

Annex 3: Descriptions of Proposed PO Activities (Draft)

No. 1.1	Activities	Collect and Analyze written documents
Main output:		Common knowledge on past experiences, other research and project results to utilize for the initial design
Location		The collected documents will be utilized at FSIV library
Period		3 months
Responsible Organization		Main: FSIV, Sub: DFD, Sub-DFD
JICA Expert		Main: Chief Advisor (CA) Natural Forest Rehabilitation (NFR), Sub: Silvicultural Technique Development (STD) and Participatory Forest Management (PFM)
Main user of this output		Project, FSIV, DFD, Sub-DFD, and forest owners

Purpose of this activity:

There have been many forestry related projects and researches in Vietnam. Lessons, experiences and research results should be integrated into the Project activities. Revision and systematization of documents of which themes are related to project activities will serve as an initial foundation for establishment of Hoa Binh demonstration site and a base for research and on-farm trial design and implementation.

Important Concept and Strategy:

The purpose of this activity is not just to collect documents, but to utilize collected information. The first prioritized information should be tangible and on recent outputs. It would be effective for this activity to be coherent with "PO 1.2. Conduct field visits to advanced projects and good examples." Through PO1.2, project member could analyze information gathered and accumulate lesson learnt simultaneously. It is also essential for the project to collect information on budgets, maps and reports from the watershed management board and forestry enterprise for understanding how 661 program is implemented on the ground, because this initial stage is the only time to assess the current situation of 661 program and to identify the constraints that the program and people face to feed the findings into the initial design of other activities of this Project. It is highly recommended to visit the currently established plantation and natural regeneration sites under the 661 program implementation to evaluate the employed techniques and survival rates. It is necessary to establish the "Technical Task Force (TCF)" to decide directions and analyze the contents of each activity under Output 1, and activities under other Outputs related to information dissemination.

Expected Obstacles:

1. Information is scattered.
2. Analysis and integration of collected documents will require time.
3. Cataloging and shelving will require time.
4. Collection of information is "NOT" the purpose of this activity. Have to be analyzed and utilized into project activities.

Required equipment and materials

Computer for cataloging and internet network, Scanner, Adobe Distiller (PDF file conversion software), Copy machine, Filing folder

Special Concern:

There is an advanced project on native species, The Native Species Reforestation Project (Proyecto de Reforestación con Especies Nativas: PRORENA), on the use of native tree species on degraded lands in Panama. This initiative is carried mostly by the Center for Tropical Forest Science (CTFS) at the Smithsonian Tropical Research Institute, the Center for International Development (CID) at Harvard's Kennedy School of Government, the Tropical Resources Institute at the Yale School of Forestry and Environmental Studies (YTRF), and in partnership with both government organizations of Panama (e.g., The National Environmental Authority (ANAM), the Panama Canal Authority (PCA)), and private organizations (Ecoforest-Panama S.A., Futuro Forestal S.A.). PRORENA's mission is the development of strategies for the reforestation of degraded landscapes in Panama using native tree species, and the development of resource management professionals with capacity to utilize and expand on such efforts.

The PRORENA Project was created building on the experience in Tropical Asia. Many of the issues associated with forestland conversion and watershed services are already being addressed elsewhere in the tropics, notably in Asia where scientific forestry has been practiced over 150 years. The CTFS program in Asia, coordinated by CID in collaboration with YTRF and the National Institute of Environmental Studies of Japan (NIES), involves ten research partnerships and long-term field projects in seven countries. CTFS, CID and YTRF are trying to bring this wide-ranging experience to bear on current forestry problems in Panama. Because the issues of urban expansion, rural development, land conversion, and watershed degradation are common to many regions in the globe, the application of these resources and experience within Panama is seen as having regional and pan-tropical relevance, as well as serving as a strong basis for inter-regional comparisons.

