

3.8.3 Villager Support Program

(1) Framework of the Villager Support Program

Target area: Kon Plong District, Kon Tum Province

Term: 2005-2014 (10 years)

Narrative summary	
Title	Food shortage alleviation
Target group	Mountainous ethnic minorities and some immigrants. Poor households experiencing chronic food shortages (during three months in the dry season, the households are short of rice and cereal) in each commune and village, which lack agricultural land to produce grain for their own consumption or marketable products.
Overall goal	To improve the living standard in the villages, and control deforestation by villagers
Project purpose	To relieve food shortages in poor households where chronic hunger is a problem
Outputs	<ul style="list-style-type: none"> To end deforestation by shifting cultivation and illegal cutting due to food shortages To eliminate the threat of poaching of wild animals by poor villagers To gain an excess of produce and generate cash income
Activities	<ol style="list-style-type: none"> To develop paddies or permanent fields in which annual productivity is estimated at 350 kg of rice per capita <ol style="list-style-type: none"> Establishment of paddies Establishment of terrace fields Promotion of two periods cropping <ol style="list-style-type: none"> Construction of diversion weirs and channels Alternative uses for irrigation facilities (establishment of fish ponds) Extension of techniques on paddy and permanent field management <ol style="list-style-type: none"> Provision of rice and other seed Technical training on rice cultivation Technical training on compost production Plantation of fuelwood and fodder trees Training for extension workers Promotion of animal husbandry <ol style="list-style-type: none"> Extension of livestock management technology Technical training on introduction of fodder plants Technical training on conversion of livestock management from free grazing to a barn-based system Planting of vegetables and fruit trees <ol style="list-style-type: none"> Establishment of home garden Reduction of fuelwood consumption <ol style="list-style-type: none"> Training on improved cooking stove and provision of the stove Training on fuelwood production
	<ol style="list-style-type: none"> Conversion of land under shifting cultivation into permanent fields applied with agroforestry systems <ol style="list-style-type: none"> Establishment of demonstration farms Establishment of an agroforestry farm by people's participation Arrangement of use rights of fallows Land allocation activities Reduction in the rate of dependence on shifting cultivation to produce food for self-sufficiency <ol style="list-style-type: none"> Provision of fruit trees and marketable crop seeds/seedlings Provision of soil improving trees (seedlings or seeds) and instruction to grow them Training on compost production and manure/fertilizer application techniques and promotion Prevention of the spread of fire to forests due from burning of fields <ol style="list-style-type: none"> Establishment of fire monitoring groups Cultivation of fruit trees and other perennial plants <ol style="list-style-type: none"> Dissemination of technology for cultivation and management of fruit trees and other perennial plants Training on medicinal plant and orchid cultivation Training and dissemination on combined management between agriculture and forestry Promotion of collaborative sales <ol style="list-style-type: none"> Establishment of collaborative sales groups Establishment of cooperative sales stores

Title	Narrative summary	
	Household income enhancement	Industrial afforestation
Target group	Both mountainous ethnic minorities and immigrants. Small-scale farming households with middle or low incomes in the communes or villages (excluding participants in the "food shortage alleviation plan") (Ethnic minorities are given priority).	Farming households where each household has more than two adult laborers and lacks farmland for children. Also landless households resettled by the government policy (The target persons are limited to villagers who live in areas below 1000 m above sea level. Ethnic groups are not given priority.)
Overall goal	To improve the living standard in the villages, and control deforestation by villagers	To improve the living standard in the villages, and control deforestation by villagers
Project purpose	To increase incomes by improving production of cash crops	To establish a large-scale plantation by paper production companies or others
Outputs	<ul style="list-style-type: none"> • Agroforestry activities are developed on sloping land, the productivity of farmland is increased, and marketable products are continuously produced • Two periods cropping is adopted • Tending is enhanced in fields, the productivity of the paddy/crop field is maintained, and there are no abandoned paddies/crop fields • Livestock is raised on agroforestry farms, generating cash income • Home gardens are maintained around villages • Farming of pigs, goats, and chickens generates cash income for women 	<ul style="list-style-type: none"> • New plantations are developed by contracts with afforestation company • The second or third adult son in a farming household, who has difficulty in obtaining land use rights, gains employment by participating in afforestation • Slashing and burning of forests for farm development is not practiced • Wood pulp supplies are secured
Activities	<ol style="list-style-type: none"> 1. Application of the agroforestry system to grassland areas <ol style="list-style-type: none"> 1-1 Promotion of terracing technique 1-2 Establishment of an agroforestry farm 2. Promotion of two periods cropping on flat ground <ol style="list-style-type: none"> 2-1 Construction of diversion weirs and channels 3. Training on cultivation of fodder trees and conversion of livestock management from free grazing to a barn-based system <ol style="list-style-type: none"> 3-1 Training on animal husbandry management skills 3-2 Training on cultivation skills for fodder trees 4. Promotion of fruit trees and other perennial plants cultivation <ol style="list-style-type: none"> 4-1 Provision of seeds/seedlings of fruit trees and cash crops 4-2 Dissemination on techniques for cultivation and management of fruit trees and other perennial plants 5. Promotion of cultivation of vegetables, medicinal plants, orchid and other marketable plants <ol style="list-style-type: none"> 5-1 Technical training on cultivation of medicinal plants and orchids 6. Prevention of decline in farm productivity <ol style="list-style-type: none"> 6-1 Training and dissemination on compost production and manure/ fertilizer application 6-2 Cultivation of soil improving trees 6-3 Provision of soil improving seedlings/seeds, and instruction in their cultivation 6-4 Training and dissemination on combined management between agriculture and forestry 7. Improvement of product marketing capability <ol style="list-style-type: none"> 7-1 Establishment of collaborative sales groups 7-2 Establishment of cooperative sales stores for selling products 	<ol style="list-style-type: none"> 1. Establishment of a consignment reforestation contract (profit-sharing reforestation) between plantation companies and villagers' groups <ol style="list-style-type: none"> 1-1 Support for villagers' meetings 1-2 Establishment of standards for the model consignment reforestation contract 1-3 Establishment of standards for contract evaluation, and establishment of an organization to carry out such evaluations 2. Establishment of a reforestation contract with the FE and the person in charge in communes <ol style="list-style-type: none"> 2-1 Organization of villagers' meetings 2-2 Establishment of standards for the reforestation contract 2-3 Establishment of standards for contract evaluation and conditions of payment 2-4 Training on seedling production 2-5 Proposal of standards for reforestation and tending works 2-6 Provision of nursery materials for seedlings 2-7 Training on silvicultural techniques 3. Application of agroforestry techniques to plantations <ol style="list-style-type: none"> 3-1 Training on agroforestry practices 4. Promotion of harvesting and reforestation <ol style="list-style-type: none"> 4-1 Training on harvesting planning 4-2 Establishment of a committee to monitor the sales activities of reforestation companies

Narrative summary	
Title	BHN improvement plan
Target group	Mainly mountainous ethnic minorities in villages in Ngoc Tem and Dak Ring Communes.
Overall goal	To improve the living standard in the villages, and control deforestation by villagers
Project purpose	The improvement of BHN in villages is achieved
Outputs	<ul style="list-style-type: none"> • Clean daily water is secured • Education for health and sanitation is carried out • Toilet facilities are improved • Electricity is provided, and means of communication are made accessible
Activities	<ol style="list-style-type: none"> 1. Installation of pipelines to carry water from mountain streams 2. Installation of sewage disposal facilities for common use 3. Installation of multistage toilets for common use 4. Installation of portable hydroelectric generators 5. Temporary deployment of sanitary consultants

(2) Activity plan for the Villager Support Program

This program aims to enhance the livelihood of local people in mountainous villages while promoting the effective use of forest resources. The objective of this master plan is basically to present principles and guidelines for a forest management plan in order to extract forest resources for timber production on a sustainable basis. The most fundamental condition to be met in achieving sustainable forest management is to identify solutions to the problems of ensuring the sustainability of the targeted marketable forests themselves.

Among the many factors which may threaten the sustainability of the forests, the most critical is that local people who practice shifting cultivation have been moving into the forest area. Shifting cultivation has been practiced traditionally and if there is a long enough fallow period for the land to recover, it will not be a major threat to deforestation in the area as a whole. However, it should not be overlooked that the process of shifting cultivation has changed due to population pressure and the collapse of, or changes in, traditional societies. Except for some communities of inland areas where traditional cultures have been maintained, the people who practice shifting cultivation in these areas are impoverished, and have no paddy fields or

insufficient lands for cultivation. Shifting cultivation is the only means of food production available to them. Thus, it is necessary to pay special attention to trends involving those who have traditionally relied on shifting cultivation and who have been forced to quit their lands, due to the adoption of new immigration policies.

Traditionally, the forest areas have been utilized by mountainous ethnic groups without any restriction, and have sustained continuous use based on customary practices in each area. If such mountain forests become available for FEs and others to utilize in a systematic manner, primarily for timber production, it is likely that there will be conflict between the indigenous ethnic groups who have traditionally utilized the forests, FEs, and the government or other agencies. Therefore, as a fundamental principle, FEs or other agencies must not violate any of the rights of the ethnic groups while undertaking forest management. They must ensure the continued sharing of forest resources for multiple uses, and obtain cooperation from the villagers in the implementation of their projects, along with providing support to those villagers.

Since this program is aimed at preventing deterioration of the forests and also deforestation caused by the shifting cultivation of impoverished people in rural areas, it aims to point out solutions to the urgent problems confronting villagers living in poverty. It will also prepare the ground for their adaptation to a cash economy by increasing medium and long-term incomes, and enhancing their standard of living. Through these activities, this program will encourage and support villagers' efforts. In coordinating this project, communities in which the majority of the local people are living in poverty, and households who depend on shifting cultivation, should be given priority. In addition, support should be provided preferentially to those communities in which most of the local people are ethnic minorities. When adopting each plan of the program, the wishes or intentions of the villagers should be regarded as being of great importance. Therefore, it is necessary to arrange meetings in order to provide opportunities for the active participation of the villagers. It is also necessary to establish consensus among the villagers and to form local organizations for operation and management.

Based on the fundamental policies cited above, the Villager Support Program will be conducted through five basic programs; 1) the food shortage alleviation program, 2) the shifting cultivation control program, 3) the income enhancement program, 4) the industrial afforestation program, and 5) the BHN improvement program. It will begin with a program to enable self-sufficiency in food production by reducing the number of households who suffer severe shortfalls in food production, and promote the replacement of shifting cultivation with permanent farming. Meanwhile, the program will provide opportunities for higher incomes with communities made up of ethnic groups that are self-sufficient in food production, but mainly dependant on shifting cultivation, and to households who practice this way of life or have no farmlands. It will achieve this through promotion of effective use of hill slopes, such as adopting agroforestry and

silvo-pastoral farming practices. It will also encourage people to abandon shifting cultivation by developing forestlands. Then, it will promote agroforestry and silvo-pastoral farming, which may lead to higher incomes, as a means of achieving effective use of grasslands and bush in surrounding areas. One of the programs which have a different approach from these three programs is the industrial afforestation program, which targets households with median income levels and which have grown-up children. In contrast to the other programs, which actively promote higher incomes taking a long-term view, the BHN infrastructure program, as a means of supporting the other aspects of the project, will provide support to communities in isolated mountainous areas, where there is a lack of basic infrastructure.

