burning the canes (for export to Japan) have potential to develop a wider range of items for exports.

Further considerations for bamboo development

- An investigation should be carried out as soon as possible to clarify the compositions, distribution and ecological features of bamboo in Vietnam.
- Bamboo growing and business zoning should be planned in order to meet growing demands for industry (pulping, fishing rod, bamboo tiling sheet, processed shoot productions) and handicrafts.
- A further study should be implemented to understand the withering phenomena of bamboo, and to develop grafting measures to resolve lack of bamboo seedlings.
- Incentives and technical and financial supports should be given to those farmer households who supply bamboo as raw material for paper and shoot processing factories.
- Diversifying items and their quality should improve the competitiveness of Vietnam's bamboo commodities.

1.2 Rattan

Rattan is a forest product with an economic value ranked third after timber and bamboo in Southeast Asia. Due to its durability, glossiness, and flexibility, the canes are used extensively for items such as home furniture, chairs, tables, and other fine arts.

Unfortunately, rattan has not been adequately studied. So far there has been only one official publication on "Rattan Growing and Development in Vietnam" (Vu Van Dung, Le Huy Cuong, 1996). The document presents the formal, ecological and distributional characteristics of ten of the more than 30 species of rattan occurring in Vietnam. The document also presents growing techniques of the two species of *Calamus tetradactylus* and *C. platyacanthus*, which are commonly grown in the north of Vietnam.

According to Vu Van Dung and Le Huy Cuong (1996), six Genera and 30 species of rattan have been listed in Vietnam, including:

- *Calamus:* 19 species and 1 sub-species
- *Daemonorops*: 4 species
- *Korthalsia:* 2 species
- *Myriapis*: 1 species
- *Plectocomia*: 2 species
- *Plecomomiopsis:* 1 species

The number of Genera and species of rattan are believed to be more than 50 if further inventories are carried out nationwide.

Out of the 30 identified species, only 15 species have been exploited and five have been harvested in a large volume. They include:

- *Calamus tetradactylus:* widely distributed across the country

- *Calamus tonkinensis*: widely distributed
- *Calamus platyacanthus*: mainly occurring in the northern provinces
- *Calamus rudentrum:* widely ranged
- *Calamus poilane:* distributed from Thanh Hoa Province southwards

Recently, the rattan resource has been over-exploited and is likely to be depleted due to increases in its export price and niche markets. Many species of rattan are already under threat of local extinction. *C. poilanei* and *C. platyacanthus* species are already included in Vietnam's Red Data Book, Flora Part (1996).

Generally, rattan is distributed widely throughout the country, but most rattan occurs in the following provinces:

- Northern Vietnam: Ha Giang, Tuyen Quang, Yen Bai, Bac Thai
- Central Vietnam: Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue, Quang Nam, Nghia Binh, Dac Lac, Binh Thuan
- Southern Vietnam: Dong Nai and Binh Phuoc.

Annual production of rattan harvested from natural forests is large. But due to the purchase and processing of harvested rattan primarily by companies in the private sector, it is not easy to carry out an annual inventory of rattan nationwide. Additionally, a significant volume of rattan imported from Laos and Cambodia has inflated the inventory. *Table 9* below presents data on rattan harvested from some selected provinces in 1990, 1995 and 1999.

Table 09. Rattan productions of some provinces by three years

Province	Production (Ton)		
	1990	1995	1999
Lang Son		1,500	
Quang Ninh		1,200	
Ha Giang		55	
Quang Binh	81	2,478	
Dac Lac	4,900	7,100	4,800
Lam Dong	365	380	345
Gia Lai	590	829	590

Source: Nguyen Quoc Dung, 2000, *Forest Protection and Rural Development Project, Dac Lac;* The 1996-2001 Development Planning, Quang Binh; Lam Dong Provincial Forestry Development Sub-Branch; and Departments of Agriculture and Rural Development of Quang Ninh, Ha Giang, and Gia Lai.

So far, only four major species of rattan have been inventoried, namely *Calamus tetradactylus, C. tonkinensis, C. platyacanthus* and *C. tenuis.* Only the latter species has an upper stem diameter of 3 cm, which is grown on a small scale in Hoa Binh Province. The stem diameter of the first three species is less than one cm. *C. polanei* species have a high economic value (its market price is usually double of others) and occurs from Thanh Hoa Province southwards. This species needs to be further studied so that it may be bred and introduced to other provinces.

C. tetradactylus is a primary species that yields rattan products. This species has been planted for a very long time in northern provinces such as Thai Binh, Nam Ha, Nam Dinh, Ninh Binh, Hai Hung, Nghe An, and Ha Tinh. Its annual production accounts for about 2,500-3,000 tons, which rural households plant around home-gardens primarily in the Red River Delta. Further studies should be carried out to focus on selection of varieties and intensive cultivation, as well as potential for plantations in midland and mountainous provinces.

It is estimated that 15,000 tons of small-sized rattan and 5,000 tons of big-sized rattan are required as raw material to for export of rattan products every year. Vietnam exports 2,000,000 m^2 of rattan wearing products and 500,000-600,000 m^2 of cane products and other items annually (Nguyen Quoc Dung, 2000).

Most of Vietnam's rattan products are exported to Germany, Italy and Japan; the rest is exported to Hong Kong, Singapore and Cuba. Market demands are growing, but lack of raw material is a serious challenge facing Vietnam. According to the Food and Agriculture Organisation (FAO, 1995), the average value of the world's trade in rattan is US$ 600 million (from 1988 to 1993). Most of the products originate from Asian and Pacific countries, of which Malaysia, Indonesia, Vietnam and China contribute 19.5%, 15.9%, 14% and 12.4% respectively. From 1988 to 1993, Vietnam's rattan products ranked third in the world's trade (Nguyen Quoc Dung, 2000). But rattan production has attracted only 100,000 labourers working from harvesting to processing stages.

Rattan products have an economic significance on par with timber and bamboo. The greatest challenge facing Vietnam's rattan production is its dependence on natural forests for supply of raw materials. Meanwhile, rich and medium forests with many species of rattan are being seriously depleted. These supplies of raw rattan will disappear within 10-20 years if no extensive rattan plantation plan is implemented.

Further considerations for rattan development

To achieve sustainable rattan product development, some major issues should be addressed, including:

- Investigation should be strengthened to clarify the compositions, distribution and ecological characteristics of rattan to select species with the highest economic value and introduce to massive production.
- Rattan should be produced in both home-gardens and on larger scales. Rattan plantation in watershed and production forests offers prospects for raw material supply.
- *Calamus tetradactylus*—an easily grown, short harvest (3-5 years) and high productivity species—is traditionally grown in Vietnam. This species should be planned for cultivation in midland and mountainous areas. Local growers of *C. tetradactylus* should be encouraged to expand growing areas through technical support and seedling provision. Do Luong District of Nghe An Province exhibits a good experience where each local household was provided with 300-500 seedlings to grow around their homes. After 3-4 years, the growers refund the seedlings upon harvest and then new households are provided with seedlings. This type of practice should be replicated in other localities.

- Breeding zones should be created for *Calamus platyacanthus* (in Tu Ly District, Hoa Binh Province), *C. poilanei* (in Gia Lai Province), and *C. rudentrum* and *C. viminalis* (in Cat Tien National Park, Dong Nai Province) with a view to generating adequate seedlings for extensive rattan plantation in the near future.
- Due attention should be given to raw rattan processing by importing equipment and rattan processing technologies from Taiwan, Hong Kong and Singapore to improve the quality of Vietnam's export products.

2. Vegetable derived food products

Cinnamon, anise and *Amomum aromaticum* are classified into Category II (food products) but not Category III (extractive products). This is because powder cinnamon, anise and *A. aromaticum* are spices of higher value than their extractive products.

2.1 Cinnamon

Cinnamon is grown and planted in tropical regions and distributed naturally in certain countries, namely Vietnam, China, India, and Sri Lanka.

In Vietnam, there are three major cinnamon regions:

- Northeast: Lao Cai, Yen Bai, and Quang Ninh
- North Central Vietnam: Thanh Hoa, Nghe An, and Quang Binh
- South Central Vietnam: Quang Nam, Quang Ngai, and Binh Dinh

The common plantation species of cinnamon in Vietnam is identified as *Cinnamomum cassia bl.*, belonging to *Lauraceae* family. Cinnamon originated from Thanh Hoa Province and the northern areas of Nghe An Province. It is a highly valued product for traditional medicines.

According to Nguyen Quoc Dung (2000), Vietnam has 61,000 ha of cinnamon plantations that yield an annual production of nearly 3000 tons (see *Table 9*).

Table 9. Cinnamon growing areas, stocks and productions as of 1998

Regions & Provinces	Area (ha)	Production p.a (ton in bark)	Harvestable area (ha)	Stock in bark (ton)
Total	61,820	2,867	19,734	29,614
Northeast	18,926	624	6,229	9.343
Quang Ninh	5,024	545	3,389	5,083
Cao Bang	2,060	3,2	80.0	120.0
Bac Can	2,673	34	910	1,365
Thai Nguyen	7,554	41	1,850	2,775
Bac Giang	1,613			
Central Tonkin	27,595	603	10,307	15,461
Lao Cai	5,618	34	1,308	1,962
Yen Bai	20,836	570	8,999	13,498
Ha Giang	26			
Tuyen Quang	1,113			
North Central	6,301	345	548	822

Thanh Hoa	1,500	250	374	561
Nghe An	4,187	95	174	261
Ha Tinh	514			
Quang Binh	100			
South Central Coast	8,997	1,295	2,658	3,988
Quang Nam	5,243	888	1,814	2,721
Quang Ngai	2,754	407	844	1,266

Source: Provincial Forest Inventory Report (1998-2000); Provincial DARD Reports (98-2000), Inventories of Cinnamon Growing State forest Enterprises & Communes(1999)

Cinnamon bark has many uses, but it is mainly used as a spice. Cinnamon may be ground in a powder or eaten whole. Essential oil can be extracted from the powder and used as spice. Dried cinnamon bark and its essential oil are used as raw materials for pharmaceuticals and cosmetics.

Cinnamon can be planted centrally or dispersed and it is a suitable cash crop. It is frequently included in socio-economic development programs, such as the *five million hectare reforestation programme*, national programmes for Hunger Eradication and Poverty Reduction, and the resettlement program. Cinnamon has medium tall and dense canopies and, therefore, it also has various environmental and ecological values. Usually, cinnamon bark is harvested after 15-20 years, when it can produce 4-5 tons per ha. The cinnamon bark is dried and classified into two forms, medicines and food products. Its chips, branches, bark or leaves can be distilled to extract essential oils. With existing pressing techniques, extracting time is shortened and essential oil production may increase from 5% to 8-10%. Previously, debarked cinnamon trunks were only used for fuelwood, but now they can be used for other purposes through cinnamon wood processing technologies developed by the Forestry University. This has added much value to cinnamon production.

In Vietnam, cinnamon is harvested for both domestic consumption and export. In the past, cinnamon has been exported to many areas in the world, such as Hong Kong, Japan, Singapore, France, Canada and USA. World trade in cinnamon accounts for 20,000-30,000 tons per year. Vietnamese production of cinnamon amounts to 3,000 tons per year, plus 5-7 tons of essential oil. In addition to the two major products, cinnamon bark is divided into five grades according to quality. Market prices for its food products range from US$ 3,000-4,500 per ton while its essential oil is valued at US$ 100,000 per tons. Domestic market prices vary, previously VND 10,000-15,000 per kg, but now VND 8,500 (1998) (see *Table 10*).

Table 10. Exports of cinnamon Products by NAFORIMEX (1981-1990)

No.	Year	Export (ton)	Average price (US$/t)
1	1981	1,107	4,250
2	1983	1,302	4,100
3	1986	1,602	4,800
4	1988	1,900	4,850
5	1990	1,220	4,300

In the past 20 years, cinnamon growing areas and production have rapidly expanded. According to Nguyen Quoc Dung (2000), plantation area increased ten times and production six-fold from 1980 to 1998 (see *Table 11*).

Table 11. Cinnamon forest area, stock and production as of 1998

Regions & Provinces	1980		1990		1998	
	Area (ha)	Production (ton)	Area (ha)	Production (ton)	Area (ha)	Production (ton)
Country	5,353	553	19,248	530	61,820	2,870
Northeast	423	91	4,880	315	18,926	624
Quang Ninh	392	81	3,539	289	5,024	545
Cao Bang	9	5	360		2,060	3
Bac Can					2,673	34.2
Thai Nguyen	1		131	4	7,554	41
Bac Giang	21	5	850	22	1,613	
Central Tonkin	2,580	100	13,790	215	27,595	604
Lao Cai	95,050	5	763	3	5,618	34
Yen Bai	2,485	95	1,301	212	20,837	570
Ha Giang					26	
Tuyen Quang			7.7		1,113	
North Central	2,003	362	578		6,306	345
Thanh Hoa	320	120	374	137	1,500	250
Nghe An	1,683	242	174	35	4,187	95
Ha Tinh					515	
Quang Binh			30		100	
South Central Coast	347				8,997	1,295
Quang Nam	319	65			6,243	888
Quang Ngai	28				2,754	407

Source: 20 years of Reforestation Data, 1991; Proposed Cinnamon Development Report, Thanh Hoa (1994); Cinnamon Development Project, Nghe An (1994); and other documents.

Given trends of increasing growing areas and bark production, it is anticipated that Vietnam will become one of the largest export countries of cinnamon in the world. However, increase in production can also mean decrease in pricing. Therefore, market research should be carried out to develop an appropriate development plan for this valuable crop.

As previously mentioned, cinnamon is used for different products, including spices, food products, pharmaceuticals and cosmetics. Unfortunately, most of Vietnamese export products rely on unprocessed cinnamon. Cinnamon plantations should be planned for farm, household and cooperative economies. This is an issue that must be integrated into the research and investment of other programs to develop cinnamon in its native regions, improve its values and contribute to local people's living conditions.

Further considerations for cinnamon development

- Market research should be carried out to develop niche markets for cinnamon products. Other research should focus on utilisation of other parts of cinnamon trees to add value and reduce vulnerability to fluctuating markets.
- Cinnamon processing, as in essential oils, should be strengthened to add more value to export products.

- Selection of cinnamon seedlings with good quality and high essential oil content should be strengthened.
- Due attention should be given to expansion of cinnamon growing zones that may influence the quality of its bark and essential oil.

2.2 Anise

Anise, also called "great anise" (*Illicium verum Hook f.*), belongs to the *Illiciaceae* family. Its products include fruits and essential oil, from which many other high value by-products are obtained in other countries to process foods, spices and pharmaceuticals.

Anise fruits are harvested from trees that have been growing for 6-8 years and harvesting time may last from 50 to 60 years. Every year has two harvesting periods (from March to April and August to September, but the latter is prime season). Harvested anise fruits must be dried rapidly. Anise fruit looks like a flower and thus is referred to as "anise flower" by local people. Each tree yields 25 kg of dry fruit per year, and up to 40 kg in some cases.

The anise species has a narrow range, usually occurring in the borders between Vietnam, China, and Northern Laos. This is an area of 5,000 km^2, of which 3/5 belongs to Vietnam. In Vietnam, anise primarily occurs in the northern border provinces, namely Lang Son and Quang Ninh provinces. In addition to anise forests, thousands of anise trees have been grown dispersedly in home gardens.

As of 1997, Vietnam has grown 14,133.3 ha of anise forests, of which 5,542 ha have already yielded fruit. Annual production of anise fruit accounts for 12,192 tons (Nguyen Quoc Dung, 2000) (see *Table 12*).

