

PROCEEDINGS OF THE NATIONAL WORKSHOP

**REFORESTATION
AND AFFORESTATION
OF MANGROVES IN VIETNAM**

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STATUS OF VIETNAM FORESTS

RESULTS OF REFORESTATION REMAINING PROBLEMS

Hoang Hoe

Vietnam land extent spreads over 330.541 km², from 8°30' to 23° North latitude. Three quarters of this area are hills and mountains. The highest mountain is Phansipan (3145m). Our coasts are 3260 km long. Natural conditions have created a diversity in forest ecosystems, from mangrove & Melaleuca ones in deltas, to calcareous ones on mountains, midland hills and highland variable biological features.

The population density is very high and acts very powerfully on lands. Forests always play a particular role in Vietnam history and culture. Forests are very important in providing timbers and firewood, in protecting up-stream areas against erosion. One third of our population lives in and near forest. The role and action of forest in protecting the environment and in developing the social economy are becoming more important.

1. Forest resources

In the last half-century, the forest extent decreased from 14.3 million ha (1943) to 9.2 million ha. Forest has decreased from 43% (1943) to 28% (1990). The total reserve of standing tree wood in forests is about 600 million m³ (i.e. 64 m³/ha of forest on average). So, there are about 1500m² of forest or 10m³ wood per capita (1990). About 100.000 ha of forest are lost yearly, for different reasons: forest burning to get new culture land in mountainous areas; forest fires; forest destruction to develop agricultural areas; over exploitation of timber and firewood; war...In particular, the selective exploitation of some valuable woody trees for use or export has made the quality of natural tropical forests decrease rapidly.

Forest destruction and the rapid decrease of forest extent have led to very serious consequences for the

environment, lands, life and socio-economic development of the whole country, especially for some areas. Some big hydroelectric plants have not fully developed their expected potential. Some up-stream forests have not been able to regulate water. Floods and droughts happen constantly in midlands and plains.

2. Bio-diversity:

Vietnam forests include about 12.000 plant species, among which 7,000 species have been given scientific names and 2.300 spp. used as food or foodstuffs, timber, resin...The forest fauna is very rich and varied:

275 mammal spp; more than 800 bird spp; 180 reptile species, hundreds of fish species and tens of thousands of insect species...(among which, many are specific and typical of Vietnam and Indochina). Below are some data from Vietnam Red Book (fauna section) published in 1992 (table 1). The Red Book ("flora section") is going to list 300 plant-species in 4 danger. Many plant and animal-species in our forests are not yet discovered and given scientific names.

Table 1: List of animals enumerated in the Vietnam Red Book

	Endangered	Vulnerable	Threatened	Rare	Undetermined
Manimals	30	23	1	24	-
Birds	14	6	32	31	-
Reptiles	8	19	16	11	-
Fish	6	24	13	29	3
Molluses	10	24	9	29	3
Total	68	97	71	124	6

In the 2 recent years, 2 news mam. species (*Pseudoryx nghetinhensis* and *Megamuntiacus vuquangensis*), one new fish species (*Opsarichthys vuquangensis*) have been discovered in Vietnam. All these three are in Ha Tinh province. They show the biologic abundance and diversity of Vietnam forests. Forest ecosystems are also very rich: evergreen forests; dry deciduous forests, subtropical needle-leave forests, forests on lime mountains, bamboo-tree forests; mangroves, alume soil forests. In particular, Vietnam has large areas of wetland in Red River delta and Mekong delta; many islands and coral reefs in the sea. Many interesting forest ecosystems were formed and grown there.

3. Forest Management and protection

After the "Forest protection and development law" in 1972, Vietnam forests are divided into 3 types:

- Forests of special use: about 2 million ha
- Protective forests: about 6 million ha
- Production forests: about 11 million ha

Nearly 400 State units forestry are managing 6 million ha of forests and forests lands, under the Forest landing rules approved by the Forestry section on the principle of sustainable and stable exploitation. But in fact, the forest management is not yet good, for some economic and social reasons. Our seeds in timber and firewood are increasing rapidly with years, because of the rapid population growth rate. Forest natural resources are becoming rater and rarer, enable to meet satisfactorily the country's needs. it's why our government has issued many decisions, to limit exploitation in natural forests, to forbid the export of some kids of wood, as well as to limit the export of unprocessed. We are controlling the exploitation in pair with natural regeneration of the forests.

The current use of timber, firewood and charcoal is too large (about 30 million m³/year) and must be restricted or replaced by other sources.

Many forest resources are highly valuable, as medicinal plants, bamboo-trees, rattan, cinnamon, resinous plants...We are trying to plant them in forest-planting areas and gardens managed by peasant's families.