The following sections describe each part of the Villager Support Program for forest management.

1) Alleviation of food shortage program

- a. Production from rice fields or farmlands, with per capita productivity equivalent to 350 kg of rice

The areas around mountain streams include many narrow gentle slopes. This program aims to identify such areas near communities and excavate land areas to be distributed among farmers who are confronted with food shortages. Obviously, it is necessary to clear these areas to produce terrace fields as well as to establish waterways from the upper reaches to irrigate the fields. However, this cannot be achieved by households who have presently have difficulty in attaining self-sufficiency without assistance. Thus, FEs should provide support to level these land areas and construct diversion dams by employing tractors which are normally used for timber harvesting. Once the basic construction work for terrace fields is completed, distribution of the lands among the targeted households will be conducted sequentially, securing tenure of the lands and providing continual technical support for rice cropping or upland cropping. Basically, the communes will assure land tenure in cooperation with the district governments. However, FEs should follow such procedures in cooperation with the villagers in their areas of jurisdiction, since it is crucial in establishing a future cooperative relationship and future relations based on mutual trust.

- b. Promotion of two periods cropping

Since development of lands for paddy fields is a laborious task, it is necessary to take some measures to secure irrigation, such as constructing irrigation dams and canals while developing the lands. The implementation of this will follow the procedure shown above in part (a). Meanwhile, as construction of canals proceeds, consideration should be given

to the construction of small ponds which may be used for aquaculture.

c. Promotion of cultivation and management techniques in paddy and permanent farmlands

As well as providing maintenance, local people are to convert the land to productive paddy fields or farms by themselves. Nonetheless, since those villagers cannot in practice afford agricultural techniques or materials, the provision of technical support and materials is indispensable. Instructions for compost production are also invaluable, since fertilizing techniques, seeds, and technical guidance for rice cropping will be provided, on the assumption that sustainable use of the cultivated rice fields and farms will be achieved. Among other technical support measures, the planting of fodder trees, and crops such as beans, should be conducted. It is also necessary to provide guidance for dealing with ongoing cropping problems. In addition, it is expected that animal husbandry will be promoted to the farmers and thus, technical assistance on maintenance of grasslands around their houses and also on cultivation of fodder crops or plants should be provided. Cultivation of fodder plants may also enable production of fuelwood for local consumption, which may lead to a reduction in haphazard felling of forest trees for fuelwood.

d. Promotion of animal husbandry

In order to establish a self-sufficient food production system, while carrying out the cultivation and distribution of paddy fields and farms, consideration should be given to crops and food sources which can be harvested at shorter time intervals. Animal husbandry is one of the ways to achieve this. Cattle and buffaloes are included among appropriate livestock for the region, however, from the viewpoint of coping with food shortage, pigs, chickens and other small animals are of primary value. The main problem with animal husbandry is that these areas are generally at high altitude, and at more than 1,000 m above sea level and during the dry season, temperatures can fall very low, predisposing animals to diseases. Therefore, technical support for feeding in barns during the cold season, and for disease prevention is required. The distribution of information on fodder production and management, which is necessary for barn feeding, is also indispensable.

c. Production of vegetables and fruit trees

The second aspect of shorter-term crop production is growing vegetables and root crops around living areas, and establishing so-called kitchen gardens. Seeds should be provided and it is also expected that technical instructions for cropping will be provided, mainly to the women in these areas.

f. Reduction in household consumption of fuelwood

Reducing the levels of fuelwood consumption does not directly increase food production. However, gathering fuelwood is one of the most important tasks for every household, and requires hard labor, usually for women. Therefore, if promoting animal husbandry and the creation of home gardens, unless measures are taken simultaneously to decrease the labor involved in gathering fuelwood and fetching water, people will not have any time to allow their participation in the new program activities. Providing instructions for the improvement of cooking equipment, as well as supplying improved equipment, and taking fuelwood production into consideration, are important factors to indirectly support villagers who are motivated to participate in the program.

2) Shifting cultivation control program

a. Conversion of shifting cultivation to permanent farms with agroforestry practices

Although promotion of agroforestry has become one of the policies in the area, it does not seem to have been taken up widely so far. In most of the farmed lands currently being used for shifting cultivation burning, which is causing forest degradation, has been observed in many places. If the levels of shifting cultivation are to be reduced, it is necessary to convert those fields which are currently used for this form of agriculture into farms with sustainable production systems. Nonetheless, in the present situation, due to the fact that the fields are on hill slopes and are difficult to fertilize, continuous cropping is impossible, and for other reasons, burning new fields is inescapable. Therefore, it is necessary to promote agroforestry, which utilizes the fields currently used for shifting cultivation, while maintaining the productivity of the soil. First of all, it is necessary to construct demonstration farms to promote techniques of terracing or construction of hedgerows to prevent soil erosion. These techniques are employed when sloping land is used for agricultural production, and have been employed in the SALT method in the Philippines. Through demonstrations, these techniques should be promoted and instructions for constructing agroforestry farms should be provided in order to encourage groups of villagers to adopt agroforestry. Since most parts of the areas targeted by this program are under the jurisdiction of the forestry section of the communes, substantial input by the communes supporting the forestry extension workers is essential. Once agroforestry has been adopted and sustainable productivity is achieved, the tenure of agroforestry farms should be secured and the farmlands distributed. In addition, it is necessary to arrange the tenure of fallow lands which have been reserved for a certain period; it is also necessary to take some measures to ensure the land is allowed to recover.

b. *Reduction in dependency on shifting cultivation for food production*

Cultivation of fruits and cash crops is one of the fundamental activities in promoting agroforestry, making use of the slopes as an alternative to shifting cultivation. Some of the significant elements in this program are; supplying seeds and seedlings, as well as seedlings of soil improving trees along with instructions for cultivation, promoting and providing technical instructions for composting and fertilizing, providing other techniques which are related to agriculture and forestry, and securing land tenure.

c. *Prevention of fire spread to forests from burning*

Local people shall establish organizations for monitoring fires in their own agroforestry farms, and to restrict shifting cultivation. The members should be formed to oversee shifting cultivation fields, promote participation of the farmers who depend on shifting cultivation in the agroforestry practice, and provide advanced technical instructions, in cooperation with extension workers in the communes.

d. *Cultivation of fruit trees and other perennial woody plants*

When establishing agroforestry on sloping land, along with terracing skills, techniques for cultivation of fruit trees and other perennial plants should be disseminated. Technical instructions for agroforestry, and combined management of agriculture and forestry, should be provided and promoted. It is also necessary to provide training to promote techniques for cultivation of the crops, such as medicinal plants and orchids, which have high added value by weight, or which are high in value relative to their transportation cost, and are useful as underplanting crops, or as marketable products.

e. *Promotion of collaborative sales*

Unlike the program for alleviating food shortages, this program is not only aimed at crop production for local consumption, but also the production of marketable crops, which can generate cash incomes. In order to achieve this goal, taking into consideration the fact that there is a lack of public transportation in the targeted areas, it is necessary to establish cooperative marketing groups, in which members will take turns in going to Kon Plong Town or Kon Tum Town to sell their products. It is also necessary to secure places for such cooperative marketing, i.e. stores in the markets. Market stalls can be secured in cooperation with the government, however access to transportation is indispensable. Consequently, marketing should be considered whenever decisions regarding the choice of agroforestry products are being made.

3) Household income enhancement program

a. Conversion of grasslands into agroforestry farms

This program aims to contribute to higher incomes through the development of grasslands in village areas. Primarily by adopting agroforestry, the grasslands will be developed by groups of villagers who practice shifting cultivation. The targeted households will not be limited to mountainous ethnic minorities, immigrants and those in impoverished conditions, but also cover those who have an incentive to participate in the activities, and also those who can afford to supply extra labor. The development of agroforestry farms does not require any special activities other than those in the programs, such as the provision of technical instructions for, and promotion of terracing, construction of agroforestry farms, and control of shifting cultivation. Great importance should be attached to promoting the cultivation of fruit trees and other perennial woody plants, such as supplying seed and the seedling for the cash crops, and promoting techniques of production and management. Moreover, while construction of agroforestry farms is proceeding, it is expected this will provide training for the cultivation of vegetables, medicinal plants, and orchids including other marketable crops.

b. Promoting two periods cropping of paddy rice in flatlands

The income enhancement program aims to provide support for measures which vary according to the lifestyles of the targeted communities and the wishes of the villagers. Consequently, this program includes a wide range of activities. Construction of irrigation dams and canals, tending, improvement of rice seed, and promotion of matters relating to agricultural improvement are all included in order to improve the productivity of rice fields in flatland areas.

c. Cultivation of fodder trees and animal husbandry in stalls

Animal husbandry is another significant factor in this program. Some of the important associated activities are acquiring management techniques for animal husbandry and cultivation of fodder trees, and promoting knowledge relating to livestock sanitation. The expansion of grazing by livestock, however, should be handled very carefully, as it can accelerate deforestation or expand grasslands.

d. Preventing deterioration of farmland productivity

In order to accomplish stable and sustainable agricultural productivity, crop management and fertilization is indispensable. Important tasks include promoting cultivation of fodder trees, supplying seed and seedling of fodder trees together with instructions for their

cultivation, promoting agroforestry management, and providing other technical support. These tasks will be conducted by the communes' extension workers of the agriculture and forestry section.

c. Improvement of product marketing capability

This activity follows the item mentioned in the shifting cultivation control program.

4) Industrial afforestation program

a. Establishment of a consignment reforestation contract (profit-sharing reforestation) between plantation companies and villagers' groups

This activity aims to achieve three objectives simultaneously: production of pulpwood, recovery of the forests, and increase of villager incomes, by making use of grasslands and bush below elevations of 1,000 m and where the natural environment is suitable for afforestation with fast growing trees. To achieve these goals, this activity has a plan to afforest fields which have been distributed among farmers, using funds from private afforestation companies, and to share the outcome among the people who have invested and those who have worked on the ground. Since most of the targeted area is grassland which is under the jurisdiction of the communes and which is situated near the communities, it is necessary for the communes to play a central role in implementing this program. However, taking into consideration the fact that those techniques which can be provided by the communes' engineers are limited, it is expected that more will be achieved if FE engineers, under a commission from the communes, provide technical support in implementing afforestation. Upon implementation, it is essential that villagers have a thorough understanding of the plan, and it is expected that the FE or communes will take charge of meetings where the FE or communes should act as intermediary between villagers and afforestation companies. In the event that an agreement is reached at a meeting, it should be appreciated that clarifying the contract to secure agreements between the companies and local people can be a determining factor in the outcome of the project. Therefore, it is necessary that the FE act as intermediary and provide instructions and support for establishing a standard for the model consignment afforestation contract, as well as providing instructions on implementation and for the inspecting agencies.

b. Contraction of afforestation contract with the FE or forestry section of the communes

When concluding the afforestation contract, and taking on the responsibility to protect local people's rights, the FE should take the role of observer in organizing meetings,

establishing the standards of the contract as well as of inspection of operations, and finalizing conditions of payment. In the course of implementing afforestation, the FE should make a certain level of contributions towards providing technical instructions for raising seedling, presenting standards of afforestation as well as silvicultural techniques, supplying materials for producing seedling, and providing technical instruction on afforestation practices. It is expected that afforestation companies will obtain a loan from the government, and utilize funds from international aid agencies such as the World Bank, to fund afforestation.

c. Application of agroforestry techniques to plantations

In the industrial afforestation areas, the efficient use of land by employing the Taungya method should be promoted. Technical instruction on agroforestry and the production of fodder crops should be provided until the tree crown covers the ground. Efficient use of afforested areas may help to prevent the disappearance of forests following on from controlled burning and shifting cultivation.

d. Promotion of harvesting and reforestation

Profit sharing after harvest is a key factor in the project's sustainability, as villagers' lands have been used for the afforestation operation. Any plan relating to harvesting must proceed under an agreement reached between the villagers and the companies involved. It is reasonable that timber will revert to the company which has invested in the afforestation operation, and the company will deal with the marketing. However, this is subject to the condition that the result of the marketing is adequate and sufficient disclosure of information about proper profit sharing among farmers is provided. Therefore, it is expected that the FE, as a third party, will provide instructions for yield planning and support to establish a committee to monitor the marketing activities of the companies.