Table 12. The 1997 Anise Forest Areas and Production

Province/ District	Area (ha)	Flowering and Fruiting Area (ha)	Production (ton)
Total	14,133	5,542	3,426
Quang Ninh	2,922	600	400
Binh Lieu	2,922	600	400
Lang Son	11,211	4,942	3,026
Van Lang	852	547	350
Chi Lang	914.	435	300
Trang Dinh	193	101	60
Bac Son	1,003	450	321
Lang Son, Prov. Town	239	87	60
Cao Loc	1,871	879	500
Loc Binh	369	125	65
Binh Gia	2,469	1,121	660
Dinh Lap	338	76	30
Van Quan	2,685	1,121	680

Anise fruits dried by the sun or heating can be regarded be sold in the market. 100 kg of dried anise can be processed from about 300-400 green anise fruits. 100 kg of green anise fruit can

yield 3-3.5 kg of essential oil, while the same amount of dried anise can yield 8.5-10 kg of essential oil.

As previously mentioned, anise is used as raw material to produce spices and prepare some foods. Anise is used as an additive to wine distillation by some European countries, such as France. Anise oil is used in an exclusively reputed French brandy. Anise products are also used to prepare medicines.

Vietnam's traditional markets for anise are France, UK, Germany, Hong Kong, and Singapore. The world's trade in anise is not large, only around 3000 tons of fruits valued at US$ 4.5 million, and 100 tons of anise oil equivalent to 2,000-2,200 tons of fruits. Anise fruit price varies from US$ 1,400-1,600 per ton, while the price of anise oil is US$ 20,000 per ton.

Recently, anise growing areas and production have rapidly expanded (Nguyen Quoc Dung, 2000) (see *Table 13*).

Table 13. Anise Areas and Production

Province/ District	1980		1990		1997	
	Area (ha)	Production (ton)	Area (ha)	Production (ton)	Area (ha)	Production (ton)
Total	2,678	1,500	1,800	2,000	14,133	3,426
Quang Ninh	367	200	600	400	2,922	400
Binh Lieu	367	200	600	400	2,922	400
Lang Son	2,311	1,300	1,200	1,600	12,2119	3.026
Van Lang	230				852.2	350
Chi Lang	71				914	300
Trang Dinh	315				193	600
Bac Son	333				1,003	321
Lang Son Prov. town	2				239	60
Cao Loc	934				1,871	500
Loc Binh	186				639	65
Binh Gia	126				2,469	660
Dinh Lap	31				338	30
Van Quan	83				2,685	680

Source: " Anise forest area" including centred and dispersed areas, Ha Chu Chu, 1996; Data 20 years of reforestation; Statistics, Lang Son and Quang Ninh provincial DARDs.

Note: Before 1997, no data on anise production available.

The increase in growing areas and production are positive, but there is also concern that if markets are not developed, this could lead to stagnancy of anise products.

In the past several years, export has been unprocessed dried anise fruits amounting to 1,500 tons per year, and a volume of less than 80 tons of anise oil. No other export product is derived from anise. A forest-biological research station should be established in the northeast region to carry out research. Its mandate would cover a selection of species, breeding, processing and market research of potential items to be derived from anise fruit and essential oil.

Further considerations for anise development

- Anise is an NTFP-yielding tree that local people prefer to grow within "social forestry" programs and thus has high potential for further development.
- More technical and financial supports should be given to local anise growers because anise is a slow harvest species (fruiting in 8-10 years).
- Anise plantations should be located in watershed forests and anise development should be funded from the *five million hectare reforestation program*.
- Potential growing areas should be identified as soon as possible and anise growing zones planned accordingly. At the same time, market research should forecast changes in demand for essential oil and fruit when growing areas have been expanded.
- Research should be undertaken on the selection of good anise species and intensive cultivation.
- Due attention should be paid to improvements in the quality of anise fruits and essential oils.

2.3 Amomum aromaticum

Amomum aromaticum Roxb. belongs to the family *Zingiberaceac*. It has different uses such as spices, medicine, but is mostly used as a spice in the food processing industry. *A. aromaticum* is a strict endemic species, occurring in some areas of southern China and northern Vietnam. *A. aromaticum* grows under forest canopies, particularly in moist forests with high humus content, at elevations between 1000-2000 m. In Vietnam, *A. aromaticum* occurs in Quang Ba (Ha Giang Province); Sa Pa, Bat Xat, Than Uyen, Cam Duong, Van Ban, and Bao Thang (Lao Cai Province); Tuan Giao and Muong Te (Lai Chau Province), and Ma river (Son La Province).

A. aromaticum grows naturally or can be cultivated under forest canopies. Its fruits are harvested from October to November, accounting for 200 kg per hectare. Collected fruits have to be dried. Local people used to dry fruits by burning coal in forests, but it is laborious work. Drying usually takes 4-5 days before being be sold to the market. In 1998, the country's growing area of *A. aromaticum* accounted for 1,626 ha and its annual production was 14 tons, excluding dispersed trees (Nguyen Quoc Dung, 2000) (see *Table 14*).

Table 14. *Amomum aromaticum* Forest Area and Production in Selected Provinces

Province/ District	Area (ha)	Production(Kg)
Total	1,626.2	14,058
Lao Cai	1,499.2	12,258
Sa Pa	15.0	1,520
Bat Sat	863.0	3,568
Van Ban	11.0	500
Than Uyen	32.4	870
Bao Thang	554.8	4,100
Cam Duong	23.0	1,700
Ha Giang	127.0	1,800
Quan Ba	127.0	1,800

Source: *Natural Forest Inventory Report, Lao Cai; Data, Sa Pa Forestry Inspection Div, Hoang Lien Son protected Area; Quang Ba Forestry Inspection Div.*

Previously, *A. aromaticum* used to be exported to areas such as Hong Kong, Singapore, and France. Domestic market price was about VND 25,000- 30,000 per kg. Now it is unofficially traded with other countries. *A. aromaticum* is mainly used to produce pharmaceuticals to treat common diseases such as malaria and in the confectionery industry.

A. aromaticum's economic value can help contribute to hunger eradication and poverty alleviation, especially for remote communities and ethnic minority groups in northern mountainous areas. Moreover, *A. aromaticum* is nearly endemic to Vietnam and particularly to the northern provinces.

Further considerations for *Amomum aromaticum* development

- Consideration on upland development and ethnic minority

A. aromaticum is preferred by highland people due to its high economic value, short harvest, and easy breeding and growth.

A. aromaticum is nearly endemic to Vietnam, since only Vietnam and Laos export it. Vietnam's annual export amounts to ten tons to USA, European Union and Japan (De Beer, 1993). Compared to other NTFPs, the international trade in *A. aromaticum* is less competitive.

- Expansion of *A. aromaticum* growing zones should be planned in the border area shared between Vietnam and China. *A. aromaticum* has to be grown under well developed forest canopies of 40-70% along riversides and at altitudes of 1000-2000m. These types of forests have already disappeared over traditional production regions (such as Lao Cai and Ha Giang), but it may be suitable to expand the growing area to Lai Chau and Son La provinces.
- Policies should be developed to provide *A. aromaticum* growers with technical and financial supports, particularly the poor.

3. Medicinal plants

Based on statistics from the Pharmaceutical Institute of Vietnam (2000), 3830 medicinal plant species are listed in Vietnam, belonging to 296 non-vascular and vascular plant families (Nguyen Tap, 2002)

Table 15. The number of medicinal plant species listed in Vietnam

Taxon	Number of medicinal plant species		Number of families
	# of species	Rate (%)	
Fungi	14	0.36	8
Lichenophyta	2	0.05	2
Psilophyta	1	0.03	1
Lycopodiophyta	3	0.08	1
Equisetophyta	3	0.08	1
Polypodiophyta	134	3.50	20
Pinophyta (Gymnospermae)	25	0.65	8
Magnoliophyta (Angiospermae)	3648	95.25	255

Among the 3830 listed species, 3600 grow in the wild and 106 species are threatened and listed in the Red Book of Vietnam, 1996 (see *Annex E*).
Some high-value medicinal plant species are introduced below.

3.1 Amomun spp.

There are 15 *Amomun* species identified in the country (Dinh Van Tu, 2001), of which three with high productivity species are commonly grown, namely *Amomun xanthoides, A. villosum,* and *A. longiligulare.*

All 15 species of *Amomun* belong to genus *Amomun* of the family *Zingiberaceac*. *Amomun* primarily grow naturally and propagates under forest canopies. It looks like galingale and is 1-3m tall. *Amomun* yields oval-shaped fruits and is cultivated in many Southeast Asian countries, including Laos. It flowers in spring and fruits in autumn, between July and August. Some newly planted *Amomun* are found in Dac Lac and Gia Lai provinces. Countries that grow *Amomun* well include China and Laos. In Vietnam, *Amomun* occurs in Lao Cai, Yen Bai, Cao Bang, Lang Son, Ha Giang, Tuyen Quang, Thai Nguyen, Bac Giang, Ninh Binh, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Nam, Nghia Binh, Phu Khanh, Gia Lai, Kon Tum, and Dac Lac. Previously, Vietnam exported around 400-500 tons. Vietnam's importers include Hong Kong, Japan, Singapore and unofficial trade with China. According to Nguyen Quoc Dung, the amount of *Amomun* domestically consumed and exported is about 1,500 tons. Export price of one ton costs US$ 800.

Amomun is used to produce pharmaceuticals and spices. Harvesting of *Amomun* does not impact on forest canopies. In recent years, *Amomun* breeding and cultivation have been studied by the Special Forest Product Center of the Forestry Science Institute of Vietnam

Further considerations for *Amomun* development

- *Amomun* growing zones should be planned and *Amomun* species should be selected appropriate to each region.
- Research should focus on regulation of sunlight to ensure adequate sunlight for flowering. Lessons can be learnt from Chinese experiences in growing *Amomun* along valleys and nearby forests in Xishuangbana (Yunnan Province) or Laotian experiences along forest ranges in Huaphan.
- *A. longiligulare,* occurring widely in Dac Lac, has high potential because it flowers and fruits annually. This species should be developed extensively.
- Some species, such as *Amomun, A. aromaticum,* and *Morinda officinalis,* were included in Annex IIA to restrict harvesting and exploitation, according to the Decree 18/HDBT of 17 January 1992 by the Council of Ministers. However, this decision is questionable because these species are commonly used in Vietnam. They should be exempted from AnnexIIA and relevant policies should be developed to promote their cultivation with high export value.

3.2 Ginseng Ngoc Linh

Ginseng Ngoc Linh (*Panax vietnamensis*) belongs to the family of *Araliaceae.* It is also called "*cung*" or "*cang*" ginseng by the Xe Dang ethnic group in Kom Tum Province. *P. vietnamensis* is

a narrow-range endemic species, occurring only in the Ngoc Linh mountainous area in Kon Tum and Quang Nam provinces of Vietnam. Ginseng Ngoc Linh is a herbal stem plant, growing at elevations of 1,500-1,800m where humidity is more than 80% and humus concentration is high. Ginseng Ngoc Linh has aerial and underground stems. It flowers in April and bears fruit from July to September. Its tuber (or underground stem) is harvested from September to October, after which its aerial stem dies.

Ginseng Ngoc Linh is a high quality medicinal herb that can be compared to Korean ginseng. It assists women recover after giving birth. According to Nguyen Minh Duc, there are 50 compounds extracted from ginseng Ngoc Linh, of which 14 are fat acids, 16 amino acids, and 18 microelements. Because of this, its market prices have increased rapidly and highly. In 1980, one kilogram of ginseng cost about VND 10,000-20,000, which reached 1,000,000 VND in 1998. Due to the increase in price, ginseng Ngoc Linh has been extensively harvested leading to scarcity and it is likely to be soon under threat of extinction. In response to this situation, a research station for ginseng Ngoc Linh was established at Tra Linh, Tra My District, Quang Nam Province by the Pharmaceutical Science Institute of Ho Chi Minh City, Vietnam's Ginseng Company, and Quang Nam-Da Nang Pharmaceutical Company. Initial research outcomes indicate that ginseng Ngoc Linh may be cultivated by its seeds and vegetative propagation.

Ginseng Ngoc Linh is a valuable medicinal plant and its cultivation and development are meaningful for genetic conservation, creation of a Vietnamese special item, and generating income for ethnic minority groups living around Ngoc Linh mountains. Government should give relevant supports to develop this NTFP species.

3.3 Morinda officinalis

Morinda officinalis, belonging to the family *Rubiaceae*, is a climber plant that occurs mainly in northern Vietnam, particularly in Hoanh Bo and Cam Pha districts (Quang Ninh Province). From 1980 to 1990, the Special Forest Products Sub-Institute established an experimental plantation of *M. officinalis* on a plot of four hectares in Ke Bao forestry farm (Quang Ninh Province). Annual production of *M. officinalis* accounted for 200 tons of fresh tubers during that period. However, production has dropped significantly. In 1997, it accounted for only ten tons of fresh tubers. The market price of fresh *M. officinalis* is about VND 20,000 per kg.

M. officinalis is easily grown by seed or stem. It can be grown as a monoculture or with other plant species. A plant of four years can yield 3-5 kg or more. It is now being extensively cultivated in home gardens in the northern provinces, such as Quang Ninh, Lang Son, and Phu Tho.

M. officinalis is used as a pharmaceutical for treating rheumatism and kidney diseases. It can be developed for domestic consumption and export to China and Hong Kong. Northeast Vietnam, especially such provinces as Quang Ninh, Bac Giang, Phu Tho and Tuyen Quang, are suitable areas for cultivating *M. officinalis*.

4 Extractive Products: Plant Oleoresins

4.1 Pine resin

Species of pine with harvestable resin include the two-needle pine (*Pinus merkusii*), the three-needle pine (*P. keisya*), and the horse-tail pine (*P. massoniana*).

Pine mainly occurs in three major regions in Vietnam, northeast (border provinces of Ha Giang, Cao Bang, Lang Son and Quang Ninh), north-central (Thanh Hoa, Nghe An, Quang Binh, Quang Tri and Thua Thien Hue), and south-central (Lam Dong and parts of Dac Lac and Kon Tum). In these regions, pine grows naturally and is cultivated. Research by the Center for Special Forest Products indicates that a considerable volume of pine resin can be collected prior to trimming if irritation techniques are properly applied. Each pine tree may yield 3-4 kg of resin per year, which accounts for around 0.3 ton of resin per hectare.

Two major products come from raw pine resin processing, rosin (70%) and turpentine (20%). Rosin is widely used in industrial sub-sectors, ranging from rubber processing to producing vehicle tires and tubes, paint, detergents, electric parts, medical instruments and paper. For example, manufacturing one ton of paper requires 10 kg of rosin.

As paper, rubber and detergent industries expand in Vietnam, demands for rosin will increase considerably. In the past several decades, Vietnam exported rosin mainly to Japan, India, Hong Kong, France, and Germany. The world's trade in rosin is quite large.

Vietnam has some pine resin processing factories with a capacity of 2000-5000 tons per year, such as Uong Bi (Quang Ninh Province) and Long Dai (Quang Binh Province). Some others have small sized capacity in Vinh, Lang Son, Ha Tinh, and Quang Tri provinces. In the past, annual production of resin accounted for around 3,500 tons, from which 2,500 tons of rosin and 500 tons of turpentine can be produced. Two thirds of the total processed resin production is exported. Market prices of rosin vary according to grade. The first grade may cost US$ 700 per ton, while the lowest grade costs only US$ 350 per ton. The average export price of one ton is US$ 420-450.