The industrial processing of wood, bamboo-trees, forest special products...is still of little use. This is to a reason for the ineffective and noneconomic use of forest resources, in the present time.

4. Up-stream forests:

The up-stream areas of our 40 big rivers hold about 6 million ha of lands. Nearly 2 million people are living in these areas. They belong to some ethnic minorities that are acquainted with the practice of burning forests, to get lands for culture. Their standard of living is very low. The lands apt for culture there are only 3% of the up-stream land areas and can meet only 30% of the population needs in food. For the remaining 70% of their needs, the local population must rely on rice-culture on dry lands and on forest edible product collection. But these products are very unsteady, depending on the weather. Besides, forest resources in up-stream areas are now quite exhausted.

Our government has decided to allocated lands and forests, for a long term, to our peasant's families and help them to protect and to reforest, i.e. to plant medicinal plants, fruit trees, special plants..., in combination with agriculture and silviculture. However, the implementation of this policy is very slow, with very scanty aid in capital and technique from government organizations.

Up to now, there have been some up-stream areas which are typically good, but there are too few: There are also some national projects for settlement of mountainous people, as well as agro-forestry projects with the budget up to hundreds of billion "dong" for up-stream areas.

Some countries, as Germany, Sweeden, Japan, and some international organizations, as UNEP, FAO WFP, CARE, CIDSE, OXFAM have had several projects to up-stream areas.

5. The system of national parks and natural reserves in Vietnam

Cuc Phuong National Park (NP) is the first NP to be established in Vietnam (in 1962). Our government has established a list of NO and natural reserves (NR), with the total extent one million ha, including 87 sections. Among them there are 9 NP, 49 NR and 39 historic-cultural-environmental areas.

From 1986 to now, our government has established new NPs (Ba Vi, Cat Ba, Ben En, Bach Ma, Pu Mat, Vu Quang, Tram Chim, Tam Dao...)

In 1962, the Ministry of Forestry has received them and added new NR, increasing the total extent to nearly 2 million ha (10% of forest lands and 6% of the country area).

Below are listed some important NR in Vietnam

Table 2: List of the important natural reserves in Vietnam

1. Cuc Phuong (NP)	22.500 ha	Ninh Binh	13. Ben En	50.000 ha	Thanh Hoa
2. Ba Vi	7.200	Ha Tay	14. Pu Mat	93.000	Nghe An
3. Ba Be	50.000	Cao Bang	15. Vu Quang	60.000	Ha Tinh
4. Cat Ba	15.000	Hai Phong	16. Phong Nha	41.000	Quang Binh
5. Tam Dao	36.000	Vinh Phu	17. Ngoc Linh	50.000	Kon Tum
6. Bach Ma	87.000	Hue	18. Mom Ray	80.000	Gia Lai
7. Doc Don	100.000	Dac Lac	19. Kong Cha Rang	40.000	Gia Lai
8. Cat Tien	80.000	Dong Nai	20. Kong Ka Kinh	40.000	Gia Lai
9. Con Dao	20.000	Vung Tau	21. Chu Giang Sinh	40.000	Dac Lac
10. Muong Nhe	396.170	Lai Chau	22. Bi Rup	40.000	Lam Dong
11. Huu Lien	20.000	Lang Son	23. Phu Quoc	14.000	Kien Giang

12. Hoang Lien Son	50.000	Lao Cai	24. Minh Hai bird sanctuary	2.000	Minh Hai
			25. Quang Tri Coral Reef	5.000	Quang Tri - Quang Binh

Vietnam government considers the establishment and protection of NP and NR as important. However, there are many difficulties, particularly in insuring the life of people living in these areas and in helping them to pass from destroying forests for temporary culture lands to protecting them and to maintaining nature.

From 1987 to 1990, in Cuc Phuong NP, 130 families living in strictly quarried areas have been moved to the NP border. However, the stabilization of their life and agricultural work there has proved to be difficult, though the standard of living has been improved a little. A very important task is to motivate people living in or near forests, to participate in the protection of forests, the maintenance of nature and bio-diversity.

6. Forest planting and constraints

The main measures to rise the percentage of forest coverage and to improve the quality of forest resources are: to plant forest on bare hills, to enrich natural forests, that have been overexploited.

Denuded hills cover now up to 40% of our country land (13 million ha). Among them, a great majority can be replanted. Our government policy is to allocate peasants lands for long-term uses. Depending on the local land are and on the peasant household's labour force and working capacity, a family can receive from 2 to 5 ha, to use in combined agro-silvo-husbandry.

Many peasant's families can now use land and create forest-planting models, that are very efficient economically and ecologically. They have tried successfully to alternate local and imported plant species; big woody trees, mean woody trees and fast-growing trees; species trees and fruit trees.