5) BHN improvement program

This program is aimed at providing support to mountainous ethnic communities in isolated areas to secure some of the basic necessities of life, such as water supply, health care and electricity. In such areas, apart from cultivation of the limited paddy fields, local people depend on hunting and collecting of NTFPs for their livelihood in most cases. In implementing harvesting operations, the relation between the villagers and FEs is an issue of great sensitivity. Since the harvesting operations of the FE are an intrusion for the villagers, there is concern that they may be opposed to the operation, regarding it as a threat to their livelihood. It is necessary to ensure that the development of wood utilization

will not constrain their customary utilization of forest-based products, and that there will be an agreement as to which closure of the forest is to be reserved. At the same time, it is necessary to entrust forest conservation management to the villagers, and to establish a cooperative system in order to develop forest resources, especially those other than timber. Consequently, it is necessary to conduct operations, such as the installation of water pipelines to provide irrigation for using water from mountain streams, and also to install common use septic tanks, which ensure the stable supply of safe daily water. Moreover, installation of multistage public toilets is required in order to contribute to the improvement in hygiene. Furthermore, it is necessary to cooperate actively to make contributions to the improvement of BHN through activities such as providing support for the installation of a simplified system of hydroelectric power device, which is commonly used in Vietnam. Additionally, regarding hygiene and public health, it is necessary to dispatch counselors of the commune organizations to monitor the state of hygiene and provide instructions on-site, with support from Kon Plong District.

3.8.4 Wildlife protection and conservation program

(1) Framework of wildlife protection and conservation program

Target area: Kon Plong District, Kon Tum province

Target group: Local people of Kon Plong District and officials of relevant organizations

Term of the project: 2005 to 2014: 10 years

Narrative summary			
	Strict wildlife protection area	Wildlife rehabilitation area	Wildlife respect area
Overall goal	<ul style="list-style-type: none"> Maintenance and enhancement of sustainable biodiversity Presentation of guidelines and models for future implementation in other areas similar to the target area 	The same as left	The same as left
Project purpose	<ul style="list-style-type: none"> Protection and conservation of wildlife, and mutually beneficial coexistence between wildlife and local people 	<ul style="list-style-type: none"> Protection, conservation and sustainable use of wildlife, and mutually beneficial coexistence between wildlife and local people 	<ul style="list-style-type: none"> Wildlife conservation and mutually beneficial coexistence between wildlife and local people
Outputs	<ol style="list-style-type: none"> Systems and technologies for wildlife protection and management are developed Illegal extraction of wildlife is reduced Environments suitable for wildlife habitation and breeding are created Local people's awareness of environmental conservation is enhanced Wildlife habitation conditions are regularly monitored and evaluated 	<ol style="list-style-type: none"> Systems and technologies for wildlife protection and management are developed Illegal extraction of wildlife is reduced Environments suitable for wildlife habitation and breeding are created Local people's awareness of environmental conservation is enhanced Wildlife habitation conditions are regularly monitored and evaluated 	<ol style="list-style-type: none"> Systems and technologies for wildlife protection and management are developed Forests adjacent to communities and farmland are protected and conserved Local people's awareness of environmental conservation is enhanced
Activities	<ol style="list-style-type: none"> 1.1 Training for officials of relevant organizations 1.2 Organizing workshops on protection and management of wildlife 1.3 Organizing local hunting patrol teams 1.4 Establishing a patrol system 2.1 Limitation of illegal activities 3.1 Protection of environment of rare wildlife species' habitation and breeding 4.1 Education on environmental conservation 5.1 Establishing a monitoring and evaluation system 	<ol style="list-style-type: none"> 1.1 Training for officials of relevant organizations 1.2 Organizing workshops on protection and management of wildlife 1.3 Organizing local hunting management teams 1.4 Establishing a management system 2.1 Limitation of illegal activities 3.1 Protection of environment of rare wildlife species' habitation and breeding 4.1 Education on environmental conservation 5.1 Establishing a monitoring and evaluation system 	<ol style="list-style-type: none"> 1.1 Training for officials of relevant organizations 1.2 Organizing workshops on protection and management of wildlife 2.1 Organizing technical seminars for local people 2.2 Promotion of tree planting 3.1 Education on environmental conservation

Note: The numbers in the 'activities' column are basically connected to the relevant numbers in the 'outputs' column but more than one activity may produce the same 'output'.

(2) Activity plan for wildlife protection and conservation program

The details of the activity plans for wildlife protection and conservation in each defined area in terms of the activities' contents, schedule, administrators, subjects, required equipment and materials are described below.

1) Wildlife sanctuary

The purpose of the activities in this area is to actively protect and conserve wildlife.

a. Training for officials of the relevant organizations

This training is for responsible officials at DARD, DFD (including FEs) and the Thach Nham Protection Forest Management Committee. Donors, who are rural development experts from NGOs, and botanical and zoological experts from FSI, FIPI, etc., will be invited as lecturers to provide training sessions that are socio-economically and technically balanced. The training covers the principles and practice of wildlife protection and conservation, and the present status of wildlife in the target area. The training also needs to cover approaches for participatory rural development and for preventing and resolving disputes/conflicts. It is recommended that this training should be provided at the beginning of the project, which is estimated to take approximately two weeks.

b. Organizing workshops on protection and management of wildlife

The representatives of the local people, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD will participate in this workshop. The workshop's aims are to examine the present quantitative and qualitative status of wildlife resources, in particular rare animal species and their habitats, as well as to clarify problems and discuss measures to be taken. As one of the measures, it is necessary to discuss the possibility of organizing local patrol teams and their specific activities. It is recommended that this workshop should be held after the training described above, which is estimated to take approximately three days. PRA can be applied to the target area prior to this workshop.

c. Organizing local hunting patrol teams

Patrol teams comprised of hunters and other local people involved in hunting in all the communities or villages in the target area are to be established. The teams will be organized in cooperation with representatives of local people, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD,

to prevent poachers from coming into the region from outside. First, the objectives and operational details of the patrol activities should be discussed, then the organizational structure and rules of the organization should be established, and local people encouraged to be members. The whole procedure will take approximately two weeks. It is important to proceed with each step only after gaining consensus among all the participants.

d. Establishing a patrol system

After organizing the local hunting patrol teams, in all the villages in the target area, a patrol system should be established by the team members, with representatives of the local people, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD. After choosing a person with overall responsibility, and other persons in authority, and discussing frequency of patrolling, patrol routes, items for the patrol and communication networks for emergencies, the patrol teams will be ready to begin operations. Emergency radio communication systems are also essential because the patrol teams will sometimes encounter armed poachers. Establishing collaborative system with the regional administrative organization (People's Committee) and police is also necessary.

e. Limitation of illegal activities

This is carried out by members of the local patrol teams, donors, and responsible officials of DARD and DFD. As a measure against poachers coming into the region from outside, educational campaigns against illegal activities are carried out in the downtown areas of Kon Plong and Kon Tum Towns where information is easily spread. Activities include putting up government notices prohibiting illegal acts, and carrying out loudspeaker van campaigns in cooperation with the government. It is important that the public is well aware that local people and administrative organizations are closely monitoring illegal activities. Patrolling for illegal activities in the target area is also carried out regularly during the whole life of the project.

f. Protection of environment of rare wildlife species' habitation and breeding

The members of the local hunting patrol teams, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD are to conduct a survey of the target area to specify location of habitats of rare wildlife. In the specified location, steps will be taken to conserve and protect the surrounding forests especially in places where rare tree species and animal species still remain, to protect trees that bear kinds of fruit eaten by wild animals. Although regular patrolling will be conducted by the local hunting patrol teams, the local people's cooperation is essential to conserve and

protect the forests, and thus it is necessary to discuss methods of providing some kinds of incentives to them.

g. Education on environmental conservation

The members of the local hunting patrol teams provide this education in cooperation with donors, botanical and zoological experts from FSI, FIPI, etc. and responsible officials from DARD and DFD. It is expected that the members' motivation will be enhanced through this activity. The actual activities are divided into two types: seminars for adults in the targeted villages, and education for students in classrooms. Topics include explanation of the present status of wildlife resources and their problems in the area, and of local patrol team's activities. This educational program calls for understanding and cooperation to protect the natural environment. To ensure that the education will be effective, it is necessary to develop simple teaching materials using many diagrams in cooperation with the relevant organizations. These activities will be implemented during the whole period of the project.

h. Establishing a monitoring and evaluation system

Regular monitoring and evaluation are essential for the efficient and effective implementation of the project. Monitoring and evaluation by the local hunting patrol teams themselves are important to increase their motivation. The members of the teams decide on procedures and designate a team leader, and the persons in charge should be provided with *full training in monitoring and evaluation*, in cooperation with donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD. The items to be monitored include the actual number of cases of illegal activities and the present state of wildlife resources, etc. The details of the evaluation include the efficiency, effectiveness, impact, relevance and sustainability of each activity. It is recommended that regular monitoring should be conducted twice a year, and evaluation should be once every two to three years.

2) Wildlife rehabilitation area

The purpose of these activities is to protect and conserve wildlife while seeking ways to utilize wildlife sustainably.

a. Training for officials of relevant organizations

The same as 1) a.

b. Organizing workshops on protection and management of wildlife

The same as 1) b.

c. Organizing local hunting management teams

Local hunting management teams comprised of hunters and other local people involved in hunting are to be organized in all the communities or villages in the target area. This will be carried out in cooperation with representatives of the local peoples, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD, to manage hunting by the local people while preventing poachers coming into the area from outside. First, the objectives and operational details of the activities should be discussed, then the organizational structure and rules of the organization should be established, and local people encouraged to be members. The whole procedure will take approximately two weeks. It is important to proceed with each step only after gaining consensus among all the participants.

d. Establishing a management system

After organizing the local hunting management teams, a management system should be established by the team members, representatives of the local people, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD, in all the villages in the target area. After choosing a person with overall responsibility and other persons in authority, and discussing the extent of management activities and communication networks for emergencies, the hunting management teams will be ready to begin operations. Emergency radio communication systems are also essential because the patrol teams will sometimes encounter armed poachers. Establishing collaborative system with the regional administrative organization (People's Committee) and police is also necessary.

e. Limitation of illegal activities

The same as 1) e.

f. Protection of environment of rare wildlife species' habitation and breeding

The same as 1) f.

g. Education on environmental conservation

The same as 1) g.