In an effort to improve the efficiency of pine forests, various research has been carried out to improve the quality of colophan and effectiveness of resin collection, as well as develop procedures for extracting resin from trimmed pine trees. Research outcomes have contributed to sectoral development and benefited growers. Transport is still a problem and, therefore, good processing equipment should be developed to facilitate on-site pine resin processing. Technological innovations should be strengthened to improve the quality of products derived from pine resin.

Further considerations for pine resin development

- Resin pines are multi-purpose and valuable species. Pine trees can grow in degraded and laterite soils and hills where other arborous trees cannot.

- Due attention should be given to pine lappet disease, which often happens in a 3-4 year cycle. Pine lappets eat the needles, reducing growth and resin productivity. A pine lappet disease prediction and control system should be established.

- Three-needle pine trees grow mainly in large forests and resin productivity is lower than that of resin pine species. However, it could be improved if innovative resin collection techniques and irritants are applied.

- Pine resin demand is linked to paper industrial development. Available statistics indicate that a production of one ton of paper requires ten kilograms of colophan (equivalent to 14.3 kg of pine resins). Vietnam forecasts production of two million tons of paper by

2010, which would require 20,000 tons of rosin or 28,300 tons of pine resins. The production of pine resins should be planned now, otherwise the paper industry will need to import from abroad.

- Resin extraction techniques should be innovated for *Pinus keisya* and *P. massoniana*. Current application of the "V" letter abstracting technique used for European pine species and the traditional rectangular hopper technique of Vietnam is very productive. Technological innovations should be made to improve the efficiency of rosin and turpentine processing with a view to increasing the value of pine resin products.

4.2 Eagle wood (Agar wood)

Eagle wood (*Aquilaria crassna*), or Agar wood, is a product of "*tram*" or "*gio*" (Vietnamese) trees and belongs to the family of *Thymeleaceae*.

During its 30-year growth period, resins accumulate in the wounds on the stem, base and roots of the *gio* tree and become Eagle wood. On mature plants, Eagle wood is found at their bases. Eagle wood is classified into 4 grades, depending on resin concentration. The highest grade is dark brown and referred to as "*ky nam*". The essential oil of Eagle wood has high economic value and good market.

Eagle wood is a special product of tropical forests and only occurs in some Asian countries, namely China, Laos, and Vietnam. *A. crassna* grows naturally in Central Vietnam, from Binh Thuan Province northwards. Previously, Eagle wood was mainly harvested by local people from natural forests. Due to its high economic value, collectors of Eagle wood harvested as much as possible despite hard work, dangers and time consumption.

Eagle wood is used as a medicine to treat illnesses such as cold and belly pains. Eagle wood is also used to prevent colds due to sudden changes in weather and draughts. Eagle wood is also used to produce incense sticks. It is widely used in Central Asia, the Middle East, some African countries and Japan. Particularly during national festivals, it is used to prevent cold by wearing Eagle wood-scented cloths or bringing it along when going out at night. Recent research has revealed that leaves of mature *gio* trees can be prepared as tea for drinks. The plant stem can yield a valuable wood to manufacture plywood or fibrous boards.

In the international market, prices of Eagle wood vary, depending on the part of the tree and grade. *Ky nam* costs US$ 7,000-10,000 per kg, while other grades cost as low as US$ 2,500-4,500 per kg. In the past several years, Vietnam's annual export accounted for 50 tons. Its production is unstable because Eagle wood is naturally harvested (see *Table 16*).

Table 16. Eagle wood production in the past years

Harvesting year	Amount (ton)
1986	78.5
1987	81.7
1988	45.4
1989	36.9
1990	20.0

Due to various reasons, *Eagle wood* has economic value. However, harvesting is not easy to manage or control. If no measures or policies on Eagle wood cultivation, protection and development are established, *A. crassna* is likely to be depleted. In an effort to protect and develop *A. crassna* plantations, a project on "*Gio* tree cultivation for harvesting Eagle wood" has been implemented by the Ministry of Forestry since 1982. The project's objectives focus on breeding, cultivation and experimental plantation in forest areas of Huong Ke (Ha Tinh Province) where *A. crassna* occurs naturally. Irritation techniques have also been applied on these plants with encouraging initial results. *Gio* plantations have yielded Eagle wood of grades 3 and 4.

The value of the *gio* tree have been demonstrated. Therefore, *A. crassna* planting can be integrated with various programs such as the *five million hectare reforestation program*, forest and forest land allocation and forestry farm development programs.

At present, Vietnam has cultivated around 3,000 ha of *A. crassna.* Quang Nam is the leading province for Eagle wood with growing areas of 800-1000 ha, followed by Kon Tum, Kien Giang and Ha Tinh provinces. Given the current rate of *A. crassna* planting and initial results gained from *A. crassna* generation trials, it is expected that Eagle wood will become a valuable NTFP of Vietnam in the next ten years.

4.3 Benzoin

In Vietnam, benzoin, or "white shellac", is a commonly know resin. It is also commonly known as lac, but its origin is quite different from the resin obtained from the shellac-insect. Benzoin extracted from the *Bo de* tree (*Styrax tonkinensis Pierre*). This tree species grows naturally in the northern mountainous provinces, namely Hoa Binh, Yen Bai, Tuyen Quang, Phu Ho, Bac Can, and Thai Nguyen. It is called "Nhan Phum" or " Nhan Tum" in local languages. *Bo de* is an arborous tree and its wood can be used to make match boxes and pulp. Resins can be tapped from mature trees with a diameter of more than 20 cm. Resin is tapped when the trees change their leaves. Resin tapping must be carried out on sunlit days at the end of June and early July, after to avoid rains that spoil its resins. Depending on the diameter of the tree, two or four tracks can be tapped vertically on the stem. Tapped tracks of 10 cm long are separated by a distance of 50-60 cm. After 7-10 days, the tree then yields resins. Benzoin is obtained through simple processing. From 1930 to 1944, benzoin was exported to France and its annual export accounted for 60 tons. Benzoin is used as flavour and medicine to treat respiratory disease, skin burning, skin cracks and as a balm.

Like red lac-insect production, white shellac has been a traditional career in Vietnam, but its production has been lost for a long time. At present, snowbell forests are grown extensively to supply raw materials for paper and match industries only. However, more income could be generated for local people and national export if its resins were extracted prior to timber harvesting. Some consumer countries have demands for white shellac, and therefore market research should be carried out before any decision is made to restore white shellac production in Vietnam.

5. Extractive products: Essential Oils

According to Vietnamese inventories, more than 500 species of essential oil plants occur in the country. They grow naturally and are also cultivated. In the past several years, Vietnam has produced and traded a number of essential oils in the world market.

5.1 Litsea cubeba essential oil

Litsea cubeba essential oil is distilled and abstracted from leaves and fruits of *L. cubeba Pers.*, belonging to genus *Lauraceae*. *Litsea cubeba* grows wildly and it began to be cultivated when its demand emerged in the market. *L. cubeba* occurs in most northern and central provinces, central highlands and northeast of the Mekong Delta. Its growing density is 1000 plants per hectare and fruits after 3-4 years. Its fruit peals are distilled to obtain *L. cubeba* essential oils with a rate of 2.5-5.5%. In addition to its essential oils, the seeds yield fat oil. The *L. cubeba* oil is primarily used for cosmetics, aromatic substances, detergents, and perfume. Vietnam has exported both *L. cubeba* seeds and essential oils. Vietnam's average annual export of *L. cubeba* essential oil is 5-10 tons.

5.2 White ocimum Essential Oil

White ocimum essential oil is obtained from herbaceous plants whose scientific name is *Ocimum gratissimum L*. It grows wildly and is also planted in tropical countries. White ocimum is distributed throughout the country. It occurs in Quang Ninh, Yen Bai, Phu Tho, Ha Giang, and Tuyen Quang. The essential oil of this species is used as a pharmaceutical to treat inflammation, infection, belly pain, cold, headache and as a balm.

Due to its lower quality compared to other essential oils, such as lilac, the world's trade in white ocimum essential oil is not larger than 50 tons, valued at US$ 800,000. Vietnam exported about 20-30 tons per year in the 1980s.

White ocimum is grown by seeds in spring. It grows well in nutrient-rich, moist and loosened soils. It flowers after four months and can be harvested after the next two months for distilling. Its fruits ripen after 8-9 months. Plants of two years-old flower year-round. In general, white ocimum is easily grown and will be more efficient if growing zones are planned.

5.3 Vetiveria Essential Oil

Vetiveria essential oil is distilled from leaves and roots of a herb called *Vetiveria zizanioides Nash*., belonging to the family of *Poaceae. Vetiveria* grows naturally nearby forests and along coastal zones from northern to southern Vietnam. It occurs in Quang Ninh, Yen Bai, Lang Son, Ha Giang, Thai Binh, Central provinces and the Central Highlands. In Tay Ninh Province, *Vetiveria* grows in an area of tens of hectares. This species also occurs in tropical countries such as India, Brazil and China.

Vetiveria essential oil is used in the cosmetic industry to produce perfume, shampoos, soaps, as well as in food processing and pharmaceutical industries. It is also used in manufacturing incense sticks. The world's consumption of *Vetiveria* essential oil accounts for 450 tons per year. On average, one kilogram of *Vetiveria* essential oil costs US$ 90-100. However, prices vary according to quality. Cultivating *Vetiveria* for domestic consumption and export demand is promising. It is easily cultivated in any type of soil and can be grown in sandy and silt soils. Result of growing *Vetiveria* in Thai Binh provincial coastal sandy soils proves that its average productivity can reach 1,500-2,000 kg of roots, equivalent to 18-20 kg of essential oil.

6. Extractive products: Fat oils

6.1 Tung Oil

There are two species of tung tree in Vietnam:

- *Vernicia fordii* (Hemsl.) Airy-Shaw species cannot be grown in areas where western hot winds prevail. It is planted at an altitude of 500m above sea level and therefore is grown in northern provinces. It fruits after 4-5 years and the fruiting rate is high.
- *Vernicia montana Lour*. can be grown in areas where western hot winds prevail. It fruits after 7-8 years and the fruiting rate is lower.

Tung tree growing regions have been established in the northeast, northwest, north-central and central coast regions. Tung tree is easily grown, forms canopies rapidly and, as such, is suitable for socio-economic development programs.

Tung tree yields seeds from which oil can be obtained. Its oil is used in industries that manufacture paint, polishing oil, varnish, canned products, printing ink, and batteries. Tung oil pressing technology is simple. Previously, tung oil pressers were imported for household production. According to research outcomes of the Forestry University, tung tree stem wood can be used to manufacture furniture. In the 1980s, the world market of tung oil was larger, but it has dropped due to the availability of substitute synthetic substances. However, due to its pre-eminence, it is still used in some items. The export price of *Vernicia montana* is about US$ 1,300-1,500 per ton and around US$ 2,000-2,500 for one ton of *Vernicia fordii*.

To develop tung products, tung tree growing and processing regions should be planned out and at the same time, its domestic market and export should be expanded.

6.2 Castor Oil

Castor oil is obtained from fruits of castor-oil plants (*Ricius communis L.*) and belongs to the family of *Euphorbiaceae*. Its life cycle is around 1-3 years, flowers in January and February, and fruits in June and July. In reality, castor-oil plant has a life cycle of six months.

In Vietnam, there are ten forms of castor-oil plants, of which three forms have value:

- Short, reddish *Ricinus* is around 0.6-1.9m tall, draught tolerant, with small red seeds and it produces around 400-500 kg/ha/seasonal crop.
- Tall reddish *Ricinus* is 1.2-2.0m, drought tolerant, with dark red seeds and it produces around 400-555 kg/ha/seasonal crop.
- "Tia Van" *Ricinus* is 2.0-3.0m tall, drought toleranct and can be grown on hills or nearby forests. It can live for many years and its productivity is around 800-1000 kg/ha/seasonal crop.

Castor oil obtained from its seeds is used widely in industry. Its oil concentration is about 45-48%. Castor oil is used as lubricant and pressing oils, applied to high velocity machines. Castor oil is also used for many other purposes, such as detergents, perfume, dyes, printing, artificial silk processing, metallurgy, rubber, artificial leather, plastics and pharmaceuticals. In cold industrialised countries, demands for castor oils are higher. Residues obtained from the pressing process can be used as animal feed and fertiliser for agriculture. Castor oil plants can be used as fuelwood and raw material for the paper industry.

Castor oil is a typical species in the tropics and can be grown throughout Vietnam. It can be grown in monoculture or intercropped with other species along riversides, silt soil beds, and in

new forest plantations. Therefore, castor oil plants can be integrated with other socio-economic development programs for particularly remote rural areas.
Previously, castor oil plants were harvested by local people in natural growth for example in Vinh Yen, Phu Tho province. Its average export price is around US$ 250 per ton. On average, each hectare of castor oil plants earns US$ 130-150 per seasonal crop. In previous years, NaFormimex exported large volumes of castor oil.

Primary processing of castor oil is not difficult and suitable for local rural industries. If the quality of its processing is improved, its market price could reach US$ 900 per ton. However, research on castor oil derivative production technologies has not received due attention and, as a result, mostly unprocessed castor oil products have been exported.

Previously, the former Ministry of Forestry planned to grow castor oil plants in an area of 2,500-2,600 ha with a target production of 700 valued at US$ 0.630 million per year. However, this program failed due to inadequate financing.

In summary, castor oil plant is an NTFP species with economic value and appropriate for integration with socio-economic development programs.

. Wild animal and wild animal product

7.1 Lac

Lac is a resinous secretion obtained from the nest of the insect *Laccifera lacca*, a parasite on host trees. Two red lac harvests correspond to two life cycles of the insect every year. The summer crop is from May to October and the winter crop is from October to April.

Lac is sold as three products, broodlac, seedlac and shellac. Historically, local people have used red lac resins as natural dyes and adhesive resin. Today, red lac resin is widely used in various modern industries, such as electric and electronic industry.

Before the August Revolution, Vietnam produced lac and operated a workshop of lac processing. Its production ceased during the wars. After peace was re-established, lac production was restored by mountainous peoples. Since 1960, lac development has been given due attention by the General Directorate of Forestry. Traditional lac cultivation has been restored in Song Ma and Mai Son (Son La Province), Mai Chau (Hoa Binh Province), Quan Hoa (Thanh Hoa Province) and Que Phong (Nghe An Province). In 1966, lac production in Vietnam was at a high, accounting for 310 tons per year. At that time, the Division of Special Forest Products under the Ministry of Forestry was in charge of local lac production. After 1966, red lac cultivation declined. However, lac products were collected by the Company of Special Forest Products to supply raw lac for a Lac Processing Workshop located in Ha Dong. *Table 17* presents volumes of lac collected by the Company from 1963 to 1980.

Table 17. Lac Volumes Collected by the Company of Special Forest Products, 1963-1980

Year	Volume (ton)
1963	52
1965	181
1966	310
1972	76

1973	200
1974	100
1975	78
1977	38
1979	87
1980	53

Source: Le Thi Phi, 1995.

Vietnam's lac was exported mainly to the former Soviet Union, China, Hong Kong and Japan.

Since 1980, many exporters of lac have emerged, particularly China. As a result, Vietnam's share in the world market has dropped. The 1990 export price of lac dropped from US$ 9 to $ 1 per kg. However, its price has increased since 1993 due to growing demands for lac imports from Japan, Singapore, and Hong Kong. The current market price is about VND 15,000-25,000 per kg.