After the statistic data of the Ministry of Forestry, in 8 years from 1986 to 1992, a number of different localities have planted 913,000 ha of new forests, with 22 tree species, 60% of these areas are planted with *Eucalyptus* and *Acacia*. Only 40% of these areas are planted with local species. Reality has shown that in Vietnam, the planting of only one-species forests, on good lands, in favorable conditions, is less efficient and less durable than the planting of "mixed", "combined-species" forests. The best choice is to alternate soil-improving leguminous plant species with woody trees, which are needed on steep slopes.

Eucalyptus from different sources have been experimented in various places in Vietnam, in our recent "Eucalyptus extensive planting Movement". The Symposium on "Eucalyptus and Environment", organized by the Ministry of Forestry in 1990 in Hanoi has issued many valuable recommendations, in particular, those on Selection of species and origins compatible with determined soil conditions, "Selection of good seeds for planting"; "Treatment of the soil and fertilization", "Alternate cultivation with wattles", "Care for and protection of planted forests"...

Eucalyptus are fast-growing, but they require a lot of water and so, can act badly on the environment, if they are the only species planted on large areas. It would be better to them alternated with wattles, from the leguminous family.

The mangroves in Can Gio, Ho Chi Minh city and Minh Hai are quite excellent forest ecosystems in the South of Vietnam. They have been heavily destroyed, in 1966-1972 war time, by herbicides and defoliant. After the war, local populations have actively and successfully replanted mangroves. Very large mangrove area in Can Gio and Minh Hai has been restored. It acts favourably on local environment and creates good conditions to restore former professions, as fish and shrimp-breeding.

However, in recent times, mangroves have been again heavily destroyed, by an unplanned and irrational forest-destruction for indiscriminate shrimp farming, without a harmonious coordination between silviculture and aquaculture.

A symposium on "the management of mangroves" has been organized jointly by the Ministry of forestry, the people's Committee of Minh Hai, and the International Union for the Conservation of Nature (IUCN) in April 1993 in Minh Hai. Vietnamese and international participants have discussed and recommended many urgent and practical measures, to protect and use rationally mangrove resources, on the base of a practical experiences survey, and a synthesis of the results of Vietnam and international researches. More attention has been paid to Vietnamese local plant-species more adapted to Vietnam soil conditions, in our programmes of

forest planting in the years to come.

As intended by the Ministry of Forestry, the following local plant-species will be given priority in afforestation. *Pinus kesia*, *Pinus merkusii*, *Fokienia hodginsii*, *Manglietra glauca*, *Styrax tondinensis*, *Cassia seamea*, *Hopea odorata*, *Dipterocarpus alatus*, *Thukrasia tabularix*, *Cinnamomum cassia*, *Talauma gioi*, *Tarrietra cochinchinensis*, *Prerocarpus pedatus*, *Toona febrifuga*, *Elacocarpus madopetalus*, *Quercus wallichiana*, *Quercus habac*, *Spondius tonkinensis*, *Parashorca stellata*, *Alstonia scholaris*, *Swietenia mahocgoni*, *Schima wallichii*, *Dendrocalamus membranaceus*, *Rhizophora apiculata* and *Melaleuca* ...are the main species in wetland, acidic areas in the South of Vietnam. Many local species selected for afforestation, are shade-liking when young. So, we must cover them from direct sunlight, in the first period of forest planting. Some main constraints in forest planting now are as follows:

- How to choose the planted species appropriate to local soil conditions
- How to select good strains
- How to have good saplings from nursery gardens
- How to prepare and fertilize the earth, how to alternate ordinary plants with leguminous species.
- How to care for young trees and young forests.
- How to protect the forests (from human destruction; from harmful insects and from fires)
- How to manage planted forests for a sustainable use and treatment

All the above issues are now weak and irrational. So, the efficiency in forest-planting remains low. Insects harmful to forests are still wide spread. Planted forests are not well protected and managed. In the present time, the Forestry sector is trying hard to improve the situation by the following measures:

- Adjust the selection and supply of seeds and saplings
- Regulate more rationally the use of lands. Choose species of appropriate origins
- Increase investment to a sufficient extent for each planted species
- Improve local nursery systems
- Train technical cadres and help peasant's families in forest planting.
- Strengthen research and experimentation in the selection of appropriate plant species and in forest planting

Of course, this is a difficult and long-term task.

Vietnam plans to plant 200.000 ha of forest yearly, with about 400 million scattered plant units.

It is a great challenge to Vietnam forestry sector to make forest planting reach its 3 objectives; high yield, high quality, high efficiency.