- h. Establishing a monitoring and evaluation system

The same as 1) h.

3) Wildlife respect area

The purpose of the activities in this area is to protect and conserve wildlife and to restore biodiversity.

- a. Training for officials of relevant organizations

The same as 1) a.

- b. Organizing workshops on protection and management of wildlife

The same as 1) b.

- c. Organizing technical seminars for local people

Technical seminars will be held in all the communities or villages in the target area on methods of protection and conservation for forests and wildlife although no local organization will be formed. In cooperation with representatives of the local people, donors, botanical and zoological experts from FSI, FIPI, etc., and responsible officials from DARD and DFD, the local people in all the areas will be invited to the seminars, which will be held for approximately three days every year.

- d. Promotion of tree planting

The local people will plant trees in all the villages in the target area in cooperation with donors, DARD and DFD. The purpose of this activity is to promote rehabilitation of wild animal population by restoring vegetation in deteriorated land, especially bush and grasslands, and alongside streams, which are particularly important habitat for animals. Initially, donors or DFD will prepare seedlings, but a new framework should be prepared in which the local people themselves can gradually produce seedlings on their own initiative with the only outside assistance being in the form of equipment and materials. In order to promote this framework, it is essential to provide local people with direct incentives to plant trees, for example, by introducing high quality timber and multi-purpose tree species for agroforestry.

- e. Education on environmental conservation

The same as 1) g.

3.8.5 Institutional enhancement program

(1) Framework of institutional enhancement program

Target area: Kon Plong District, Kon Tum province

Project term: 2005-2014

Target group: 6 forest enterprises in Kon Plong District

Narrative summary	
Overall goal	The forest enterprises continue in their target-oriented approach, steadily implementing their original ideas of reform
Project purpose	All the forest enterprises emphasize the system functions and develop a target-oriented approach based on client satisfaction
Outputs	<ol style="list-style-type: none"> 1. The leadership emphasizing the importance of operations in the field is formed 2. Freedom of information is promoted 3. Client needs are ascertained 4. Information sharing is enhanced 5. Appropriate competition is allowed to develop 6. Individual capabilities are sufficiently displayed
Activities	<ol style="list-style-type: none"> 1.1 Reforming organizational structure 1.2 Conducting a training program for field leaders 2.1 Organizing meetings with local people 2.2 Publishing news letters 2.3 Improving monitoring by third party organizations 3.1 Conducting market research 4.1 Utilizing information technology (IT) 5.1 Introducing an incentive scheme into the pay system 6.1 Conducting manpower development seminars 6.2 Allocating appropriate personnel for expansion of individual responsibilities

(2) Activity plan for institutional enhancement program

The details of the action plans for institutional enhancement are as follows:

1-1 Reforming organizational structure

Appropriate leadership decisions are established according to direction from the business management. The leadership, therefore, is required to emphasize the following points: i) to present concrete plans for self-reform and act on them; ii) to review management policy from scratch; iii) to highlight the results; iv) to break down pyramidal bureaucratic structures and develop a network-style management philosophy; v) to be familiar with conditions in the field and know their importance from direct experience. As a result, management structures are changed so as to enable more responsibility to be delegated to the field, enabling quicker decision-making.

1-2 Conducting a training program for field leaders

A field leader training program will be held for the presidents, vice presidents and heads of sections of the forest enterprises, or the heads of sections of DARD, on current management issues. This training should proceed in the following stages: i) assessing management by analyzing current conditions on the basis of indices and figures; ii) setting goals for the program based on the management assessment; iii) conducting field surveys in the relevant organizations; iv) seeking solutions based on the survey results; v) developing systems, producing manuals and taking steps to realize the plans. Since the program will have to be practical, the number of participants will be limited to a maximum of ten. In addition, outside consultants will be invited to participate.

2-1 Organizing meetings with local people

Meetings will be held regularly in every commune to inform local inhabitants about the activities and management situation of the forest enterprises. The meetings will be organized at least once a year and be hosted by the forest enterprise which has jurisdiction over each commune.

Holding the meeting with local people is one of the activities required to improve the transparency of the FEs' operations and gain the understanding and cooperation of locals. At the meetings, the following points should be explained and discussed:

(1) The results of the operations/activities

- (i) Logging: locations, figures (area, volume of the cutting, yield percentage, etc.), the names of the loggers, compliance with rules and regulations, other necessary items
- (ii) Silviculture activities: locations, figures (acreage, the number of seedlings planted, etc.), contractors, etc.
- (iii) Forest management and protection: figures, problems, evaluation, etc.
- (iv) Villager support program: achievements, problems, evaluation, etc.
- (v) NTFP collection: locations, quantities, etc.
- (vi) Wildlife conservation program: achievements, problems, evaluation, etc.
- (vii) Supply of timber for local people: quantities, etc.

(2) Plans for the next year

The same items as those in (1)

(3) Long-term plans

2-2 Publishing newsletters

Publishing newsletters as well as holding the meeting with local people are methods to inform the stakeholders of FE's operation/activities and management situation. The newsletters will be periodically released, not only to provide information on quantitative aspects of the management situation in accordance with contents of the meeting with local people such the results of the operations/activities mentioned above, but also to provide qualitative material such as price formation factors and price comparisons, the decision-making systems of each forest enterprise, and the production supply process. Furthermore, the newsletter should carry messages from the FEs and items that raise awareness of the importance of forests among local people. This will give a greater sense of security to parties who are directly or indirectly interested in the forest enterprises, including business partners such as purchasers of forest products, and also the local inhabitants and end consumers.

2-3 Improving monitoring by third party organizations

Improving monitoring of forest enterprise management will be promoted, with inspections not only by the administration but also by the private sector including the local inhabitants. It is thought that developing such a system will enable each forest enterprise to be ranked in such areas as management solidity, freedom of information, and plan achievement, thereby promoting competition among the forest enterprises.

3-1 Conducting market research

Market research will be conducted to analyze the market, products, merchandise and clients. Results can be utilized to help reassess existing value systems and develop the original goods, services or markets to meet client needs. Following on from this, it is necessary to establish the principle of "price - profit = cost", because the bureaucratically controlled price setting system of "cost + proper profit = proper price" runs counter to market principles.

4-1 Utilizing information technology (IT)

The results of various analyses such as periodic market analysis, competitive analysis, product or merchandise analysis, and client analysis will be stored electronically. This will help disseminate information through computer networks not only within each forest enterprise, but also among all the forest enterprises, provided that the infrastructure for the information network such as a telephone line or wireless is prepared. To facilitate this, an IT training program will be given for all the staff of the forest enterprises.

5-1 Introducing an incentive scheme into the pay system

An incentive scheme will be introduced into the pay system. The staff of the forest enterprises who achieve product development and business improvements will be paid bonuses. Also, salaries including staff bonuses will be announced to promote competition among the forest enterprises.

6-1 Conducting manpower development seminars

Practical manpower development seminars will be held for the staff of the forest enterprises or DARD to enhance: i) personal abilities such as influence, initiative, vitality, persistence and the capacity to handle stress effectively; ii) interpersonal relationship abilities such as leadership, persuasion, flexibility and sensitivity; iii) communication abilities such as oral expression, presentation, written expression, and listening comprehension; iv) problem solving abilities such as problem analysis, creativity, judgment and determination; v) task execution abilities such as planning or organizing, authority transfer, management control and autonomy.

6-2 Allocating appropriate personnel for expansion of individual responsibilities

The proper personnel will be allocated to promote more efficient and effective development of the forest enterprises, under the condition that each staff member fully appreciates the overall business structure and expands his/her area of responsibility.

3.9 Plans for project funds

This section provides trial estimates of revenues and funds required for the projects in the first decade of the master plan. Assumptions and methods upon which the estimates are based are described below (the specific assumptions for each category are described in each sub-section).

The revenues and the funds required have been estimated for annual cutting volumes of 32,700 m³, 24,700 m³ and 14,000 m³. 32,700 m³ and 14,000 m³ are the maximum and minimum limits respectively of the annual cutting volume range to be assigned, as shown in 3.8.1 (1). 24,700 m³ is the value at which revenues and funds required for the operation are at the break-even point. The plans for the project funds described here are rough estimates and it is important that calculated prices are regarded as relative, rather than absolute figures, and are for the sake of comparison only.

The revenues in this section have been defined as coming from the stumpage sale because it is presently the only saleable method for the FEs in the Study Area, with the exception of the Mang Canh

II FE. Therefore, if the FEs start selling round wood and sawn timber and make increased profits, the ratio of revenue to expenditure will be higher than the results of the calculations presented here. Conversely, in the case of losses, the ratio will be lower. However, in general, diversified timber sales will potentially create increased levels of profit.

The funds required are estimated based on the costs to be covered by external funds such as the fund based on the Decision 661, as well as those costs to be covered only by the revenues generated from the stumpage sale. The external funds, however, are not included in the estimate of the balance between funds that the FE is required to cover, and revenue as shown in Table I-3.9.1. Also, the cost associated with industrial silviculture in Zone A is estimated, but, as mentioned above, it is not included in the estimate of the balance between revenue and expenditure because the plantation companies will provide the funds in this area. The cost of public road construction will not be covered by revenues from the stumpage sale since the government will plan and organize this sub-project. In those situations where it will be covered by the government budget, the cost of public road construction is not included in the estimate of the balance between revenue and expenditure as above. The level of taxes is not calculated because the FEs will establish prices for the stumpage sale, which will include taxes at the time when the FEs become taxpayers (at present, companies that purchase standing trees directly pay a natural resources tax to the Provincial People's Committee). Accordingly, the value of the tax will be added to the revenues, and the funds required and prices will be balanced out.

The balance between the revenues, and the funds for which the FE is responsible is also calculated, but it should be noted that the above-mentioned expected external funds/subsidies are estimated on the basis of certain preconditions, therefore, the amount of external funds/subsidies, funds that the FE is required to cover, and the balance between revenue and expenditure will change in relation to such preconditions. No rise in prices is anticipated for either revenues or required funds. The exchange rate for the calculation was one \$US to 15,000VND.

3.9.1 Revenues

The revenues were estimated by only stumpage sale as mentioned above. The unit price of the stumpage (total sales revenues for standing trees divided by total sales volume for standing trees) was calculated from total stumpage sales results of each forest enterprise for 1994-1999. Revenues were estimated by multiplying the unit price for stumpage sales computed above by the cutting quota for each forest enterprise as shown in Table I-3.8.2. The decennial revenues for annual cutting volumes of 32,700 m³, 24,700 m³ and 14,000 m³ calculated on the basis of these conditions, are shown below in Table I-3.9.1. Moreover, sales amount and volume, for both of trees marked for cutting and trees to be cut because they are obstacle of trees marked for the cutting in the cutting operation or road construction, are reflected to the unit price of stumpage sales as well as the stumpage sales result.