Traditional lac production regions have become fewer due to the loss of its markets and unstable production. This has been because many of the host tree species, such as *Protium ser-ratum*, *Dalbergia hupeana*, *D. Balansae*, *Ficus racemosa*, *Pterocarya tonkinensis*, and *Ficus auriculata* were massively cut down for growing fruit tree species with high economic values.

At present, Muong Lat Forestry Farm and some local households in Ba Thuoc District (Thanh Hoa Province) still maintain red lac production. The Forestry Farm maintains 325.6 ha of host trees in two communes, Pu Nhi and Ten Tan.

Vietnam's production of lac is insignificant and mainly consumed in the domestic market. Ba Thuoc District (Thanh Hoa Province) is a key supplier of lac. Its annual production accounts for 15-20 tons (Nguyen Quoc Dung, 2000).

Table 18. Lac Productions in Recent Years

Year	1986	1987	1988	1995
Production (ton)	89	143	92	20

Further Considerations for lac development

Vietnam is endowed with favourable conditions to develop red lac production due to climate, abundant host trees and traditions of production. Its production reached 500 tons in some years during the French colonial times. The traditional career of red lac production still remains (e.g., Ba Thuoc, Thanh Hoa Province), although it has experienced ups and downs. This is a solid foundation on which to rehabilitate the traditional career of red lac production.

However, an assessment focusing on red lac production rehabilitation potential, host trees, breeds, and even local people's expectations should be carried out. Non-Timber Forest Products Research Centre should be authorized by the Ministry of Agriculture and Rural Development for this mandate. Market research should also be carried out on both domestic and foreign markets, particularly given the shares of the three major producers India (the largest producer), China (newly developed producer) and Laos (traditional red lac producer). A seminar to discuss directions of Vietnam's red lac production restoration would also be beneficial.

A great effort should be renewed to save a historically traditional NTFP production career of Vietnam.

7.2 Wild animals

Diversity of Wild animals

According to survey results and statistical data, there are 224 animal species, 828 bird species and 258 reptile species in Vietnam. (Pham Nhat, 2002) (see *Table 19*).

Table 19. Wild animal species in the Taxonomic groups

Groups	Family	Species
Insects	121	1,340
Fish		3,109
Amphibian	8	82
Reptiles	21	258
Birds	81	828
Mammal	39	224

However, these statistics likely underestimate actually numbers, based on the discovery of large animals in recent decades, such as *Bos sauveli* in Tay Nguyen in 1937, *Pseudoryx nghetinhensis* in 1991, *Megamunticus vuquangensis* in 1993, *Caninmunticacus truongsonenis* in 1995, *Viverra tainguyenensis* in 1996, and *Pygathrix nemaeus cinerea* in 1997.

Value of wild animals in Vietnam

a) Conservation value

Endemic animals are an invaluable gene source for Vietnam and the world. Animals in Vietnam have high endemic value compared to other countries in Indochina. Among 21 primate endemic species in Indochina, 15 are found in Vietnam. In addition, as much as 10.17% of endemic bird species and sub-species and three endemic bird areas are found in Vietnam.

Besides the high value of these endemic animals, the fauna in Vietnam encompasses many other species with high conservation value, such as elephant (*Elephas maximus*), rhinoceros (*Rhinoceros sondaicus*), kouprey (*Bos sauveli*), banteng (*Bos javanicus*), gaur (*Bos gaurus*), wild buffalo (*Babalus bubalis*), tiger (*Panthera tigris*), leopard (*Panthera pardus*), eld deer (*Cervus eldi*), douc langur (*Pygathryx nemaeus*), sarus crane (*Grus antigon*), giant ibis (*Pseudibis davisoni*), and siamese crocodile (*Crocodylus siamensis*).

b) Economic value

The economic values of wild animals in Vietnam are categorised in three main groups:

> *Wild animals providing meat*: In Vietnam, almost 300 animal species are hunted for live specimens, foods and other products. These traditional animals include (a) group of animals, e.g., sambar deer, muntjak wild pigs, wild goat (*Carpricornis sumatraensis*), frogs, monkeys, gibbon, porcupines (*Manis javanicas*), and squirrels (*Ratufa bicolour*); (b) group of birds, e.g., wild duck, wild goose, and pelican; (c) group of decorative bird species, e.g., common pheasant, crested argus, green peafowl and black-throated laughing thrush.

Wildlife providing pharmaceutical materials: Based on existing pharmaceutical publications and data on traditional medicine, there are 46 animal species, 5 bird species, and 11 reptile species that are known to provide pharmaceutical materials.

Wildlife providing skins and furs: In Vietnam, more than 30 animal species and 7 reptile and amphibious species have high economic value for skin and fur, such as *Panther tigris*, *Panthera pardus*, *Neofelis nebulosa*, *Beolua*, *Felis chaus guldenstaedt*, and *Lutra lutra*. Reptile and amphibious species are *Python molurus* and *Crocodylus siamensis.*.

Wildlife in Vietnam has a very high potential for export. More than 40 animal species, 55 bird species, and 32 reptile and amphibious species could be exported. In the early 1980s, Vietnam exported many primates, such as *macaca nemestrina* to the former Soviet Union and *macaca arctoides* and elephant to Cuba. In recent years, many bird, reptile and amphibious species have been exported, such as *timaliinae*, magpie robin, *c. bruguiera spp*, gecko, and frog.

Wild animal current status and management

30 years ago, wildlife was abundant in Vietnam. From 1980s until now, illegal hunting activities and deforestation have caused serious losses to forest wildlife. Two valuable species, *Decerorhinus sumatraensis* and *Tapicus indicus* have disappeared. According to Do Tuoc (1996) and Pham Nhat (2001), there exists only 6-8 Rhinoceros *sundaicus annamaticus*, less than 100 elephants, less than 100 tigers, 150-170 *moschus* deers, 450 gibbons, 200-250 delacour langur, and less than 100 yellowhead langur.

In recent years, illegal trade of living wildlife has increased dramatically in both number of species and sophistication of trading methods. The opening of borders in the north has led to illegal exploitation and trading of hundreds of species across the border. A small part of this illegal trade has been captured, showing a great number of traded animals. In 1995, 12,650 heads of forest animals were captured by Song Be provincial authorities. In the same year, Hanoi authorities captured 1,892 heads of wildlife, 8,078 heads within ten months of 1996, and 4,044 heads in 1997. During the first six months of 1999, forest protection forces in different provinces captured 325 cases of illegal transportation and trading of endangered wildlife species. In November 2001, authorities of Quang Ninh Province captured more than 13 tons of illegally traded wildlife.

These illegal hunting activities coupled with losses of natural forest have placed many species on the brink of extinction. The Vietnam Red Book (1992), listed 375 threatened animal species, including 68 endangered species, 97 vulnerable species, 124 rare species, 71 threatened species and six insufficient data species.

Many legal documents for protection of wildlife were issued during late 1950s. The "temporary regulation on forest animal hunting" No. 39/CP by the Government Council dated 5 April 1963 specified the species prohibited to hunt and those with restrictions. The regulation also determined the hunting equipment that could be used in hunting activities. In the following years, the Government promulgated many other legal documents for protection of forest animals and management of animal resources. They are the decree on forest protection (1972), the decision on determination of ten prohibited forests (1977), and the decision on the determination of a system of special-used forests (1986). In 1994, Vietnam has become the signatory of CITES.

Current wildlife status and practices in recent years demonstrated that the implementation and compliance of laws and policies have not been carried out strictly. The illegal trade has not been settled satisfactorily and in a timely fashion. In particular, inadequate or reduced levels of punishments have created disregards for laws and regulations in addition to many other factors (e.g., increasing purchasing power of wildlife consumers and collusion of officials.).

Potentials of raising and taming wildlife

Since prehistory, people have domesticated wildlife. There have been public and private owned establishments of raising wildlife in Vietnam. Some of these establishments are Dao Reu in Quang Ninh Province that successfully raised *macaca mullata* in ex-situ conditions; Cuc Phoung and Cat Ba national parks; Hieu Liem afforestation yard (Dong Nai Province); Huong Son deer raising establishment in Ha Tinh Province that raised spotted deer (*Cervus Nippon*)*;* snake farms in the Mekong Delta that raised python, snake, and crocodile; and some zoos that raised many types of birds. Some families in the central highlands have successfully raised peacock and deer. The bear raising movement has also been developed throughout the country. Notably, python and frog raising movements have developed rapidly in the Mekong Delta. To date, there are about one million heads of python and millions of heads of frog in this region. In Long Xuyen Province, the frog raising movement has developed very strongly. There are about 20-30 frog ponds per village and each pond could provide 3-4 tons of frog for meat. According to Tran Quoc Bao, Vietnam has exported up to about 500-600 tons of frog thigh per year, though 5 kg of frog provides only 1 kg frog thigh. Taking into account an export price of US $2.80-3.10/kg of frog thighs, Vietnam could generate about 1.6-1.8 million USD per year from this export.

Currently, wildlife raising has been developing and has become a new business attracting the involvement of various classes of citizens. The raising activities of endangered species must be prohibited, namely (a) *cervus porcinus zimmermann*, *moschus caobangis dao*, *helartctos malaynus, pavo muticus imperator*, *rheinartia ocellata ocellata*, fresh water crocodiles, naja naja, and *manacas*, as specified in Annex 1 of the decree on prohibited exploitation species No.18/HDBT; and (b) monkeys, *selenarctos thibetanus*, *ratufa bicolor*, *indotestudo elongata*, as specified in Annex 2 of the decree on limited exploitation species. However, there should be open and wide discussions between scientists and decision-makers to examine all aspects of raising other wildlife in order to discover whether wildlife raising activities should continue and develop further. Raising and taming activities not only bring about socio-economics benefits, but also can be used to rescue many wildlife species from danger of distinction.

In Vietnam, besides traditional species, species such as *Lepus sinensis*, *Sus scrofa*, *porcupie*, Gekko gekko, *Varanus salvato* could also be raised. Many of these species could be raised by locked cages or semi-natural breeding.

Further consideration for wild animal development

- Wildlife raising and taming activities have been undertaken throughout the country, but these activities have been managed and they are required to register with clear records of domestication -+if we want to export them.
- Vietnam is a signatory of CITES; therefore, only species not listed in Annex I of the Convention are permitted for import or export. Restrictions are imposed on trading, imports, and exports of species listed in Annex II of the Convention. The species listed in the Annex II could not be legally transported or traded in the international market until after certification and approval by CITES national authorities that they have been domesticated.

- There is an urgent need to assess the scientific aspect and appropriateness of wildlife raising activities.
- In addition, there is a need to have policies to define what plant and animal species should be allowed for domestication and trade.

Conclusion

NTFPs are among the important resources in Vietnamese forests. Beside their high economic value, NTFPs have special social values and play an important role in the protection of the environment, particularly in mountainous provinces. Wise management and sustainable development of NTFPs would create jobs and generate high income (millions of VND) to local people living in remote and mountainous areas. In addition, the development of an NTFP processing industry would improve socio-economics condition for these communities. In turn, once incomes improve in these communities, their life will depend less on exploitation of forest products and thus assisting activities in protection of the environment, natural resources and biodiversity.

The development of NTFPs is faced with many difficulties due to heavy deforestation. In recent years, a small increase of forest coverage and forest area has been seen, but forest quality has been reduced. The primitive forests have been replaced by secondary forests; broadleaf forests have been replaced by bamboo and rattan forest; rich reserve forests have become poor forests; multiple-level shades forests with high biodiversity and rich in NTFPs have become forests with single tree species and few NTFPs. In addition, market instability, reduction of prices, and the lack of investment incentives by government have also created obstacles.

Certain improvements have been observed, in the renovation process ("*Doi Moi*") and there are many more economics opportunities. NTFPs are no longer solely traded by state forest enterprises or public companies. Lands have been allocated to households in mountainous areas and they are allowed to select suitable NTFP species for cultivation in forest plantations. In addition, many other government policies, such as low interest rates, agriculture extension services and reforestation programs, especially the *five million hectare reforestation programme* have created favourable conditions for the development of NTFPs. Building on and responding to these developments will further enhance NTFP prospects.

It is certain that strong development of NTFPs will be seen in the near future. This will contribute greatly to socio-economic development and improve living standards in remote and mountainous areas. At the same time, it will help in the conservation of natural resources and biodiversity in Vietnam.

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ANNEXES

Annex A List of bamboo and rattan processing factories in Vietnam

Bamboo processing factories

TT	Name of factories	Capacity
1	Song Bang bamboo factory – Cao Bang	1tr. unit/year
2	Cao Bang town bamboo factory	0.5tr. unit/year
3	Cho Don bamboo processing factory – Bac Can	3,000 tons/year
4	Truc Vau bamboo processing factory	1 tr unit/year 5,000 tons/year
5	Hat Lot bamboo processing factory – Son La Province	10,000 tons/ year
6	Quyet Thang factory – Son La	50,000t.unit/year
7	Muong La buong bamboo processing factory – Son La	3,000 tons/year
8	Nguyen Trai forest bamboo processing factory – Ha Giang	10,000 tons/year 500 tons of resin and essential
9	Rang town buong bamboo processing factory – Lao Cai	5,000 tons/year
10	Yen Son buong bamboo processing factory – Yen Bai	4,000 tons/year
11	Luc Yen bamboo processing factory – Yen Bai	2,000 tons/year
12	Thac Ba bamboo processing factory – Yen Bai	1,000 tons/year
13	Nguyen Phuc bamboo processing factory – Yen Bai	4,000 tons/year
14	Bai Bang paper mill – Phu Tho	100,000 tons/year
15	Hai Phong paper mill	10,000 tons/year
16	Ngoc Lan bamboo processing factory – Ha Nam	250 tons/year
17	Thanh Loi Co., Ltd. – Ha Tay	100 tons/year
18	Hai Ha Co., Ltd. – Ho Chi Minh city	150 unit/year
19	Ving Hue paper company – Ho Chi Minh city	10,000 tons/year
20	Sai Gon imports, exports and trading company – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng / year
21	Thanh Tin trading company - Ho Chi Minh city	10,000 tons of B. balcooa Roxb., Hort. Beng / year
22	Phu Nhuan forest products processing company - Ho Chi Minh city	7,000 tons of B. balcooa Roxb., Hort. Beng / year
23	Go Vap forest products processing company – Ho Chi Minh city	1,000 tons of B. balcooa Roxb., Hort. Beng / year
24	Dien Bien bamboo processing company – Thanh Hoa	1,000 tons/year
25	Muc Son bamboo processing enterprise – Thanh Hoa	15,000 tons/year
26	Lam Son bamboo processing enterprise – Thanh	1,000 tons/year