Table I-3.9.1 Decennial revenues for annual cutting volume

Case	FE	Unit price for stumpage	Cutting volume	Sum (VND)
Annual cutting volume of 32,700 m ³	Tan Lap	111,361 VND/m ³	7,693 m ³	856,698,634
	Mang Canh II	244,417 VND/m ³	6,495 m ³	1,587,489,714
	Mang Canh I	117,210 VND/m ³	4,728 m ³	554,170,298
	Dak Ruong	299,915 VND/m ³	4,452 m ³	1,335,221,135
	Mang La	176,632 VND/m ³	6,270 m ³	1,107,483,267
	Mang Den	178,345 VND/m ³	3,062 m ³	546,090,859
	Annual total		32,700 m ³	5,987,153,908
	Decennial total		327,000 m ³	59,871,539,076
	Dollar terms (US\$)			3,991,436
Annual cutting volume of 24,700 m ³	Tan Lap	111,361 VND/m ³	5,811 m ³	647,130,009
	Mang Canh II	244,417 VND/m ³	4,906 m ³	1,199,147,420
	Mang Canh I	117,210 VND/m ³	3,571 m ³	418,579,817
	Dak Ruong	299,915 VND/m ³	3,363 m ³	1,008,552,798
	Mang La	176,632 VND/m ³	4,736 m ³	836,501,637
	Mang Den	178,345 VND/m ³	2,313 m ³	412,495,553
	Annual total		24,700 m ³	4,522,407,233
	Decennial total		247,000 m ³	45,224,072,331
	Dollar terms (US\$)			3,014,938
Annual cutting volume of 14,000 m ³	Tan Lap	111,361 VND/m ³	3,294 m ³	366,822,475
	Mang Canh II	244,417 VND/m ³	2,781 m ³	679,724,233
	Mang Canh I	117,210 VND/m ³	2,024 m ³	237,233,647
	Dak Ruong	299,915 VND/m ³	1,906 m ³	571,637,799
	Mang La	176,632 VND/m ³	2,684 m ³	474,080,556
	Mang Den	178,345 VND/m ³	1,311 m ³	233,809,640
	Annual total		14,000 m ³	2,563,308,351
	Decennial total		140,000 m ³	25,633,083,509
	Dollar terms (US\$)			1,708,872

3.9.2 Funds required

(1) Logging project

As the total sales are defined as stumpage sales, expenses for logging projects consist of the cruising cost that goes to FIPI, the cost of road construction and the cost of field office construction. The cruising cost is calculated at 20,000 VND per cubic meter, which is equivalent to the actual fee going to FIPI. The cost of road construction is calculated only for the forest roads and spur roads. Skidways are excluded because the cost is included in the logging costs shouldered by companies that purchase standing trees. The estimated cost of public road construction is accounted for as funds not to be covered. Additionally, the cost of field office construction, bearing in mind that these offices will be used not only for logging projects but also afforestation projects, can be most expediently accounted for in the logging projects.

1) Cruising costs

Cruising costs to FIPI are shown below in Table I-3.9.2.

Table I-3.9.2 Decennial cruising costs for annual cutting volume

Annual cutting volume of 32,700 m ³	Annual cutting volume of 24,700 m ³	Annual cutting volume of 14,000 m ³
6,540,000,000VND (US \$436,000)	4,940,000,000VND (US \$329,300)	2,800,000,000VND (Approx. US \$186,700)

2) Costs of road construction

The construction costs of forest and spur roads in relation to annual cutting volume are shown in Table I-3.9.3.

Regarding forest roads, for which quantitative plans indicating length are not considered in 3.8.2 (1), the length is estimated at 10% of 50 m per ha (5 m per ha) of the area of land used for logging. (50 m/ha is an objective figure for the total length of public roads, forest roads, spur roads and skidways. See 3.8.2 (1).) Funds for forest roads are calculated based on this estimate. Two percent of the length is assumed to be overflow bridges. Also, it is assumed that one culvert is generally installed for every 1 km of length of forest road.

Forest roads will be covered with gravel and have drainage on both sides. The unit price of forest roads is 400,000 VND/m, which is the estimate provided by a construction company in Kon Tum town. The installation prices for overflow bridges and culverts are 600,000 VND/m and 350,000 VND per unit respectively, based on the estimate above.

Table I-3.9.3 Decennial costs of road construction in relation to annual cutting volume

Case	Targeted areas for decennial logging	Item	Planned quantity	Unit price	Sum (VND)	
Annual cutting volume of 32,700 m ³	3,406 ha	Forest roads construction	New construction cost	16,691 m	400,000 VND/m	6,676,400,000
			Overflow bridge construction cost	341 m	600,000 VND/m	204,600,000
			Culverts installation price	17 places	350,000 VND/place	5,950,000
			Sub total			6,886,950,000
		Spur roads construction	New construction cost	68,125 m	150,000 VND/m	10,218,750,000
		Total (VND)				17,105,700,000
		10% of reserve funds (VND)				1,710,570,000
		Total + reserve funds (VND)				18,816,270,000
Dollar terms (US\$)				1,254,418		

Annual cutting volume of 24,700 m ³	2,573 ha	Forest roads construction	New construction cost	12,607 m	400,000 VND/m	5,042,800,000
			Overflow bridge construction cost	257 m	600,000 VND/m	154,200,000
			Culverts installation price	12 places	350,000 VND/place	4,200,000
			Sub total	5,201,200,000		
	Spur roads construction	New construction cost	51,458 m	150,000 VND/m	7,718,750,000	
	Total (VND)			12,919,950,000		
	10% of reserve funds (VND)			1,291,995,000		
	Total + reserve funds (VND)			14,211,945,000		
Dollar terms (US\$)			947,463			
Annual cutting volume of 14,000 m ³	1,458 ha	Forest roads construction	New construction cost	7,146 m	400,000 VND/m	2,858,400,000
			Overflow bridge construction cost	146 m	600,000 VND/m	87,600,000
			Culverts installation price	7 places	350,000 VND/place	2,450,000
			Sub total	2,948,450,000		
	Spur roads construction	New construction cost	29,167 m	150,000 VND/m	4,375,000,000	
	Total (VND)			7,323,450,000		
	10% of reserve funds (VND)			732,345,000		
	Total + reserve funds (VND)			8,055,795,000		
Dollar terms (US\$)			537,053			

Spur roads are estimated to average 20 m/ha, based on the calculation that the length of forest roads and skidways (skidways are assumed to make up half of 50 m/ha) are subtracted from 50 m/ha. The unit price of spur roads is 150,000 VND/m, which is the estimate provided by a construction company in Kon Tum town as in the case of forest roads. The spur roads will not be covered with gravel.

A further 10% for reserve funds is added to the above total cost for construction of forest road and spur road.

The logging areas for the decade, which provide the basis for the calculation of road construction costs, accounted for are 3,406 ha (for an annual cutting volume of 32,700 m³), 2,573 ha (for an annual cutting volume of 24,700 m³), and 1,458 ha (for an annual cutting volume of 14,000 m³), assuming that the rate of selective cutting is 30% and the stand volume for the logging area is estimated to be 320 m³ per ha.

Accordingly, the cost of road construction for the decade is estimated at 18,816,270,000 VND (Approx. \$1,254,400) for an annual cutting volume of 32,700 m³, 14,211,945,000 VND (Approx. \$947,500) for 24,700 m³, and 8,055,795,000 VND (Approx. \$537,100) for 14,000 m³.

In addition, the estimated funds required for public road construction, which are included in

funds not to be covered by the FEs, are shown in Table I-3.9.4. The expected total length of new public roads is about 47 km (see 3.8.2 (1)), and the total length of existing public roads for improvement is about 128 km.

Table I-3.9.4 Public roads construction cost

Item		Planned quantity	Unit price	Sum (VND)
New public roads construction cost	New construction cost	46,258 m	400,000 VND/m	18,503,184,000
	Overflow bridge construction cost	944 m	600,000 VND/m	566,400,000
	Culvert installation price	46 places	350,000 VND/place	16,100,000
	Sub total	19,085,684,000		
Public roads improvement cost	Repair price	125,336 m	250,000 VND/m	31,334,030,000
	Overflow bridge construction cost	2,558 m	600,000 VND/m	1,534,800,000
	Culvert installation price	125 places	350,000 VND/ places	43,750,000
	Sub total	32,912,580,000		
Total (VND)				50,419,714,000
10% of reserve funds (VND)				5,041,971,400
Total + reserve funds (VND)				55,461,685,400
Dollar terms (US\$)				3,697,446

The cost of public road construction is estimated by applying the same method and specifications that were applied to forest roads. On the other hand, the improvement cost for public roads is calculated on the basis of 250,000 VND/m, which is the estimate provided by the construction company in Kon Tum town, the same as cost estimates for new public road construction. On the understanding that road improvement covers the spreading of gravel over the existing roads and installing drainage on both sides, the estimated unit price of 250,000 VND/m has been reached by subtracting the estimated unit price of 150,000 VND/m (for new construction cost of spur roads) from the estimated unit price of 400,000 VND/m (for new construction cost of forest roads). The total cost of public road construction therefore comes to 55,461,685,000 VND (Approx. \$3,697,400).

3) Cost of field office construction

Field offices include facilities for storing and repairing heavy equipment, doing simple paperwork, accommodation and communications (see 3.8.2 (4)). Each office is assumed to be 300 m³. The cost of field office construction includes purchasing of radio communication

equipment (with 2 base units and 2 mobiles), and is calculated to total 1,075,800,000 VND for all six FEs. Tools to carry out repairs on heavy equipment and others are estimated at 9,289,500 VND for the six FEs. Altogether, a total of 1,115,440,000 VND (approx. \$74,400) is necessary for field office construction.

(2) Silviculture projects

Afforestation expenditure figures were calculated by adding an extra amount to the average unit price for 1999. The combined costs for nursery work, planting, and the first year's weeding are estimated at 23,000,000 VND/ha (the actual cost was 2,101,700 VND/ha in 1999), and that for the second year and subsequent weeding costs are estimated at 700,000 VND/ha (actual cost was 640,900 VND/ha in 1999). These data are taken from the Mang La FE's Forest Management Simple Plan (period 2001-2005). If weeding is carried out until the third year, the price per ha of afforestation reaches a total of 3,700,000 VND/ha. Adding 10% of the reserve fund to the total above, the total amount required for afforestation is 4,070,000 VND.

The maximum area of afforestation to be carried out by FEs is 527 ha (ref. Part II 3.8.1 (2)), and the cost is 2,144,890,000 VND (approx. \$143,000) according to the above trial calculation. Of the area, 29 ha to be afforested within protection forests can be funded based on Decision 661, with the cost estimated at 118,030,000 VND (approx. \$ 7,900).

For Thach Nham PFMC, the area for afforestation is 38 ha and the cost is 154,660,000 VND (approx. \$10,300). This cost can be funded in full based on Decision 661.

Rehabilitation work on bush land, consisting of enrichment planting and clearing, is estimated to cost 900,000 VND/ha on the basis of the simple plan mentioned above and past performance records. With the addition of a further 10% for reserve funds to the above figures, the total amount required for rehabilitation is 990,000 VND/ha.

The area to be rehabilitated by FEs is 767 ha, and the cost is 759,330,000 VND (approx. \$50,600) on the basis of the above unit price. Also, the area of rehabilitation for Thach Nham PFMC is 54 ha, and the cost is 53,460,000 VND (approx. \$3,600). This cost can be funded in full based on Decision 661.

Silviculture Projects to be carried out by communes are not included because they will not be carried out over the next decade (see Part II 3.8.1 (2)).

Industrial silviculture is to be organized by the plantation companies etc., with the area allocated for the Villager Support Program being 5,875 ha and the area for afforestation projects being 3,168 ha. The industrial silviculture cost is paid not by FEs but by plantation companies. On the precondition

that silviculture is implemented for one-tenth of the target area mentioned above every year and completed in ten years, only direct expenses for plantation are calculated for the decade. Other direct expenses such as road construction cost and indirect costs such as personnel expenditure of the plantation companies are not estimated.

Ten percent for sundry expenses and reserve funds are added to the silviculture cost of 3,700,000 VND mentioned above. Plantation companies are assumed to pay land rental to the Provincial People's Committee. The Kon Tum Provincial People's Committee divides the annual land rental for afforestation into 5 categories according to factors such as soil, location, topography and climate. Assuming that 20,000 VND/ha is the maximum amount of annual land rental that is paid, the rental contract will be completed in the year when the silviculture project starts. Under these assumptions, the total direct costs for silviculture are 37,799,740,000 VND (approx. \$2,520,000).

(3) Villager Support Program

The Villager Support Program will be implemented for the total target amount over a 10-year period, and the necessary funds are to be estimated. A portion of the necessary funds can be substantially covered by Program 135, therefore, it is estimated apart from the cost to be covered by FE revenues. The details are shown in the each sub-program of the Villager Support Program such as the food shortage alleviation program, restriction of shifting cultivation program, income enhancement program, and BHN improvement program. The industrial silviculture program, which is part of the Villager Support Program, is described in the section on silviculture projects.

As a first step, the funds required for all of the ancillary plans are estimated. The necessary funds include i) salaries for technical staff who are stationed at each commune for the long term, ii) personnel cost for short-term outside experts who give more specialized technical guidance (in approximately 10 fields) than the long-term staff, and iii) an allowance for coordinators who are chosen from among the villagers to make and maintain contact with the long-term staff. The long-term technical staff will normally be employed by the FE, and the cost is to be included in general management costs as will be seen in (6). The funds required for short-term outside experts and coordinators are shown in Table I-3.9.5.

Short-term outside experts will provide technical guidance for each commune for a period of 40 days a year. The necessary funds are calculated, based on i) the remuneration costs (including the per diem and accommodation for outside experts) at 750,000 VND/day, ii) gasoline costs for vehicles used as an on-site means of transportation in Kon Plong District provided by the FE at 50,000 VND/day, and iii) the precondition that half of the outside experts are dispatched from the central organization and the rest from the Central Highland region, and that they visit all communes after coming to Kon Tum (only a single visit a year), and with transportation costs to Kon Tum consisting of an airfare at

1,900,000 VND/round-trip and an overland transportation cost (e.g., bus fare) at 500,000 VND/round-trip. With the addition to the total of a further 10% as a reserve fund, the necessary funds are estimated to be 4,383,500,000 VND (approx. \$292,200).

Table I-3.9.5 The funds required for outside experts and coordinators for the decade

Item	Cost classification	Unit price	Term	Number of years	Target	Sum (VND)	
Personnel cost for short-term experts	Remuneration for experts	750,000 VND/person/day	40 days/year	10	12 communes	3,600,000,000	
	Cost for transportation on-site	50,000 VND/day	40 days/year	10	12 communes	240,000,000	
	Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	5 round-trips	10		95,000,000
		Overland Transportation cost such as bus fare	500,000 VND/person/round-trip	10 round-trip	10		50,000,000
	Total (VND)						3,985,000,000
	10% of reserve funds (VND)						398,500,000
	Total + reserve funds (VND)						4,383,500,000
Dollar terms (US\$)						292,233	
Personnel cost for coordinators	Allowance	120,000 VND/month	12 months	10	118 villages	1,699,200,000	
	Total (VND)						1,699,200,000
	10% of reserve funds (VND)						169,920,000
	Total + reserve funds (VND)						1,869,120,000
	Dollar terms (US\$)						124,608

One coordinator will be chosen from each village (total 118 persons) of all communes in Kon Plong District and these individuals will work two days a week. This cost is estimated at 1,699,200,000 VND (approx. \$113,300), based on an allowance of 120,000 VND/month.

1) Food shortage alleviation program

Estimates of the funds required for the food shortage alleviation program include the costs of irrigation facility construction for paddy field to be newly developed. The costs for irrigation facility construction are covered by both the FE and external funds based on mainly Program 135. The construction costs to be covered by FE revenues will apply to small-scale irrigation facilities using gabions. This targets 604 ha, accounting for 60% of a total area of 1,006 ha (see Table I-3.7.18) for new paddy field development. The remainder to be covered by external funds, based on mainly Program 135, will go to pay for moderately sized irrigation facilities using concrete dams. This targets 402 ha, accounting for 40% of the total.

As a first step, the estimated irrigation facility construction costs to be covered by FE revenues are shown in Table I-3.9.6.

Table I-3.9.6 Funds required for irrigation facility construction in FE-sponsored food shortage alleviation program

Item		Target areas	Required no. of irrigation facilities	Unit price		Quantity of materials required per irrigation facility	Amount of rice provided	Sum (VND)
Irrigation facility with purchased stones	Material cost	302 ha	70	Gabion	81,000 VND/unit/m ³	5 units		28,350,000
				Stones	69,000 VND/m ³	5 m ³		24,150,000
	Sub total							52,500,000
	Labor cost converted to rice			Rice	3,350 VND/kg	50 workers	1kg/worker	11,725,000
	Total							64,225,000
Irrigation facility with locally procured stones	Material cost	302 ha	70	Gabion	81,000 VND/unit/m ³	5 units		28,350,000
	Labor cost converted to rice			Rice	3,350 VND/kg	50 workers	1kg/worker	11,725,000
	Total							40,075,000
Sum total (VND)								104,300,000
10% of reserve funds (VND)								10,430,000
Total + reserve funds (VND)								114,730,000
Dollar terms (US\$)								7,649

Note: target areas divided by 4.5 ha (average of about 100 existing irrigation facilities) is not 70 (necessary number of irrigation facilities). This is because each FE and Commune estimates the number of irrigation facilities it requires, making a combined total of 70.

An individual irrigation facility is expected to cover an area of 4.5 ha, which is, as described in part II 2.2.4 (1), the average of about 100 existing irrigation facilities constructed by local people. These data show that a total of 140 irrigation facilities are necessary. Five gabions have to be purchased for each irrigation facility (according to interviews with villagers, 2-8 gabions are needed) and stones to be put into the gabions also have to be purchased when it is difficult to collect them in the area surrounding the facility. If both gabions and stones are needed for each facility, the material cost per facility is estimated at 750,000 VND (based on data from the Kon Plong District People's Committee: a 1 m³ gabion costs 81,000 VND and 1 m³ of stones 69,000 VND). If the stones are not needed, the cost is 405,000 VND (using the same unit price for a gabion shown above). If half of the facilities need the stones, the total material cost is 80,850,000 VND.

Also, according to villager interviews, assuming that 50 workers are needed to set up each irrigation facility and 1 kg of rice is provided for each worker per day, the cost of purchasing rice amounts to 23,450,000 VND (3,350 VND per kg of rice). Irrespective of whether the stones are purchased or not, it was assumed the same number of workers would be needed, because workers are required to carry the purchased stones from villages to the installation location.

As a result, summing up the material costs and the cost of human workers (converted to the cost of rice), it is calculated to be 104,300,000 VND. With the addition of a further 10% for reserve

funds to the above total, the total amount required for the irrigation facilities construction is 114,730,000 VND (approx. \$7,600).

In addition, the moderately sized irrigation facility construction costs to be covered by external funds, based on mainly Program 135, are estimated. The irrigation facilities target an area of 402 ha, as mentioned above. A moderately sized irrigation facility is expected to cover an area of 37.6 ha, which is, as described in part II 2.2.4 (1), the average of about 10 existing irrigation facilities constructed with the budget of the government. These data show that a total of 11 irrigation facilities are necessary. The funds required for constructing an irrigation facility are assumed to be 218,000,000 VND, which is the average construction cost of 17 irrigation facilities built in Kon Plong during 1999-2001. Therefore, the total amount required is 2,398,000,000 VND (approx. \$159,900).

2) Programs for restriction of shifting cultivation and income enhancement

The costs of implementing agroforestry in both programs, and the cost for irrigating existing paddy fields and the cost of materials for apiculture in the income enhancement program are estimated as the funds required.

For agroforestry, the funds required include seedling cost for 962 ha of the total target area for the restriction of shifting cultivation program and 2,788 ha of the total target area for the income enhancement program (see Table I-3.7.18). The calculated costs are shown in Table I-3.9.7. This is assuming that 100 fruit trees/ha are planted in half of the total target area and 2,000 seedlings/ha of tree species, such as those belonging to the legume family, are planted in the rest. It is assumed that fruit tree seedlings will be purchased at a price of around 4,000 VND/seedling based on interviews in the market. Regarding seedlings of tree species such as those belonging to the legume family, it is assumed that the primary materials including seeds, pots, and fertilizer will be provided by the FE, and that the villagers will raise the seedlings by themselves. On the basis of the year 2000 afforestation plan for Thach Nham PFMC, where the seedling materials price of *Pinus kesiya* was 91 VND/seedling and *Acacia auriculiformis* 58 VND/seedling, the seedling materials price for tree species is assumed to be 100 VND/seedling. Based on the estimates above, with the addition of a further 10% for reserve funds, the total amount required for the agroforestry program is 1,237,500,000 VND (\$82,500).

Table I-3.9.7 Seedling costs for agroforestry

Program	Tree species	Target areas	Unit price of seedlings	No. of seedlings for planting	Sum (VND)
Program for restriction of shifting cultivation	Fruit trees	481 ha	4,000 VND/seedling	100 seedlings/ha	192,400,000
	Tree species including legume family	481 ha	100 VND/seedling	2,000 seedlings/ha	96,200,000
	Sub total	962 ha			288,600,000
Income enhancement program	Fruit trees	1,394 ha	4,000 VND/seedling	100 seedlings/ha	557,600,000
	Tree species including legume family	1,394 ha	100 VND/seedling	2,000 seedlings/ha	278,800,000
	Sub total	2,788 ha			836,400,000
Total (VND)		3,750 ha			1,125,000,000
10% of reserve funds (VND)					112,500,000
Total + reserve funds (VND)					1,237,500,000
Dollar terms (US\$)					82,500

The funds required for the irrigation of existing paddy fields in the income enhancement program are covered by both FE revenues and external funds based on mainly Program 135, in the same way as irrigation in new paddy field development in the “1) the food shortage alleviation program” as mentioned above. Firstly, the estimated funds required for irrigation facility construction (targeting 396.75 ha) to be covered by FE revenues, are shown in Table I-3.9.8. The target area is 60% of 661.25 ha, which is the area remaining when the 822.4 ha of irrigated area (see Table I-2.2.15) is subtracted from the 1,483.65 ha of existing year-round cultivated paddy field (see Table I-2.2.14).