	Hoa	
27	Thanh Son bamboo processing enterprise – Thanh Hoa	15,000 tons/year
28	Tay Do splinter processing company – Thanh Hoa	5,000 tons/year
29	Trieu Son bamboo processing company – Thanh Hoa	6,000 tons/year
30	Van Nam bamboo processing company – Thanh Hoa	10,000 tons/year
31	Tho Xuan bamboo processing enterprise – Thanh Hoa	16,000 tons/year
32	Kon Tum general trading company	1,000 tons/year
33	Long Sa afforestation yard – Kon Tum	1,000 tons/year
34	Mo Ray afforestation yard – Kon Tum	900 tons of B. balcooa Roxb., Hort. Beng / year
35	Mang Den afforestation yard – Kon Tum	1,000 tons of B. balcooa Roxb., Hort. Beng / year
36	Hong Khe enterprise – Kon Tum	1,000 tons of B. balcooa Roxb., Hort. Beng / year
37	Lam Thanh enterprise – Kon Tum	500 tons of B. balcooa Roxb., Hort. Beng / year
38	Chu Phong Trading company	750 tons of B. balcooa Roxb., Hort. Beng / year
39	Hoa Binh workshop – Gia Lai	500 tons of B. balcooa Roxb., Hort. Beng / year
40	Hung Phu workshop – Gia Lai	600 tons of B. balcooa Roxb., Hort. Beng / year
41	Quang Tan afforestation yard – Dac Lac	2,000 tons of B. balcooa Roxb., Hort. Beng. / year
42	Nam Nung afforestation yard – Dac Lac	1,500 tons of B. balcooa Roxb., Hort. Beng. / year
43	Chu Ma Lanh afforestation yard – Dac Lac	2,000 tons of B. balcooa Roxb., Hort. Beng. / year
44	Dao Nghia afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
45	Duc Lap afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
46	Hong An afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
47	Krong Ana afforestation yard – Dac Lac	2,000 tons of B. balcooa Roxb., Hort. Beng. / year
48	Quang Duc afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
49	Dac Ha afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
50	Quang Tin afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
51	Dac Nia afforestation yard – Dac Lac	1,500 tons of B. balcooa Roxb.,

		Hort. Beng. / year
52	Thanh Nien afforestation yard – Dac Lac	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
53	Binh Hung Co., Ltd. – Dac Lac	500 tons of B. balcooa Roxb., Hort. Beng. / year
54	Gia Nghia forest products exploitation company – Dac Lac	5,000 tons of B. balcooa Roxb., Hort. Beng. / year
55	Lam Dong forestry product processing company # II	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
56	Lam Dong paper mill	10,000 tons of B. balcooa Roxb., Hort. Beng. / year
57	Thanh Loi Co., Ltd. – Lam Dong	5,000 tons of B. balcooa Roxb., Hort. Beng. / year
58	Tuong Huu private owned enterprise – Lam Dong	4,000 tons of B. balcooa Roxb., Hort. Beng. / year
59	Nhat Sinh private owned enterprise – Lam Dong	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
60	Phu Nhuan Co., Ltd. – Lam Dong	1,500 tons of B. balcooa Roxb., Hort. Beng. / year
61	Da Lat forestry product exploitation and processing – Lam Dong	2,500 tons of B. balcooa Roxb., Hort. Beng. / year
62	Bien Hoa export product processing – Dong Nai	4,000 tons of B. balcooa Roxb., Hort. Beng. / year
63	Vinh An afforestation yard – Dong Nai	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
64	Thuong Cat Duc Co., Ltd. – Dong Nai	1,000 tons of B. balcooa Roxb., Hort. Beng. / year
65	Dong Nai share holders company	5,000 tons of B. balcooa Roxb., Hort. Beng. / year
66	Quoc Binh private owned company – Dong Nai	500 tons of B. balcooa Roxb., Hort. Beng. / year
67	Dong Nai paper enterprise	17,000 tons of B. balcooa Roxb., Hort. Beng. / year
68	Tan Mai paper enterprise – Dong Nai	20,000 tons of B. balcooa Roxb., Hort. Beng. / year
69	Thu Dau Mat import export company – Binh Duong	2,000 tons of B. balcooa Roxb., Hort. Beng. / year
70	Thuan An import export and processing company – Binh Duong	7,000 tons of B. balcooa Roxb., Hort. Beng. / year
71	Scansia Viet Co., Ltd., Thuan An – Binh Duong	4,500 tons of B. balcooa Roxb., Hort. Beng. / year
72	Vinaprimat Co., Ltd., Thuan An – Binh Duong	4,500 tons of B. balcooa Roxb., Hort. Beng. / year
73	Lai Hung forest product private owned enterprise – Binh Duong	2,000 tons of B. balcooa Roxb., Hort. Beng. / year
74	Hung Phu incense stick processing workshop – Binh Duong	800 tons of B. balcooa Roxb., Hort. Beng. / year
75	Huu Trach bamboo private owned enterprise –	350t maây tre/naêm

	Binh Duong	
76	Dong Hoa Co., Ltd. – Binh Duong	5,000 tons of B. balcooa Roxb., Hort. Beng. / year
77	Chau Thoi Co., Ltd. – Binh Duong	4,000 tons of B. balcooa Roxb., Hort. Beng. / year
78	Thanh Tin Co., Ltd. – Binh Duong	2,000 tons of B. balcooa Roxb., Hort. Beng. / year
79	Tam Thanh bamboo processing factory – Lang Son	4,000 tons/ year
80	Dap Cau – bamboo processing enterprise – Bac Ninh	3,000 tons/year
81	Quan Trieu – Thai Nguyen bamboo processing enterprise	8,000 tons/ year
82	Vinh Hue paper mill – Ho Chi Minh city	60,000 tons/year
83	Sai gon – Dac Lac export company	1,000 tons/year
84	Thanh Tin trading company – Ho Cgi Minh city	10,000 tons of B. balcooa Roxb., Hort. Beng. / year
85	Phu Nhuan forest product processing company – Ho Chi Minh city	3,000 tons of B. balcooa Roxb., Hort. Beng. / year
86	Ho Chi Minh city export enterprise	7,000 tons of B. balcooa Roxb., Hort. Beng. / year
87	Truong Son – Kon Tum forestry company	1,000t tons of B. balcooa Roxb., Hort. Beng. /year; and 500 tons of rattan
88	Go Vap infrastructure construction – Ho Chi Minh city	100 unit of B. balcooa Roxb., Hort. Beng. / year

Rattan processing factories

No.	Name	Capacity (tons/year)
1	Binh Dinh Processing and export investment Corporation	750
2	Phu Cuong enterprise – Dong Nai provice	200
3	Binh Ding import export company	800
4	Song Hinh trading company – Phu Yen Province	700
5	Phu Yen handicraft inport export company	1,000
6	Nha Trang equipment supplying and trading compnay Khanh Hoa Province	2,500
7	Hiep Luc enterprise	150
8	Pho Moi processing factory – Lao Cai Province	100
9	Yen bai Rattan processing company province	400
10	Khanh Hoa fishery product processing workshop	3,000
11	Truong Phat Co., Ltd. – Khanh Hoa Province	100
12	Nha Trang VNC Co., Ltd. – Khanh Hao provine	260
13	Nha Trang Rattan product manufacturing workshop – Khanh Hoa Province	1,200
14	Nha Trang Rattan processing workshop – Khanh Hoa Province	1,700
15	Kon Tum import export and investement company	700
16	Tan Chanh Hiep agriculture and forest product processing for export company – Ho Chi Minh city	200
17	Tan Binh export company – Ho Chi Minh city	100
18	Hai Ba Trung agriculture and forest product processing for export company – Ho Chi Minh city	400
19	Hiep Luc forest procuct processing private owned Co., Ltd. – Ho Chi Minh city	150
20	Phan Van Tri agricuture, forestry and fosher products processing company – Ho Chi Minh city	450
21	Huy Hoa Rattan Co., Ltd. – Binh Duong Province	100
22	27/7 DN processing workshp – Lam Dong Province	100
23	Lam Son private owned enterprise – Lam Dong Province	300
24	Dong Nai Rattan Co., Ltd.	500
25	Viet Dai private owned enterprise	4,000
26	Vinh forest product processing and trading company – Nghe An Province	200
27	Ha Tinh forest product import export company	200

28	Ha Tinh forest product processing and trading company	150
29	Quang Binh import export company	2,000
30	Long Dai industry company – Quang Binh Province	2,000
31	Da Nang processing and import export company	600
32	Vietnam SMT import export company – Hanoi city	500
33	Thai Binh import export company	200
34	Truong Son forest products company – Kon Tum	500
35	Huu Manh TDMT workshop – Binh Duong Province	350
36	Thanh nam agriculture, forestry and fishery proceessing workshop -–Quang Ngai Province	300

Annex B List of the main policies related to forestry (from 1990 up to date)

No.	Title	By	Date of Issue	Focus points
1.	Law of forest protection and development	National Assembly	12/8/91	This law indicates: The State manages forest and forest land and allocates to organisations and individuals for protection, development and sustainable utilisation All the forest areas are divided into three types: special-use, protection, production; regulations on state management of forest and forest land and on forest protection, development and utilisation of three types of forest; rules of forest protection, etc.
2.	Decree 17/HDBT on Implementation of the law on forest protection and development	Council of Prime Minister	17/1/92	This Decree guides the implementation of the forest protection and development (1991)
3.	Decree 18/HDBT on the List of rare forest plants and animals and management and protection			Regulate list of rare forest botany and animals and protection and management mechanism; The State facilitate, support and ensure interest of org., individuals in protection and development of rare forest botany and life; No resources tax use of rare botany and wide life which is self-raised by forest owner
4.	Decree 120/HDBT on policy, orientation and solution for employment in the next years			This decree implies policy, orientation and solution for employment in the next years
5.	Circular 13/LN guiding implementation of the Decree 18/HDBT	Forestry Ministry	12/10/92	This circular guides implementation of Decree 18/HDBT dated 17/1/92
6.	Decision 327/CT on some policies of use of barren hills, forest, coastal land, water surface	Prime Minister	15/9/92	The provinces that have barren hills should have projects built and land used. Make HH to be a business unit, land contract to HH, state enterprise to be back stopping Set up projects of settlement Funding policy: 60% of total fund for infrastructure 40% left for lending to HH without interest
7.	Decision 200-QD/KT on silviculture solutions for timber and bamboo producing forests (QPN 14-92)	Ministry of Forestry	31/3/93	This Decision referring silviculture procedures for timber and bamboo producing forests
8.	Circular 07/ LDTBXH on allowance for HHs migrating to the new economic zone due to Decision 327/CT dated 15/9/92	Ministry of Labour, Social Invalids	12/5/93	This Circular guides implementation of allowance for HHs migrating to the new economic zone due to Decision 327/CT dated 15/9/92
9.	Instruction 130/TTg on management and protection of rare plants and wide life			Emphasis protection of rare plants and wide life is very important in natural protection. This instruction stipulates some issues related to management and protection of rare plants and wide life
10.	Decree 39/CP on organisation, duties and rights of FPD			This document determines organisation, duties and rights of FPD
11.	Decree 87/CP on price frame of land types			Determines price frame of agri, forestry, rural inhabitant, suburb inhabitant lands, central and maim roads, industrial zones
12.	Decree 22/CP o regulations on forest fire protection and extinguish			This decree stipulates regulations on forest fire protection and extinguish; their expenses and others.
13.	Decision 252/TTg on Bank for the poor			The Government allows to set up the Bank for the poor provide the poor with the credit to develop production and livelihood, reducing poverty
14.	Decision 556/TTg on adjustment for Decision 327/CT dated 15/8/92 by prime Minister			This adjusts the objectives of the Program 327, stipulating since 1996 onwards, Program 327 is a national program on aforestration and protection of protection and SU forests, their scale, structure and policy.
15.	Interministerial Circular 74/TT			Guide the details of use, management and payment for

	on use, management and payment for land allocation for organisations. HHs, individuals for long term sustainable forest purposes			land allocation for organisations, HHs, individuals for long term sustainable forest purposes
16.	Interministerial Circular 06/TT on planning, distributing, management and payment for forest fire protection			
17.	Decree 07/CP on mgmt of crop seeds			This stipulates that the State manages crop seeds, mean while to encourage and sponsor the legal rights of national and international organisations and individuals which is doing research, selection, import, production and enterprise of crop seeds in Vietnam
18.	Instruction 359/TTg on intensive measures on protection and development of wide life			This emphases incentive measures to protect and develop wide life
19.	Decree 77/CP on administrative fine in forest and natural resources mgmt, protection			This Decree determines violated acts, forms and levels of administrative fine; authority and procedures of administrative fine in forest and NTFP mgmt and protection
20.	Circular 02/TT on implementation of Decree 07/CP dated 05/02/96 by the Government re. Crop seeds mgmt	MARD		Detailed guides implementation of Decree 07/CP dated 05/02/96 by the Government re. Crop seeds mgmt
21.	Instructions 286/TTg on strengthening of urgent measure for forest protection and development			Prime Minister instructs urgent measures strengthening forest protection and development in various sectors and levels
22.	Instruction 287/TTG to look for and track down and look for organisations and individuals who damages forest			Prime Minister instructs sectors and levels to look for and track down and look for organisations and individuals who damages forest
23.	Circular 09/TT-NN-KL to change and adjust some regulations of the Circular 01/NN-KL-TT dated 18/2/97 on guidelines of Decree 77/CP dated 29/11/96 on fine of administrative violence in forest and NTFP management and protection			Circular 09/TT-NN-KL to change and adjust some regulations of the Circular 01/NN-KL-TT dated 18/2/97 on guidelines of Decree 77/CP dated 29/11/96 on fine of administrative violence in forest and NTFP management
24.	Decree 04/CP on fine of admin. Violence in land mgmt and use			This Decree stipulates acts of admin. Violence, land use, forms and levels of fine, authority, procedures, principles, measure
25.	Circular 278/TT- DC guiding implementation of 04/CP on fine of admin. violence in land use and mgmt			
26.	Decision 661/TTg on objectives, duties, policies and organisation of 5MH program			Decision 661/TTg on objectives, duties, policies and organisation of 5MH program
27.	Decision 135/TTg on approval of socio- economic development programs in particularly difficult communes	Prime Minister	31/7/98	This decision refers socio economic development programs in particularly difficult mountainous and remote communes
28.	Circular 12/TT on policies for communal contracted forest protectors in dry season			This circular guides policies for communal contracted forest protectors in dry season
29.	Decision 175/BNN on regulations on forest domestication and regeneration (QPN 21-98)			
30.	Decision 245/TTg on State			Decision 245/TTg on State mgmt of forest and forestry

	mgmt of forest and forestry land at all levels			land at all levels
31.	Circular 28/TT guiding implementation. of Decision 661/TTg dated 29/7/98 on objectives, duties, policies and organisations of 5MH project			Guiding implementation. of Decision 661/TTg dated 29/7/98 on objectives, duties, policies and organisations of 5MH project
32.	Inter Circular 102/TTLT guiding setting up, mgmt and use of fund protecting forest damage, illegal production, enterprise, transport of forest products			Guiding setting up, mgmt and use of fund protecting forest damage, illegal production, enterprise, transport of forest products
33.	Decree 187/TTg on organisation and mgmt renovation of state owned forest enterprise			Stipulates reorganisation of SFEs, incl. forest and forest land mgmt and use; labour and finance policies
34.	Decision 162/BNN on temporary acceptance of contract for forest protection, regeneration, plantation and tending			Regulates acceptance of contract for forest protection, regeneration, plantation and tending
35.	Decree 09/NQ on some policies on economy transit and consumption of agri. products			Decree 09/NQ on some policies on economy transit and consumption of agri. products
36.	Circular 109/TTLT guiding implementation of Decision 187/TTg dated 16/9/99 on organisation and mgmt renovation of state owned forest enterprise			guiding implementation of Decision 187/TTg dated 16/9/99n on organisation and mgmt renovation of state owned forest enterprise
37.	Decision 132/TTg on some policies enhancing rural sectors			
38.	Decision 08/TTg on mgmt policies for SUF, protection, production and natural forests			Stipulates organisation, mgmt, protection, establishment and use of SUF, protection, production and natural forests
Land policy				
39.	Land Law			This law regulates that land is people's property and consensually managed by the State : The State allocates land to organisations, HH, individuals for long term utilisation. The law also classifies land based on use purposes, state land management, use policies, rights and duties of land users.
40.	Decree 64/CP on allocation of agri. land for organisations. HHs, individuals for long term sustainable use for forestry purpose			Stipulate allocation of agri. land for organisations. HHs, individuals for long term sustainable use for forestry purpose of each type of forest, incl criteria of allocation, target people, duration, rights and duties.
41.	Decision 202/TTg on contract for forest protection and regeneration and plantation			Stipulates State organisations which has been allocated by the Government with forest and forestry land have rights to arrange a contract for forest protection, regeneration, plantation for HHs and organisations. The document also stipulate the content and responsibilities of
42.	Decree 02/CP promulgating the regulation on allocation of forest land to organisations, households and individuals for long-term and sustainable use for forestry purpose.	Government	15/1/94	It regulates that the State allocates forest land to organisations, households and individuals according to the purpose of each forest type: protection, production and special-use forests. The document also regulates clearly the basis for land allocation, target groups for allocation of forest land and duration for allocation. It also regulates rights and responsibilities of land allocates.
43.	Decision No 202/TTg promulgating the regulation on forest protection contracting, natural regeneration of forest and forest establishment	Prime Minister	2/5/94	Regulating that State organisations allocated with forests and forest land have the right to sign forest protection contracts, natural generation of forests, and establishing new forests for other households and organisations. This document also stipulates the contents for contracting,

				responsibilities of the contracts and contractors
44.	Decree No. 01/CP promulgating the regulation for land allocation and contracting used for agricultural, forestry and aquaculture Production in State enterprises.	Government	1/1/95	Regulating that the State enterprises allocated with agricultural, forestry production and aquaculture are permitted to allocate and contract land with organisations, households, individuals; stipulating the priority orders for target groups receiving land contracts; allocating agricultural land for growing perennial and annual plants; allocating forest land; rights and obligations of both contracting sides.
45.	Directive No.10/CT on pushing and completing the allocation work, issuance of agricultural land use right certificates	Prime Minister	20/02/98	Prime Minister requires local administrations at all levels and sectors pushing and completing the allocation work, issuing of agricultural land use right certificates by end of 1999
46.	Amendment and addition of some articles of Land Law	National Assembly	02/12/98	The amended and added Law of some articles of the Land Law of 1993. It regulates that the State allocates land to organisations, households and individuals for long term and sustainable use in the form that land is allocated without collecting money for land use and allocating land with collecting money for land use. The State also let organisations, households and individuals rent the land. This document also stipulates rights for organisations, households and individuals to whom the State allocates the land and lease the land.
47.	Decree 17/CP on procedures for changing, transferring, leasing, on leasing, inheriting and sharing capital with the value of land use right	Government	29/3/99	Stipulating on procedures for changing, transferring, leasing, on leasing, inheriting and sharing capital with the value of land use rights of organisations, households and individuals in the country.
48.	Decree No 85/CP regarding amendment, addition of some articles of the regulation on allocation of agricultural land to households, individuals for long term and sustainable use for the purpose of agricultural production and added allocation of land for salt production for households and individuals for long term and sustainable use.	Government	29/8/99	This document amended and added some articles on allocation of agricultural land to households, individuals for long term and sustainable use for the purpose of agricultural production and added allocation of land for salt production for households and individuals for long term and sustainable use.
49.	Inter-Ministerial Circular No 1417/TT-TCDC guiding the implementation of the Decree No. 17/CP on 29/3/99 of the Government on procedures for changing, transferring, leasing, on leasing, inheriting land use rights and mortgaging, contributing capital with land use right value.	General Department of Land Management	18/9/99	The document guides the implementation of the Decree No. 17/CP on 29/3/99 of the Government on procedures for changing, transferring, leasing, on leasing, inheriting land use rights and mortgaging, contributing capital with land use right value.
50.	Decree 163/CP on allocation and leasing forest land to organisations, households and individuals for long-term and sustainable use	Government	16/11/99	Stipulating that the State allocates and leases forest land to organisations, households and individuals for long-term and sustainable use under the form of land allocation without collecting land use tax and leasing forest land
51.	Inter-Ministerial Circular NO 62/TTLT guiding allocation of land, leasing the land and issuance of forest land allocation use right certificates	Ministry of Agriculture and Rural Development, General Department of Land Management	06/6/00	This document guides the land allocation of the land, leasing the land and issuance of forest land allocation use right certificates according to the Decree 163/CP on 16/11/99 of the Government on allocation and leasing of forest land to organisations, households and individuals for long term and sustainable use for forestry purpose.
Investment policy				
52.	Decision No. 264/CM of the Council of Ministers on policy encouraging investment for	Chairman of the Council of Ministers	22/7/92	It stipulates that the forest owners are allowed to borrow investment credit for the first production cycle with preferential rate at 30%-50% of normal interest rate for

	forest development			growing tree species for supplying raw materials with a production cycle of less than 20 years. It also stipulates clearly that the State invests from State budget capital resources for protection and development of some forest types.
53.	Decree No. 14/CP of the Government promulgating the regulation on policy for production households to borrow capital for development of agro-forestry-fisheries-salt production and rural economy.	Council of Ministers	2/3/93	Provide direct loans to households for production; Stipulates clearly the scope and conditions for borrowing capital; capital resources; forms and lending interest rate.
54.	Decision No 74 of the Governor of the State Bank of Vietnam on establishment of the fund for lending to the poor lacking of capital for production with preferential rate from Bank for Agriculture	Governor of the State Bank	17/3/95	Decision for establishment and assigning to the Director General of the Bank for Agriculture to manage the Fund for lending to the poor households who are lacking of production capital. Lending interest rate for the poor households is 14.4% (i.e. 1.2%/month).
55.	Circular No. 17/TT guiding to add to the policy for lending to small projects for generating jobs according to the Resolution No.120/HDBT on 11/4/92.	Ministry of Finance, State Planning Committee	9/9/92	Guiding to add to the policy for lending to small projects for generating jobs according to the Resolution No.120/HDBT on 1/4/92.
56.	Circular No 06/TT guiding for addition to the policy for lending to small projects for job generating according to Resolution No.120/HDBT on 11/4/92 of the Council of Ministers	State Planning Committee, Ministry of Labour , War Invalids and Social Affairs	12/5/93	Guiding for addition to the policy for lending to small projects for job generating according to Resolution No.120/HDBT on 11/4/92 of the Council of Ministers
57.	Directive No.02 of the Governor of the State Bank on implementing the policy for providing preferential loans to poor households in rural areas.	Governor of the State Bank	18/3/95	Fund from the Bank for providing preferential loans to the poor households lacking of production capital, this fund can be used to lend direct capital to poor households in rural areas. Lending interest rate is 14.4%/year (1.2%/month) and stable for 3 years from 4/95 to 4/98. Loan duration is appropriate with production cycle, but maximum not exceeding 36 months. Maximum loan is not exceeding 2.5 million VND/1 households and no need to mortgage property.
58.	Decree No. 29/CP of the Government regulating in details the implementation of Domestic Investment Incentive Law (22/6/94)	Council of Ministers	12/5/95	Stipulating clearly target groups for domestic investment incentive Law Stipulating investment projects to be considered for preferential taxes (list attached). Stipulating on enjoying preferential taxes.
59.	Domestic Investment Incentive Law (amended)	National Assembly	20/5/98	Stipulating clearly target groups for applying this Law Ensuring and supporting investment Stipulating investment preferential system
60.	Decree No 07/CP stipulating details for implementing amended domestic investment incentive Law (1998)	Government	15/1/98	Stipulating details for implementing amended domestic investment incentive Law (1998)
61.	Decision No. 67/TTg of the Prime Minister on some credit policies of the bank in service of agricultural and rural development	Prime Minister	30/3/99	Stipulating the credit policy: For households, the bank lends up to 10 million VND and the borrower needs not to mortgage properties For households dealing with farm-economic activities, the bank lends more than ten million VND. Stipulating clearly loan duration
	Circular No.28 of the Ministry of Finance guiding the management, allocation of State budget to 5 million ha reforestation project according to the Decision No. 661/TTg on 29/7/98 of the Prime Minister of	Prime Minister	13/3/99	Stipulating clearly State budget to be allocated to 5 Million ha reforestation project including State investment capital, professional capital and capital supported to reforestation. Scope, target groups for allocation of State budget. Stipulating clearly conditions for allocation, procedures for allocation of investment capital to the project,

	the Government..			experiences for project management and support capital for establishment of production forests.
62.	Circular No. 47/TT guiding management, allocating investment capital for infrastructure projects for specially difficult communes in remote and mountainous areas	Ministry of Finance	5/5/99	Guiding management and allocating investment capital to infrastructure projects for especially difficult communes in remote and mountainous areas according to the Decision No 135/TTg on 31/7/98 of the Prime Minister on approval for social and economic development programmes in remote and mountainous areas.
63.	Inter-Ministerial Circular No. 13/TT guiding for lending from National fund for supporting job generating and establishing funds for generating jobs for local people	Ministry of Labour, War Invalids and Social Affairs, Ministry of Finance. Ministry of Planning and Investment	8/5/99	Guiding for lending from National fund for supporting job generating and establishing funds for generating jobs for local people according to the Resolution No. 120/HDBT on 11/4/92 of the Council of Ministers on programmes, orientations and measures for generating jobs for coming years.
64.	Decree No. 43/CP of the Government on development investment credit of the State	Government	29/6/99	Stipulating on development investment credit of the State through different forms for lending investment, supporting interest rate and ensuring investment credit.
65.	Decree No. 51/CP regulating details for implementing amended domestic investment incentive Law (20/5/98)	Government	8/7/99	Stipulating details the implementation of amended domestic investment incentive Law (20/5/98)
66.	Decree on ensuring loans for credit organisations	Government	29/12/99	Stipulating for ensuring to allocate credits under the lending forms of different credit organisations for clients borrowing from the bank in accordance with the law.
67.	Decision No 175/TTg of the Prime Minister on interest rate of development investment credit of the State in 2000.	Prime Minister	2/3/00	Adjusting interest rate for development investment of the State in 2000 at 7%/year.
68.	Decision No. 251/TTG on addition and amendment of procedures for liquidation of fund for implementing 5 Million hectares reforestation project	Prime Minister	22/3/00	Adding and amending procedures for liquidation of funds for 5 million ha reforestation project according to the Decision 661/TTG on 29/7/98 of the Prime Minister of the Government on objectives, duties, policy and organisation for implementing five million Ha reforestation project.
Agriculture and Forestry extension Policy				
69.	Decree No. 13/CP on promulgating the regulation on agriculture and forestry extension	Government	2/3/93	This document stipulates organisational system and agriculture and forestry extension policy
Tax policy				
70.	Ordinance on natural resources tax	National Assembly	30/3/90	Stipulating target groups for calculation of natural resources tax; Basis for calculation of natural resources tax is logging production and price for tax calculation is based on product unit and tax rate based on the value of exploited resources. Stipulating tax rate for different groups of natural resources. Stipulating for examination of natural resources tax
71.	Decree No.06-HDBT of the Council of Ministers on regulating details the performance of natural resources tax (30/3//90)	Council of Ministers	7/1/91	Stipulates clearly which target groups pay tax and which target groups no need to pay tax. Stipulates clearly the way to calculate natural resource tax such as to define volume of natural resources exploited, price for tax calculation, tax rate for each type of natural resource. Guiding concretely examination of reduction of natural resources tax.
72.	Circular No. 07/TCT guiding the implementation of the Ordinance of the Council of State and Decree No. 06/HDBT on 7/1/91 of the Council of Ministers on natural resources	Ministry of Finance	7/2/91	This document guides in details target groups and way to calculate tax, basis for calculation of tax and tariff; examine to reduce natural resource tax.

	tax.			
73.	Decree No. 96/HDBT on promulgating regulation for encouraging production of export goods, import tariff on 31/3/92	Council of Ministers	5/4/91	Stipulating about encouraging the production of export goods and management of export and import activities
74.	Decree No. 359/HDBT on amending and addition of export tariff and import tariff of 31/3/92	Council of Ministers	29/9/92	Stipulating amendment, addition of the names and export tariff of some times of export tariff promulgated attached to the Decree No. 110/HDT on 31/3/92.
75.	Amended and added Law of some articles of the Import and Export Tax	National Assembly	19/7/93	Stipulating amended and added Law of some articles of the Import and Export Tax on 26/12/92
76.	Law on agricultural land use Tax	National Assembly	10/7/93	Stipulating clearly organisations and individuals using agricultural land for agricultural purpose must pay agricultural land use tax. Stipulating the basis for tax calculation and tariff. Stipulating tax collection, payment and management Stipulating tax reduction and exemption
77.	Decree No. 74 of the Government regulating concretely implementation of forest land use tax	Council of Ministers	25/10/93	Stipulates clearly the scope of forest land use. Guiding the basis for tax and tariff calculation. Listing, calculation and establishment of tax books. Tax collection and payment Examination for tax reduction and exemption.
78.	Decree No.73 of the Government regulating in details classification for calculation of tax of agricultural land use	Council of Ministers	25/10/93	Stipulating clearly the basis for classification for calculation of tax of agricultural land use Stipulating clearly classification of land for calculation of tax for main crops
79.	Circular No.89/TC guiding the implementation of the Decree 74/CP on 25/10/93 of the Government stipulating in details the Law on agricultural land use	Ministry of Finance	11/4/92	This document guides clearly the implementation of the Decree No.74/CP on 25/10/93 of the Government stipulating in details the Law on agricultural land use
80.	Law on transferring of land use rights	National Assembly	22/6/94	This Law regulates clearly organisations, households and individuals having the rights to use the land when transferring the land use rights in accordance with the Law must pay tax for transferring the land use rights. This document also stipulates cases, which are not subject to pay tax for transferring the land use rights.
81.	Circular No.60 of the Ministry of Finance guiding for addition for reduction and exemption of agricultural land use	Ministry of Finance	14/7/94	Stipulates clearly different agricultural land types, which are considered for tax exemption. Stipulates clearly conditions applied to households who are considered for tax reduction.
82.	Decree No. 90/CP promulgating the regulation on compensation of damages when the State takes back land for use for the purpose of national defense, security, national benefits and public interests.	Government	17/8/94	Regulation on compensation of damages when the State takes back land from organisations, households and individuals in Vietnam for the purpose of national defense, security, national benefits and public interests.
83.	Decree No. 114/CP of the Government stipulating in details the implementation of the Law on transferring the land use rights	Council of Government	5/9/94	Stipulates clearly target groups paying tax on transferring the land use rights; Target groups to pay tax; Basis for tax calculation Regulating cases for reduction and exemption of tax on transferring land use rights
84.	Circular No.43 of the Ministry of Finance guiding the implementation of tax reduction and exemption according to the Decree No. 07/98 on 15/1/98 of the Government regulating details the implementation. Of the amended domestic	Ministry of Finance	4/4/98	Stipulates clearly target groups to be applied for tax reduction and exemption. Guiding the implementation of tax reduction, exemption, reduction of turnover tax and income tax for projects for investing to develop production basis; income tax is exempted for investment projects for enlarging the scope raising production capacity.