Table I-3.9.8 Funds required for construction of irrigation facilities in the FE-sponsored income enhancement program

Item	Target areas	Required no. of irrigation facilities	Unit price	Required quantity per irrigation facility	Amount of rice provided	Sum (VND)		
Irrigation facility with purchased stones	199 ha	45	Gabions	81,000 VND/unit/m ³	5 units	18,225,000		
			Stones	69,000 VND/m ²	5 m ²	15,525,000		
			Sub total				33,750,000	
			Labor cost converted to rice	Rice	3,350 VND/kg	50 workers	1kg/worker	7,537,500
			Total					41,287,500
Irrigation facility with locally procured stones	198 ha	44	Gabions	81,000 VND/unit/m ³	5 units	17,820,000		
			Labor cost converted to rice	Rice	3,350 VND/kg	50 workers	1kg/worker	7,370,000
			Total					25,190,000
Sum total (VND)						66,477,500		
10% of reserve funds (VND)						6,647,750		
Total + reserve funds (VND)						73,125,250		
Dollar terms (US\$)						4,875		

The costs are calculated in the same way as the construction costs for small-scale irrigation facilities using gabions to develop new paddy fields in the food shortage alleviation program. With the addition of 10% for reserve funds to the above total, the total amount required for the construction of irrigation facilities for existing paddy fields is 72,936,000 VND (approx. \$4,900).

In addition, the moderately sized irrigation facility construction costs to be covered by external funds, based on mainly Program 135, are estimated. This irrigation facility program targets 264.5 ha, accounting for 40% of the total irrigation target area as stated above. The costs are calculated in the same way as the construction costs for moderately sized irrigation facilities using concrete dams in the food shortage alleviation program as mentioned above, and are estimated to be 1,744,000,000 VND (approx. \$116,300).

Finally, the funds required for apiculture in the income enhancement program are estimated based on the assumption that 1,000 sets of beehives containing a hive, a queen and one herd of bees are provided for the whole of Kon Plong District. The price of 300,000 VND/set is based on a hearing held by the Kon Plong District People's Committee. With the reserve fund adding 10% to the total, the total amount required for apiculture is 330,000,000 VND (\$22,000).

3) BHN improvement program

The BHN improvement program targets the Ngoc Tem Commune (12 villages, 537 households) and Dak Ring Commune (12 villages, 616 households). Cost estimates for this program include the installation cost of shared water-purification tanks to ensure the reliable supply of safe drinking water, construction costs of wells and toilets, and installation cost of small-scale hydroelectric power generators. The funds required for installation of shared water-purification tanks and wells are covered by Program 135. While the material costs are estimated, the workforce required for their installation and construction will be provided free by villagers. The estimated funds required for the BHN improvement program are shown in Table I-3.9.9.

A water-purification tank will be installed in each village. Half of the villages will be provided with tanks using water from mountain streams, with the rest supplied from well water. Based on the cost of materials from Kon Tum DARD and shops in Kon Tum Town, the installation cost for water-purification tanks using mountain stream water is calculated under the following assumptions: 15 HP engines (3,300,000 VND per unit); a distance from the water source to the tank of 500 m (900,000 VND per pump, 10,000 VND/m for pipe); installation of water-purification tanks (8,000,000 VND per unit, chemicals to be changed every 5 years at a cost of 2,000,000 VND). The total amount is 230,400,000 VND for both communes. The cost required for water-purification tanks using well water is calculated under the following

assumptions: 8 HP engines (2,200,000 VND per unit); a distance from the well to the tank of 30 m (900,000 VND per pump, 10,000 VND/m for pipe, the same unit prices as above), installation of water-purification tanks (8,000,000 VND per unit, chemicals to be changed every 5 years at a cost of 2,000,000 VND, the same unit prices as above). The total amount is 160,800,000 VND for both communes.

Table I-3.9.9 Funds required for BHN improvement program

Source of funds	Item	Target	Material	Unit price	Quantity required	Sum (VND)		
External funds	Water-purification tanks installation cost (Water intake from mountain stream)	12 villages	Pump	900,000 VND/unit	1 unit	10,800,000		
			Diesel engine	3,300,000 VND/unit	1 unit	39,600,000		
			Pipe	10,000 VND/m	500m	60,000,000		
			Water-purification tank	8,000,000 VND/unit	1 unit	96,000,000		
			Chemicals to be renewed	2,000,000 VND/time	1 time	24,000,000		
		Sub total					230,400,000	
		(Water intake from well)	12 villages	Pump	900,000 VND/unit	1 unit	10,800,000	
				Diesel engine	2,200,000 VND/unit	1 unit	26,400,000	
				Pipe	10,000 VND/m	30m	3,600,000	
				Water-purification tank	8,000,000 VND/unit	1 unit	96,000,000	
	Chemicals to be renewed			2,000,000 VND/time	1 time	24,000,000		
	Sub total					160,800,000		
	Total (VND)						391,200,000	
	10% of reserve funds (VND)						39,120,000	
	Total + reserve funds (VND)						430,320,000	
	Dollar terms (US\$)						28,688	
	Well construction cost	24 villages	All materials	7,000,000 VND/unit	2 units	336,000,000		
Total (VND)					336,000,000			
10% of reserve funds (VND)					33,600,000			
Total + reserve funds (VND)					369,600,000			
Dollar terms (US\$)					24,640			
Sum[3] total						799,920,000		
Dollar terms (US\$)						53,328		
Funds to be covered by FE	Toilet construction cost	1,153 households	All materials	300,000 VND/unit	1 unit	345,900,000		
			Total (VND)					345,900,000
			10% of reserve funds (VND)					34,590,000
			Total + reserve funds (VND)					380,490,000
	Dollar terms (US\$)						25,366	
	Small-scale hydroelectric power generator installation cost	1,153 households	Hydroelectric power generator	300,000 VND/unit	1 unit	345,900,000		
			Electric wire	600 VND/m	200 m	138,360,000		
			Total (VND)					484,260,000
			10% of reserve funds (VND)					48,426,000
	Total + reserve funds (VND)					532,686,000		
	Dollar terms (US\$)						35,512	
	Sum total (VND)						913,176,000	
	Dollar terms (US\$)						60,878	

Two wells will be installed for each village. At a unit price of 7,000,000 VND for the materials (based on interviews with villagers), the construction cost required for wells is 336,000,000 VND for both communes.

A toilet will be constructed for each household. At a unit price of 300,000 VND for the materials (based on interviews with villagers), the construction cost required for toilets is 345,900,000 VND for both communes.

A small-scale hydroelectric power generator will be installed for each household. The cost for the materials is calculated based on the following assumptions: a distance from the generator to each household of 200 m (600 VND/m for electric wire); installing 300 W hydroelectric power generators (300,000 VND per unit). The total amount is 484,260,000 VND for both communes.

With the addition of a further 10% for reserve funds to the above total, the total amount required is 1,713,096,000 VND (approx. \$114,200). The total amount includes 799,920,000 VND (approx. \$53,300), to be covered by Program 135, and 913,176,000 VND (approx. \$60,900), to be covered by FE revenues.

As a result, the funds required for the entire Villager Support Program total 14,129,151,000 VND (approx. \$953,300). They include 8,751,231,000 VND (approx. \$594,700) to be covered by FE revenues, and 5,377,920,000 VND (approx. \$358,500) to be covered by Program 135.

(4) Wildlife protection and conservation program

The overall action plan for wildlife protection and conservation consists of three subprojects to be implemented in three classified areas: strict wildlife protection area, wildlife rehabilitation area and wildlife respect area. Since the subprojects share common components, the costs involved in carrying out all three subprojects are calculated by component, as shown in Table I-3.9.10.

Training for officials of the relevant organizations is to be carried out through lectures by two outside experts. This is expected to take about two weeks for each subproject (including one week for field training). On the assumption that the necessary funds are calculated based on i) the remuneration costs (including a per diem and accommodation for outside experts) at 750,000 VND/day, ii) the gasoline costs for vehicles used as an on-site means of transportation in Kon Plong District provided by the FE at 50,000 VND/day, and iii) the precondition that one of the outside experts is dispatched from the central organization and another from the Central Highland region, and with transportation costs to Kon Tum consisting of an airfare at 1,900,000 VND/round-trip and an overland transportation cost such as bus fare at 500,000 VND/round-trip, the total is 72,750,000 VND.

Table I-3.9.10 Funds required for wildlife protection and conservation program

Component	Area classification	Cost classification	Unit price	Term	Number	Number of times	Number of years	Target	Sum (VND)	
Training for officials of the relevant organizations	Strict wildlife protection area	Remuneration for experts	750,000 VND/person/day	14 days	2 persons	1 time/10 years			21,000,000	
		Cost for transportation on-site	50,000 VND/day	7 days	5 vehicles	1 time/10 years			1,750,000	
		Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000
	Overland transportation cost such as bus fare		500,000 VND/person/round-trip	1 round-trip	2 persons	1 time/10 years			1,000,000	
	Sub total									25,650,000
	Wildlife rehabilitation area	Remuneration for experts	750,000 VND/person/day	14 days	2 persons	1 time/10 years			21,000,000	
		Cost for transportation on-site	50,000 VND/day	7 days	5 vehicles	1 time/10 years			1,750,000	
		Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000
	Overland transportation cost such as bus fare		500,000 VND/person/round-trip	1 round-trip	2 persons	1 time/10 years			1,000,000	
	Sub total									25,650,000
	Wildlife respect area	Remuneration for experts	750,000 VND/person/day	14 days	2 persons	1 time/10 years			21,000,000	
		Cost for transportation on-site	50,000 VND/day	7 days	5 vehicles	1 time/10 years			1,750,000	
Transportation cost for experts		Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000	
	Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	2 persons	1 time/10 years			1,000,000		
Sub total									25,650,000	
Total									76,950,000	
Organizing workshop on protection and management of wildlife	Strict wildlife protection area	Remuneration for experts	750,000 VND/person/day	3 days	2 persons	1 time/10 years			4,500,000	
		Cost for transportation on-site	50,000 VND/day	3 days	1 vehicle	1 time/10 years			150,000	
		Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000
	Overland transportation cost such as bus fare		500,000 VND/person/round-trip	1 round-trip	2 persons	1 time/10 years			1,000,000	
	Sub total									7,550,000
	Wildlife rehabilitation area	Remuneration for experts	750,000 VND/person/day	3 days	2 persons	1 time/10 years			4,500,000	
		Cost for transportation on-site	50,000 VND/day	3 days	1 vehicle	1 time/10 years			150,000	
		Sub total								
	Wildlife respect area	Remuneration for experts	750,000 VND/person/day	3 days	2 persons	1 time/10 years			4,500,000	
		Cost for transportation on-site	50,000 VND/day	3 days	1 vehicle	1 time/10 years			150,000	
		Sub total								
	Total									16,850,000
Organizing local hunting patrol teams	Strict wildlife protection area	Remuneration for experts	750,000 VND/person/day	14 days	2 persons	1 time/10 years		10 communes	210,000,000	
		Cost for transportation on-site	50,000 VND/day	14 days	1 vehicle	1 time/10 years		10 communes	7,000,000	
		Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000
	Overland transportation cost such as bus fare		500,000 VND/person/round-trip	1 round-trip	2 persons	1 time/10 years			500,000	
	Sub total									219,400,000
	Organizing technical seminars for local people	Wildlife respect area	Remuneration for experts	750,000 VND/person/day	3 days	1 persons	1 time/1 year			22,500,000
Cost for transportation on-site			50,000 VND/day	3 days	1 vehicle	1 time/1 year			1,500,000	
Transportation cost for experts			Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/1 year			1,900,000
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	1 time/1 year			500,000	
Sub total									48,000,000	
Establishing patrol system		Strict wildlife protection area	Radio communication system: 1 base and 3 mobile radio communication units	63,000,000 VND/set		1 set			10 communes	63,000,000
	Wildlife rehabilitation area								63,000,000	
Limitation of illegal activities	Strict wildlife protection area	Notice printing cost	20,000 VND/piece					94 villages	1,880,000	
			20,000 VND/piece					14 schools	280,000	
	Sub total									2,160,000
	Wildlife rehabilitation area	Loudspeaker van	500,000 VND/vehicle/day	7 days	1 vehicle	1 time/year	8		28,000,000	
Total									30,160,000	
Education on environmental conservation	Strict wildlife protection area	Remuneration for experts	750,000 VND/person/day	1 day	1 person	1 time/2 years	5	26.4 villages + schools/2 years	99,000,000	
		Cost for transportation on-site	500,000 VND/day	1 day	1 vehicle	1 time/2 years	5	26.4 villages + schools/2 years	66,000,000	
	Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/2 years	5	Total of 132 villages and schools	1,900,000	
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	1 time/2 years	5		500,000	
	Sub total									167,400,000
Training in monitoring methods	Strict wildlife protection area	Remuneration for experts	750,000 VND/person/day	2 days	1 person	1 time/10 years			1,500,000	
		Transportation cost for experts	500,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000	
	Wildlife rehabilitation area	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			1,900,000	
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			500,000	
Sub total									3,900,000	
Establishing evaluation	Strict wildlife protection area	Remuneration for experts	750,000 VND/person/day	1 day	1 person	1 time/2 years	5	10 communes	37,500,000	
		Cost for transportation on-site	500,000 VND/day	1 day	1 vehicle	1 time/2 years	5	10 communes	25,000,000	
	Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/2 years	5		9,500,000	
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	1 time/2 years	5		2,500,000	
	Sub total									74,500,000
Sum total (VND)									1,267,160,000	
10% of reserve funds (VND)									126,716,000	
Total = reserve funds (VND)									1,393,876,000	
Dollar terms (US\$)									92,925	

Workshops on protection and conservation of wildlife are to be organized by two outside experts, which will take about three days in each subproject. This is estimated to cost 16,850,000 VND, using the same unit prices and schema shown above, and based on the intention that workshops for the three subprojects will be consecutively conducted.

Local hunting patrol teams are to be organized by two outside experts, which will take about two weeks each in ten communes including the strict wildlife protection area and the wildlife rehabilitation area. The funds required for organizing the teams are estimated to come to 219,400,000 VND, using the same unit prices and schema that apply to the holding of the workshops.

Technical seminars for the local people are to be held for three days a year by an outside expert every year for the subproject and in the wildlife respect area. The estimated cost of 48,000,000 VND has been derived by basically using the same unit prices and schema that apply to the holding of workshops shown above, except that outside experts are to be dispatched from the central organization only.

To establish a patrol system it will be necessary to introduce a radio communication system into ten communes in the strict wildlife protection area, and the wildlife rehabilitation area. 630,000,000 VND is required for this operation (assuming 1 base and 3 mobile radio communication units for each commune of both areas).

Limitation of illegal activities includes putting up government notices by distributing posters at each village (94 villages) in ten communes in the strict wildlife protection area and the wildlife rehabilitation area, at each school in Kon Plong District (14 schools), and carrying out loudspeaker van campaigns for a week every year from the third year. The cost is calculated based on the following assumptions: 20,000 VND for making a poster with three colors and 500,000 VND/day for the leased vehicle costs. In total, 30,160,000 VND is required for these measures.

Education on Environmental conservation will be implemented by an outside expert. This activity will be carried out in all the target villages and schools with one day allocated to each village or school. Since this activity will be conducted biannually, it will take ten years to reach all the target villages and schools. The estimated cost of 167,400,000 VND has been derived by using the same unit prices and schema that apply to the holding of technical seminars, except that the cost for on-site trips is included in the leased vehicle cost (the same unit price as the loudspeaker van shown above).

Training in monitoring methods and establishing an evaluation system will be provided in two subprojects in the strict wildlife protection area and the wildlife rehabilitation area. The training is estimated to cost 3,900,000 VND on the assumption that the trainings is held for two days for each subproject, the cost for on-site trips is excluded because the training will be held in Kon Tum town,

using the same unit prices and schema that apply to the holding of technical seminars. Furthermore, an outside expert will carry out an evaluation in each commune in both areas once every two years. This is estimated to cost 74,500,000 VND, using the same unit prices and schema that apply to the holding of workshops.

With the addition of a further 10% for reserve funds to the above total, the total amount required for the wildlife protection and conservation program is 1,393,876,000 VND (approx. \$92,900).

(5) Institutional enhancement program

The calculations of the funds required for institutional enhancement action plans are shown in Table I-3.9.11.

Training programs for field leaders will be held twice over the entire decade, and each training program will take five months. This is estimated to require 454,800,000 VND, on the assumption that the necessary funds are calculated based on i) the direct personnel costs (including a per diem and accommodation for a lecturer) at 750,000 VND/day, ii) the indirect costs equal the direct personnel costs, and iii) the precondition that the lecturer is dispatched from the central organization with transportation costs to Kon Tum consisting of an airfare at 1,900,000 VND/round-trip and overland transportation (such as bus fare) at 500,000 VND/round-trip.

Table I-3.9.11 Funds required for institutional enhancement program

Component	Cost classification	Unit price	Term	Number	Number of times	Number of years	Target	Sum (VND)	
Training programs for field leaders	Direct personnel cost	750,000 VND/person/day	150 days	1 person	2 times/10 years			225,000,000	
	Indirect cost	750,000 VND/person/day	150 days	1 person	2 times/10 years			225,000,000	
	Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	2 times/10 years			3,800,000
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	2 times/10 years			1,000,000
	Total							454,800,000	
Publishing newsletters	Printing cost	1,000 VND/copy		6,817 households	1 copy/year	10		68,170,000	
	Total							68,170,000	
Monitoring by a third party expert	Remuneration for experts	750,000 VND/person/day	7 days	1 persons	1 time/year	9	6 FEs	283,500,000	
	Cost for transportation on-site	500,000 VND/day	7 days	1 vehicle	1 time/year	9	6 FEs	189,000,000	
	Transportation cost for experts	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	1 time/year	9		17,100,000
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 persons	1 time/year	9		4,500,000
	Total							494,100,000	
Utilization of IT	Computer buying expenses	30,000,000 VND/set		1 set			6 FEs	180,000,000	
	Direct personnel cost	750,000 VND/person/day	7 days	1 person	1 time/10 years			5,250,000	
	Indirect cost	750,000 VND/person/day	7 days	1 person	1 time/10 years			5,250,000	
	Transportation cost for instructors including bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	1 time/10 years			500,000	
	Total							191,000,000	
Manpower development seminars	Direct personnel cost	750,000 VND/person/day	14 days	1 person	3 times/10 years			31,500,000	
	Indirect cost	750,000 VND/person/day	14 days	1 person	3 times/10 years			31,500,000	
	Transportation cost for lecturers	Airfare	1,900,000 VND/person/round-trip	1 round-trip	1 person	3 times/10 years			5,700,000
		Overland transportation cost such as bus fare	500,000 VND/person/round-trip	1 round-trip	1 person	3 times/10 years			1,500,000
	Total							70,200,000	
Sum total (VND)								1,278,270,000	
10% of reserve funds (VND)								127,827,000	
Total - reserve funds (VND)								1,406,097,000	
Dollar terms (US\$)								93,740	

A newsletter will be published by each FE once a year, and distributed to each household in Kon Plong District. This is estimated to cost 68,170,000 VND, based on a unit price of 1,000 VND.

The management of each FE will be monitored by a third party expert. This will take one week every

year for each FE from the second year of this project. The estimated cost of 494,100,000 VND is derived by using the same unit prices and schema that apply to the evaluation of the wildlife protection and conservation program.

The utilization of information technology (IT) will require the distribution of personal computers (PCs) to all FEs. To facilitate this, a one-week IT training program will be given to all concerned staff in the FEs. It is estimated that a set of PCs will cost around 30,000,000 VND. On the assumption that the instructor is dispatched from the Central Highland region, using the same unit prices and schema that apply to the training programs for field leaders, a total of 191,000,000 VND is required.

Manpower development seminars will be held three times over the entire decade, each taking two weeks. This is estimated to cost 70,200,000 VND, using the same unit prices as the training programs for field leaders.

With the addition of a further 10% for reserve funds to the above total, the total amount required for the institutional enhancement program is 1,406,097,000 VND (approx. \$93,700).

(6) General management cost

In this section, the salaries of FE staff and office expenses are estimated. The total cost of staff salaries at each FE for ten years is estimated to be 5,700,240,000 VND (approx. \$380,000) for all six FEs. This is calculated on the basis of monthly salary by position, according to interviews in the former Mang Canh II FE. This is assuming that one member from the 12-member extra extension staff will be assigned to each of the 12 communes including Kon Plong Town, with the primary goal of making the Villager Support Program successful. In addition, the total office expenses for the six FEs are estimated to be 4,647,440,000 VND (approx. \$309,800), based on the actual performance records for 1998-1999.

3.9.3 Balance of revenues and funds which the FE is required to cover

The calculations of the balance between the above revenues and funds which the FE is expected to cover, excluding the external funds (silviculture project costs and the Villager Support Program costs) based on mainly Direction 661 and 135, the industrial afforestation funds, and public roads construction funds are shown below in Table I-3.9.12.

Table I-3.9.12 Project fund plan

(Unit: \$1,000)

	Annual cutting volume of 32,700 m ³	Annual cutting volume of 24,700 m ³	Annual cutting volume of 14,000 m ³
Revenues	3,991	3,015	1,709
Funds required to be covered by the FE	3,389	3,009	2,423
(1) Logging costs	1,762	1,351	796
1) Cruising costs	436	329	187
2) Costs for road network construction	1,254	948	537
3) Costs for field office construction	74	74	74
(2) Silviculture costs	186	186	186
(3) Costs for the Villager Support Program	595	595	595
(4) Costs for the wildlife protection and conservation program	93	93	93
(5) Costs for the institutional enhancement program	94	94	94
(6) General management costs	690	690	690
Balance	569	6	-747
Funds not to be covered by FE	6,598	6,598	6,598
External funds	381	381	381
Silviculture project costs to be covered by external funds	22	22	22
Villager Support Program costs to be covered by external funds	359	359	359
Industrial afforestation funds	2,520	2,520	2,520
Afforestation costs	2,454	2,454	2,454
Land rental	66	66	66
Public roads construction funds	3,697	3,697	3,697