	investment incentive Law (20/5/98).			
85.	Law on income tax of enterprises	National Assembly	10/5/97	Stipulates clearly target groups to pay enterprise income tax. Basis for calculation of tax and tax rate Exemption and reduction of enterprise income tax
86.	Law on Value Added Tax (VAT)	National Assembly	10/5/97	Stipulates clearly that VAT is the tax to be calculated basing on the added value of commodities, services arisen during the process from production, circulation to marketing. Stipulating target groups for paying tax and target groups paying tax. Basis and method for tax calculation
87.	Amended Ordinance on natural resource tax	National Assembly Standing Committee	16/4/88	This document stipulates target groups to pay natural resources tax; basis for tax calculation and natural resources tariff; exemption and reduction of natural resources tax. This document replaces the Ordinance on natural resources tax on 30/3/90.
88.	Decree No.30/CP stipulating in details the implementation of enterprise income tax	Government	13/5/98	This document guides concretely the implementation of Law on enterprise income tax on 10/5/97.
89.	Law on amendment and addition to some articles of the Law on import and export tax	National Assembly	20/5/98	Stipulating the amendment and addition of some articles of Law on import and export tax of 26/12/91 and Law on import and export tax on 5/7/93
90.	Circular No. 89/TT-BTC guides the implementation of the Decree No. 28/CP of the Government on 11/5/98 regulating in details the implementation of the Law on Value Added Tax on 10/5/97.	Ministry of Finance	27/6/98	This document guides in details the implementation of the Decree No. 28/CP of the Government on 11/5/98 regulating in details the implementation of the Law on Value Added Tax
91.	Circular No 99/TT guides the implementation of the Decree No 30/CP on 13/5/98 of the Government stipulating in detailed implementation of the Law on enterprise income tax.	Ministry of Finance	14/7/98	This document guides the implementation of the Decree No 30/CP on 13/5/98 of the Government stipulating in details the implementation of the Law on enterprise income tax on 10/5/97
92.	Decree No. 68/CP on regulating details for implementation of the amended Ordinance on natural resources tax	Government	3/9/98	Regulating in details implementation of the amended Ordinance on natural resources tax (98)
93.	Circular No 153/TT guides the implementation of the Decree No 68/Cp on 3/9/98 of the Government stipulating in details the implementation of amended Ordinance on natural resources tax	Ministry of Finance	26/11/98	This document guides the implementation of the Decree No 68/CP on 3/9/98 of the Government stipulating in details the implementation of amended Ordinance on natural resources tax on 16/4/98
94.	Amended and added Law on some articles of the Law on tax of transferring the land use right	National Assembly	21/12/99	Amended and added Law on some articles of the Law on tax of transferring the land use right on 22/6/94. It stipulates clearly target groups not in the list of paying tax on transferring the land use right; adjusting tax rate, tax on transferring the land use right and exemption and reduction of tax.
Policy on exploitation and beneficiaries				
95.	Decision No 02/99/QD/BNN-PTNT on regulation of exploitation of timber and forest products	Minister of Ministry of Agriculture and Rural Development	5/1/99	Regulating the exploitation of timber form natural forests. Exploitation of bamboo from natural forests Regulating on exploitation of non-timber forest products, bamboos of different types. Exploitation of plantation forest, timber from home garden, scattered trees invested by forest owners
96.	Decision 145/TTg of the Prime Minister on 15/8/98 on management policy and use of plantation forest financed by World Food Programme	Prime Minister	15/8/98	Stipulating on management policy and use of plantation forest financed by World Food Programme

97.	Decision 162/TTg on beneficial policy of households, individuals participating in forest plantation activities granted by the Government of Federal Republic of Germany	Prime Minister	7/8/99	Regulation on beneficial policy of households, individuals participating in forest plantation activities granted by the Government of Federal Republic of Germany.
98.	Decision No 141 TTg on beneficial and investment policy for households, individuals and communes participating in forest sector project and management of watershed forests in Thanh Hoa, Quang Tri, Phu Yen and Gia Lai under the Credit Agreement NO. 1515-VIE(SF)	Prime Minister	11/12/00	Stipulating on beneficial and investment policy for households, individuals and communes participating in forest sector project and management of watershed forests in Thanh Hoa, Quang Tri, Phu Yen and Gia Lai under the Credit Agreement No 1515-VIE (SF).
99.	Decision No 28/TTg on amendment and addition of the Decision No 141/ TTg on 11/12/00 of the Prime Minister on beneficial and investment policy for households, individuals and communes participating in forest sector project and management of watershed forests in Thanh Hoa, Quang Tri, Phu Yen and Gia Lai under the Credit Agreement No. 1515 VIE-(SF)	Prime Minister	9/3/2001	This document amends and adds the Decision No 141 TTg on 11/12/00 of the Prime Minister on beneficial and investment policy for households, individuals and communes participating in forest sector project and management of watershed forests in Thanh Hoa, Quang Tri, Phu Yen and Gia Lai under the Credit Agreement No.1515 – VIE (SF).
Policy on circulation and marketing of forest products				
100.	Directive 42/TTg of Prime Minister on strict management of exploitation, transport and export of logs	Prime Minister	11/9/93	Order to close the gate of some forest types: protection forest, special-use forest, forests on rocky mountain; poor forest needs to be naturally regenerated. Since 1994 reduced logging, saving timber utilisation, forest protection Strictly ban collection of fuelwood and charcoal burning
101.	Circular No 01/TT-BNN guiding the implementation of Decision No 1124/TTg on 25/12/97 of prime Minister on export of timber products, forest products and import of timber raw materials	Ministry of Agriculture and Rural Development	10/1/98	Guiding the implementation of Decision No 1124 /TTg on 25/12/97 of Prime Minister on export of timber products, forest products and import of timber raw materials
102.	Decision No 65/TTg on export of timber products, Forest products and import of timber raw materials , forest products	Prime Minister	24/3/1998	Stipulates on export of timber products, forest products and import of timber raw materials and forest products.
103.	Decree No 20/CP of the Government on development of trade in mountainous area, islands and ethnic minority areas.	Council of Government	31/3/98	Encourage to develop trading in mountainous areas, islands and ethnic minority areas like: construction of markets and trading shops, the State allocates land for organisations for construction of markets without collection of money for land use; exemption and reduction of turnover tax and income tax. Price support and fee support for consuming goods implement social policy buying products produced in mountainous area islands ethnic minority areas.
104.	Decision No 136/TTG on amending some regulations on procedures for export of timber products and forest products	Prime Minister	31/7/98	Amending some regulations on procedures for export of timber products and forest products according to the Decision No 65/TTg regarding export of timber products and import of timber raw materials and forest products
105.	Circular No 122/TT-BNN on guiding export of items of timber products, fine arts and finished products made by timber form natural forests in	Ministry of Agriculture and Rural development	27/8/99	Guiding export of items of timber products, fine arts and finished products made by timber form natural forests in the country.

	the country			
106.	Decision No 47/BNN promulgating the Regulation for checking the transport, production, trading of timber and forest products.	Ministry of Agriculture and Rural Development	12/31999	Regulating in details the checking of transport, production, trading of timber and forest products.
107.	Directive No 19/CT of the Prime Minister on implementation of measures for pushing up consuming of timber from plantation forests.	Prime Minister	16/7/99	Encouraging the use of timber from plantation forest for raw materials for industries and meeting the requirements of timber consumption of the people. Encouraging export of timber from plantation forest. Plantation forest owners have the right to exploit their plantation forest according technical manuals. Remove problems on procedures for exploitation, transport, marketing and export of plantation forest timber.
108.	Decision No 19/TTg on abolishing permits contradict to the procedures of enterprise Law	Prime Minister	3/2/00	Stipulating the abolishment of different permits contradict to Enterprise Law
	Circular No 896/BNN guiding the implementation of the Decision No. 19/TTg dated 3/2/00 of the Prime Minister on abolishing of all permission papers against the regulation of the Law on Enterprises.	Ministry of Agriculture and Rural Development	20/3/00	Guiding in details for the implementation of the Decision No. 19/TTg dated 3/2/00 of the Prime Minister on abolishing of all permission papers against the regulation of the Law on Enterprises.
109.	Decision of management of export and import of commodities for the period 2001-2005	Prime Minister	4/4/2001	Stipulating commodities forbidden to import and export, specific regulation for some export and import commodities including forest products. A list of forbidden import and export commodities for the period 2001-2005 attached to this document; the list of commodities under management belong to seven specialised sectors including Ministry of Agriculture and Rural Development.
Policy for farm development				
110.	Resolution 03/NQ on farm economy	Government	2/2/00	This document deals with the viewpoint and policy for development of farms economics like land policy, tax policy, policy for credit investment, policy on labour, market policy etc.
111.	Circular No 69/TT-LT guiding the criteria for defining farm economies	Ministry of Agriculture and Rural development, General Department of Statistics	23/6/00	This documents guiding in details criteria for defining farm economies
112.	Decision No 423/QD on bank credit policy for farm economies	Governor of State Bank of Vietnam	22/9/00	Stipulating policy on bank credit for farm economies
113.	Circular No 61/TT guiding the planning for development of farm economics	Ministry of Agriculture and Rural development	6/6/00	Guiding the planning for development of farm economies.
114.	Directive No 10/CP on credit for development of agriculture, rural area for implementation of the Resolution No 09/NQ on 15/6/00 of the Government	Governor of the State Bank of Vietnam	24/8/00	Stipulating on credit for development of agriculture, rural area for implementation of the Resolution No 09/NQ on 15/6/00 of the Government regarding some programmes and policy on changing of economic structure and coming of agricultural products

Annex C Important NTFP Groups and species in Vietnam

Group 1. Used in localities
Group 2. Used over the country
Group 3. Exported or has potentials for export

TT	Name of NTFP group and species		Group 1	Group 2	Group 3
	Scientific Name	**Vietnamese name**			
1	***Fiber Products***				
1.1	***Bamboo***				
	Bambusa bambos	*Tre léc ngéc*	+		
	B. blumeana	*Tre lµ ngµ*		+	
	B. cerosissima	*Dïng*	+		
	B. multiplex	*Hãp cÇn c©u*	+		
	B. nana	*TrÉy*	+		
	B. nutans	*Hãp sµo*	+		
	B. procera	*Lå «*		+	
	B. spinosa	*Tre gai*		+	
	B. tulda	*MËy b«ng*	+		
	B. vulgaris	*Tre l«ng*	+		
	B. vulgaris var. striata	*Tre ®»ng ngµ*		+	
	Cephalostachyum sp.	*Mum*		+	
	Dendrocalamus aspera	*B-¬ng (tre tÇu)*		+	
	D. giganteus	*Mai*		+	
	D. hamiltonii	*Hèc*	+		
	D. latiflorus	*DiÔn trøng*	+		
	D. membranaceus	*Luång*			+
	D. sericeus	*MËy sang*	+		
	D. sp.	*Tre gÇy*	+		
	Indosasa amabilis	*Vçu*			+
	Neohouzeaua dullooa	*Nøa*			+
	Phyllostachys bambusoides	*Tróc cÇn c©u*			+
	P. nigra	*Tróc ®en*		+	
	P. pubescens	*Tróc sµo*			+
	Pleioblastus baviensis	*SÆt ba v×*	+		
	P. sat	*SÆt*		+	
	Pseudoxythenanthera albo- ciliata	*MËy lay*		+	
	P. nigro ciliata	*Le ®en*		+	
	Schizostachyum aciculare	*Nøa nhá*		+	
	Thyrsostachys siamensis	*TÇm v«ng*	+		
1.2	***Rattan***				
	Calamus poilanei	*Song bét*			+

	C. palustris	*M©y tÇu*	+		
	C. platyacanthus	*Song mËt*			+
	C. rudentrum	*Song ®en*			+
	C. tenuis	*M©y n-íc*	+		
	C. tetradactyl us	*M©y nÕp, m©y ruét gµ*			+
	C. tonkinensis	*M¸i*	+		
	C. viminalis	*M©y c¸t*			+
	Daemonorops geniculata	*HÌo*			+
	D. pierreanus	*HÌo pie*			+
	Korthalsia lacinosa	*Ph-ín*	+		
	Plectocomia elongata	*M©y l¸ b¹c*	+		
	Plectocomiopsis geminiflorus	*Song voi*	+		
1.3	***Grasses for house roof***				
	Imperata cylindrica	*Cá may*		+	
	Themeda gigantea	*Cá trÊu*	+		
	Saccharum spontaneum	*SËy*		+	
1.3	***Leaves for roof or weaving***				
	Borassus flabellifer	*Thèt nèt*		+	
	Corypha lecomtei	*L¸ bu«ng*			+
	Cyperus malaccensis	*Cãi*			+
	Livistona bracteata	*L¸ nãn*			+
	L. chinensis	*Cä xÎ*		+	
	L. saribus	*Cä bÇu*		+	
	Nippa fruticans	*Dõa n-íc*			+
2	***Foods products***				
2.1	***flora originated products***				
2.1.1	***Stems/ Shoots***				
	Arenga saccharifera	*Bóng b¸ng*		+	
	Borassus flabellifer	*Thèt nèt*	+		
	Nipa fruticans	*Dõa n-íc*		+	
2.1.2	***Tubers/Roots***				
	Amorphophalus rhizomatosus	*cñ n-a*	+		
	Dioscoreus alata	*cñ c¸i*	+		
	D. persimilis	*Cñ mµi*		+	
	Pueraria thomsoni	*S¾n d©y*			
2.1.3	***Leaves***				
	Aganorerion polymorphum	*L¸ giang*		+	
	Cyclosorus parasiticus	*Rau dín*		+	
	Erythrina indica	*V«ng nem*	+		
	Erythropalum scandens	*Rau bß khai, rau*	+		

		hiÕn			
	Gnetum montanum	*Rau bÐp*	+		
2.1.4	***Flowers***				
	Radermachera ignea	*Boäc bÞp*	+		
	Azedirachta indica	*Xoan t©y, nim*	+		
2.1.5	***Fruits***				
	Artocarpus spp.	*MÝt nµi*	+		
	Baccaurea sapida	*D©u da xoan*		+	
	Canarium album	*Tr¸m tr¾ng*		+	+
	C. tradenum	*Tr¸m ®en*			+
	Carya tonkinensis	*MËy ch©u*	+		
	Castanopsis spp.	*DÎ gai*		+	
	Clausena indica	*M¾c mËt*	+		
	Dracontomelum duperrianum	*SÊu*			+
	Garcinia oblongifolia	*Bøa*		+	
	G. tonkinensis	*Däc*		+	
	G. multiflora	*Tai chua*		+	
	Lansium domesticum	*Lßn bon*		+	
	Mangifera spp.	*Muçm, xoµi rõng*	+		
	Syzygium spp.	*Tr©m*	+		
2.1.6	***seasonings***				
	Michelia hypolambra	*Giæi ¨n qu¶*			+
	Zanthoxyllum avicenniae	*S¬n tiªu*	+		
2.1.7	***seeds contaning resin***				
	hodgsonia macrocarpa	*§¹i h¸i*	+		
2.1.8	***Musroom/ Cat's ears***				
	Boletus edulis	*nÊm th«ng*	+		
		Mäc nhÜ			+
	Tremella fuciformis	*Ng©n nhÜ*		+	
2.2	***Animal originated products***				
2.2.1	***Honey***				
2.2.2.	***Meats***				
2.2.3	***Fish, crab, snail***				
2.2.4	***Edible bird net***				
2.2.5	***Bird egg***				
2.2.6	***Insects***				
3	***Medicinal plants***				
	Acanthopanax gracilistylus	*Ngò gia b× h-¬ng*			+
	A. trifoliatus	*Ngò gia b× gai*			+
	Amomum aromaticum	*Th¶o qu¶*			+
	A. spp (A. xanthoides, A.villo - sum, A. longiligulare)	*Sa nh©n*			+
	Anoectochilus spp.	*Lan kim tuyÕn*			+

	Aquilaria crassna	*TrÇm, trÇm h-¬ng*			+
	Ardisia sylvestris	*L¸ kh«i*		+	
	Codonopsis javanica	*§¶ng s©m*		+	
	Coptis spp.	*Hoµng liªn*			+
	Coscinium fenestratum	*Vµng ®¾ng*		+	
	Costus speciosus	*Mía dß*	+		
	Dioscopea persimilis	*Cñ mµi*			+
	Eunymus chinensis	*§ç träng tÝa*	+		
	Fallopia multiflora	*Hµ thñ « ®á*			+
	Fibraurea recisa	*Hoµng ®»ng*		+	
	Melanomena occulta	*Thiªn niªn KiÖn*			+
	Morinda officinalis	*Ba kÝch*			+
	Panax bipinnatifidus	*Tróc tiÕt nh©n s©m*	+		
	P. pseudoginseng	*Tam thÊt*			+
	Panax vietnamensis	*S©m ngäc linh*	+		
	Paris polyphylla	*B¶y l¸ mét hoa*	+		
	Podophyllum tonkinensis	*B¸t gi¸c liªn*	+		
	Rauvolfia spp.	*Ba g¹c*		+	
	Smilax glabra	*Thæ phôc linh*		+	+
	Stephania dielsiana	*Cñ dßm, cñb×nh v«i*			+
	Strychnos spp	*M· tiÒn*			+
3.2	***Plants for flavor***				
3.3.	***Poisonous plants***				
	Antiaris toxicaria	*sui*	+		
	Gelsenium elegans	*L¸ ngãn*	+		
	Strychnos nux- vomica	*M· tiÒn*			+
4	***Extracted products***				
4.1.	***Gum***				
	Lannea coromandelica	*Cãc chuét*	+		
4.2.	***Resine and oleo-resines***				
	Canarium album	*Tr¸m tr¾ng*			+
	C. tradenum	*Tr¸m ®en*			+
	Dipterocarpus spp.	*C©y DÇu*		+	
	Hopea spp.	*Sao*		+	
	Pinus keisya	*Th«ng 3 l¸*			+
	P. massoniana	*Th«ng m· vÞ,Th«ng tÇu*			+
	P. merkusii	*Th«ng nhùa*			+
	Gum damar				
	Anisoptera spp.	*Vªn vªn*		+	
	Hopea odorata	*Sao ®en*		+	
	Parashorea stellata	*Chß chai*		+	
	Shorea siamensis	*CÈm liªn*		+	
	Shorea thorelli	*Chai*		+	
	Styrax tonkinensis	*Bå ®Ò*			+
4.3.	***Latex***				

	Teononngia tonkinensis	*Teo nång*	+		
	Ficus spp.	*§a, si*	+		
4.4	***Tanin***				
4.4.1	***Tanin from fruit***				
	Anogeissus latifolia	*Chß nhai, ram*	+		
	Terminalia chebula	*Chi^{a}u li^{a}u*		+	
	Terminalia bellerica	*Cho¹i*		+	
4.4.2	***Tanin from bark***				
	Anogeissus latifolia	*Chß nhai, ram*			
	Bruguiera spp.	*VÑt*		+	
	Erythrophloeum fordii	*Lim xanh*		+	
	Rhizophora spp	*§-íc*		+	
4.5	***Dyestuffs***				
4.5.1	***Dyestaufss from wood***				
	Artocarpus heterophylla	*MÝt*	+		
	Caesalpinia sappan	*Vang*		+	
4.5.2	***Dyestuffs from bark***				
	Casuarina equisetifolia	*Phi lao*	+		
	Terminalia tomentosa	*Chi^{a}u li^{a}u æi*	+		
4.5.3	***Dyestuffs from flower and fruit***				
	Bixa orellana	*§iÒu nhuém*		+	
	Butea monosperma	*RiÒng riÒng*	+		
	Gardenea augusta	*Dµnh dµnh*	+		
	Mallothus philippinensis	*c©y c¸nh kiÕn*	+		
	Momordica cochinchinensis	*GÊc*		+	
	Wrightia tinctoria	*Møc nhuém*	+		
4.5.4	***Dyestuffs from tuber/ root***				
	Dioscorea cirrhosa	*Cñ n©u*		+	
	Morinda tinctoria	*NhÇu*	+		
	Punica granatum	*Lùu*	+		
4.5.5	***Dyestauffs from leaves***				
	Indigofera tinctoria	*Chµm nhuém*	+		
	Lawsonia inermis	*L¸ mãng*	+		
	Strobilanthes cusia	*Chµm mÌo*	+		
	Clinacanthus nutans	*M¶nh céng*	+		
4.6	***Essential oils***				
4.6.1	***Essential oil from wood and bark***				
	Aquilaria crassna	*TrÇm, trÇm h-¬ng*			+
	Scientifc name	*Vietnamese name*			
	Cinnamomum cassia	*QuÕ*			+
	C.parthenoxylon	*Re h-¬ng*			+
	Pinus spp.	*Th«ng*			+

4.6.2	***Essential oil from tuber/root***				
	Fokienia hodginsii	*P¬ mu*			+
	Cupressus torulosa	*Hoµng ®µn*			+
	Zingiber officinalis	*Gõng*			+
4.6.3	***Essential oil from leaves***				
	Cinnamomum camphora	*Long n·o*		+	
	Cymbopogon citratus	*S¶*			+
	Eucalyptus spp	*B¹ch ®µn*			+
	Melaleuca cajuputi	*Trµm*			+
4.6.4	***Essential oil from fruit/ flower***				
	Citrus spp.	*Cam. chanh*			+
	Illicium verum	*Håi, ®¹i håi*			+
	Litsea cubeba	*Mµng tang*			+
	Zanthoxylum spp.	*S¬n tiªu, sÎn*	+		
4.7	***Fat oil***				
	Aleurite s fordii	*TrÈu trung quèc*			+
	A. moluccana	*TrÈu*			+
	Cleidiocarpon cavalieri	*§en*	+		
	Hodgsonia macrocarpa	*§¹i h¸i, qu¶ mì lîn*	+		
	Madhuca pasquieri	*SÕn mËt*	+		
	Thea sasanqua	*Së*		+	
5	***Animal products***				
5.1	***Animal, bird, insects***				
5.2	***skins***				
5.3	***Horn/ivory/tooth***				
5.4	***Bone***				
5.5	***Fur***				
5.6	***Hair***				
5.7	***Lac***				
5.8	***Silk***				
5.9	***Wildlife***				
	Axis porcinus	*h-¬u vµng*		+	
	Cervus nippon	*H-¬u sao*			+
	C. unicolo r	*Nai*			+
	Callosciurus erythraeu s	*Sãc bông ®á*		+	
	Capricornis sumatraensis	*S¬n d-¬ng*		+	
	Helenarctos malayanu s	*GÊu chã*			+
	Macaca assamensis	*KhØ mèc*			+
	Macaca mulata	*KhØ vµng*			+
	Manis javanica	*Tª tª*			+
	Moschus moschiferus	*H-¬u s¹*		+	

	Munttiacus muntjak	*H-¬u*			+
	Sus scrofa	*Lîn rõng*			+
	Bird group				
	Gallus gallus	*Gµ rõng*			+
	C«ng	*Pavo muntiacus*			+
	Reptiles, emphibian species				
	Crocodylus siamensis	*C¸ sÊu n-íc ngät*			+
	Gekko gekko	*T¾c kÌ*			+
	Varinus salvator	*Kú ®µ*		+	
6	***Other products***				
6.1.	***ornamental plant***				
	Begonia spp.	*Thu h¶i ®-êng*		+	
	Cycas spp (about 20species)	*TuÕ (S¬n tuÕ)*		+	
	Rhododendron spp	*§ç quy^{a}n*		+	
	Orchidaceae (Aerides, Dendrobium, Paphiopedilum...)	*Phong lan (§u«i c¸o, Hoµng th¶o, hµi vÖ n÷ ...)*			+
	Adiantum, Asplenidus, Platycerium, Pteris ...)	*Tãc thÇn vÖ n÷, tæ diÒu. æ rång, ®u«i ph-îng ...)*		+	
6.1	***Leaves used for kackaging***				
	Nelumbo nucifera	*Sen*		+	
	Musa spp	*Chuèi*		+	
	Phrynium placentarium	*L¸ dong*		+	

Annex D Common and precious NTFP species listed in Vietnam Red book

*(**E**: Endangered; **V**: Vulnerable, **R**: Rare, **T**: Threatened). **K**: Insufficient data- Based on IUCN categorisation)*

No.	Names		NTFP groups	Level of endanger
	Scientific names	Vietnamese names		
I	***Thallobionta***	***Thùc vËt bËc thÊp***		
I.1	***Mycophyta***	***Ngµnh nÊm***		
	Amanita caesarea	*NÊm x^{a} da*	*Eatable*	*V*
	A. verna	*NÊm t¸n ®éc tr¾ng*	*Poisonous*	*R*
	Boletus edulis	*NÊm th«ng*	*Eatable*	*V*
	Cantharellus cibarius	*NÊm kÌn*	*Eatable*	*R*
	Lepista sordia	*NÊm cµ*	*Eatable*	*R*
	Pleurotus sajor	*NÊm cã vßng*	*Eatable*	*R*
	Tremella fuciformis	*Ng©n nhÜ*	*eatable*	*R*
I.2	***Chorophyta***	***Ngµnh t¶o lôc***		
	Caulerpa racemosa	*Rong guét chïm*	*for medicine*	*V*
	Codium repens	*Rong ®¹i bß*	*for medicine*	*V*
I.3	***Rhodophyta***	***Ngµnh t¶o ®á***		
	Cryptonemia	*Rong ch©n vÞt nh¨n*	*eatable*	*R*
	Gracilaria eucheumoides	*Rong c©u ch©n vÞt*	*eatable*	*V*
	Hypnea japonica	*Rong ®ång mãc c©u*	*produce aga aga*	*V*
I.4	***Phaeophyta***	***Ngµnh t¶o n©u***		
	Sargassum tenerrimum	*Rong m¬ mÒm*	*for medicine*	*K*
II	***Cormobionta***	***Thùc vËt BËc cao***		
II.1	***Polypodiophyta***	***Ngµnh D-¬ng sØ***		
	Cibotium barometz	*CÈu tÝch*	*for medicine*	*K*
	Drynaria fortunei	*Bæ cèt to¸i*	*for medicine*	*T*
II.2	***Pinophyta***	***Ngµnh Th«ng***		
	Calocedrus macrolepis	*B¸ch xanh*	*for essential oil*	*E*
	Cupressus torulosa	*Hoµng ®µn*	*for essential oil*	*E*
	Cycas balansae	*S¬n tuÕ*	*for decoration*	*R*
	C. pectinata	*TuÕ l-îc*	*for decoration*	*V*
	Fokienia hodginsii	*P¬ mu*	*for essential oil*	*K*
	Ta xu s chinen si s	*Sam h¹t ®á*	*seed for medicine*	*R*

No.	Names		NTFP group	Level of Threat
	Scientific names	Vietnamese name		
II.3	***Magnoliophyta***	***Ngµnh Méc lan***		
II.3.1	***Magnoliopsida***	***Líp méc lan***		
	Acanthopanax gracilisty-lus	*Ngò gia b× h-¬ng*	*skin for medicine*	*K*
	A. trifoliatus	*Ngò gia b× gai*	*skin for medicine*	*T*

	Aquilaria crassna	*TrÇm h-¬ng*	*For resine*	*E*
	Ardisia sylvestris	*L¸ kh«i*	*leave for medicine*	*V*
	Aristolochia indica	*S¬n ®Þch*	*roots for medicine*	*R*
	A. tuberosa	*Chu sa liªn*	*roots for medicine*	*R*
	Asarum balansae	*BiÕn ho¸*	*roots for medicine*	*E*
	Berberis julianae	*Hoµng liªn gai*	*roots for medicine*	*E*
	Caesalpinia sappan	*T« méc*	*wood for medicine*	*T*
	Carya tonkinensis	*MËy ch©u*	*eatable fruit*	
	Cinnamomum balansae	*Vï h-¬ng*	*for essential oil*	*R*
	C. parthenoxylon	*Re h-¬ng*	*for essential oil*	*K*
	Codonopsis javanica	*§¶ng s©m*	*medicinal plant*	*V*
	Coptis chinensis	*Hoµng liªn trung quèc*	*medicinal plant*	*E*
	C. quiquesecta	*Hoµng liªn ch©n gµ*	*medicinal plant*	*E*
	Coscinium fenestratum	*Vµng ®¾ng*	*medicinal plant*	*V*
	Docynia indica	*T¸o mÌo*	*eatable plant*	*R*
	Faloppia multiflora	*Hµ thñ « ®á*	*medicinal plant*	*V*
	Fibraurea recisa	*Hoµng ®»ng*	*medicinal plant*	*V*
	Illicium parvifolium	*Håi l¸ nhá*	*medicinal plant*	*R*
	Mahonia japonica	*Hoµng liªn nhËt*	*medicinal plant*	*V*
	Meliantha suavis	*Rau s¾ng*	*eatable plant*	*K*
	Morinda officinalis	*Ba kÝch*	*medicinal plant*	*K*
	Panax bipinnatifidus	*Tróc tiÕt nh©n s©m*	*medicinal plant*	*E*
	P. pseudoginseng	*Tam thÊt*	*medicinal plant*	*E*
	P. annamensis	*S©m ngäc linh*	*medicinal plant*	*E*
	Podophyllum tonkinensis	*B¸t gi¸c liªn*	*medicinal plant*	*E*
	Rauvol fia cambodiana	*Ba g¹c l¸ to*	*medicinal plant*	*T*
	R. sÎpentina	*Ba g¹c hoa ®á*	*medicinal plant*	*E*
	Scaphium macropodium	*-¬i*	*eatable plant*	*K*
	Stephania cepharantha	*B×nh v«i hoa ®Çu*	*medicinal plant*	*V*
	Strychnos ignatii	*M· tiÒn l«ng*	*medicinal plant*	*T*
	Terminalia nigrovenulosa	*Chiªu liªu nghÖ*	*provide tanin*	*K*
II.3.2	***Liliopsida***	***Líp hµnh***		
	Anoectochilus setaceus	*Lan kim tuyÕn*	*medicinal plant*	*E*
	Calamus platyacanthus	*Song mËt*	*provide fiber*	*V*
	C. poilanei	*Song bét*	*provide fiber*	*K*
	Chimonobambusa quadra-gulare	*Tróc vu«ng*	*for decoration*	*R*
	Dendrobium nobile	*Hoµng th¶o ®ïi gµ*	*for decoration*	*R*
	Dioscorea zingiberensis	*Cñ mµi gõng*	*medicinal plant*	*R*
	Disporopsis longifolia	*Hoµng tinh hoa tr¾ng*	*medicinal plant*	*V*
	Paphiopedium delenatii	*Lan hµi hång*	*for decoration*	*T*
	Paris polyphylla	*B¶y l¸ mét hoa*	*medicinal plant*	*R*
	Polygonatum kingianum	*Hoµng tinh hoa ®á*	*medicinal plant*	*V*
	Smilax glabra	*Thæ phôc linh*	*medicinal plant*	*V*
	Stemona cochinchinensis	*B¸ch bé nam*	*medicinal plant*	*R*

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