Thus, information exchange with PRORENA would bring fruitful experiences for designing activities. For more information on PRORENA and contacts:

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No. 1.2	Activities	Conduct field visits to advanced projects and good examples
Main output		Common knowledge on past experiences, other research and project results to utilize for the initial design
Location		Northern Vietnam
Period		3 months
Responsible Organization		Main: DFD, Sub: FSIV, Sub-DFD
JICA Expert		Main: PFM, Sub: CA/NFR and STD
Main user of this output		Project

Purpose of this activity:

There are many forestry related researches and projects in Vietnam, which have accumulated valuable experiences and have produced various kinds of guidelines, manuals, reports, etc. Field visits will enable the Project members to understand and evaluate the results and lessons learnt from their experiences. One of the main reasons to establish the Hoa Binh demonstration site (Activity 2.1) is to integrate and exhibit the research results that are currently scattered, as well as the project results. This activity will provide the research the basis for establishing the demonstration site. This activity will also give the Project an essential opportunity to learn important lessons for implementing on-farm trials.

Important Concept and Strategy:

The system and actual implementation of 661 program is simple for Vietnamese counterparts, but not for Japanese Experts. The First priority for the Japanese Expert is to get familiar with the 661 program and how it is implemented. This cannot be done only through literature research. The most effective way is to hold a series of interviews with Sub-DFD, Watershed Management Board (WMB) and Forestry Enterprise (FE), and combine field visits and literature reviews. It is strongly recommended to translate and review documents and maps that WMB and FE possess, and to cross check them on the ground, to observe how the program are implemented with farmers, especially on reforestation, additional planting and natural regeneration.

After having a clear picture on the realities and constraints the 661 program and farmers are facing, field visits to research sites and advanced projects would be useful to learn how the designs and implementing procedures of these projects and researches can be used in order to mitigate the constraints. Especially 'Social Forestry Development Project Song Da Watershed' by MARD and GTZ, which has more than 10 years experiences on silvicultural development and participatory rural organization strengthening, would provide valuable information and lessons. Field visits to study FSIV's past experiences in other regions would also offer an opportunity to integrate the findings in the Hoa Binh demonstration site.

Expected Obstacles:

1. Number of project staff who can participate in the field visit will be limited.
2. Logistics: Schedule coordination and Vehicle (Project vehicles must have been imported at the time of the project inception).
3. Information and knowledge sharing (Use video camera and digital camera to show the project members who could not participate).
4. Has to be purpose and output oriented: This activity should not be a just trip for members. The Projects has to ensure that participants will feed in the field visit experiences into designing Hoa Binh demonstration site and on-farm trials.

Required equipment and materials

Vehicles, Video cameras, Digital Cameras, Projector, Screen

List of Project

Must

1. Social Forestry Development Project Song Da Watershed (At least 4 days required)
2. Projects and researches by FSIV
3. Projects by Sub-DFD Hoa Binh Province (Including Multi-strata forest establishment using Iron Trees).
4. Projects by JIFFRO and Forest University on Multi-strata forest establishment

Others

- See Annex 17: List of Forest Sector Projects in Vietnam (as of August 2002)
 Annex 18: Main Research Subjects of FSIV in the fields of Forest Rehabilitation, Native Species, and Sustainable Use of Sloping Land.

No. 13	Activities	Identify prominent species and methodology for the natural regeneration experiment and on-farm trials.
Main output		List of indigenous tree species, exotic species, and non-timber tree species. An initial design for experiments, procedures and technologies on seedling production for forest rehabilitation. This activity should include acquisition of seeds.
Location		FSIV and Hoa Binh Plant Breeding Centre
Period		9 months
Responsible Organization		Main: FSIV, Sub: DFD, Sub-DPD
JICA Expert		Main: STD, Sub: CAN/IFR
Main user of this output		Project

Purpose of this activity:

The list of tree species and the initial design for seedling production shall serve as the basis for experimental activities and establishment of seedling production in the initial stages of the project. In this PO Activity, indigenous tree species, exotic species, and non-timber tree species have to be analyzed. FSIV has recently compiled information on 30 native species (FSIV, 2002. *Use of Indigenous Species in Reforestation in Vietnam*). However, the knowledge on these 30 native species is theoretical or experiential, and has not reached the practical level where mass production can be done. It is crucial to collect native species seeds because without the seeds and an effective seedling production method, many of the forest rehabilitation activities cannot be conducted. This activity will also provide the basis for "PO 2.3. Conduct and analyze research on native species seedling production."

Important Concept and Strategy:

Use of Indigenous Species in Reforestation in Vietnam published by FSIV in 2002 presents the initial foundation for this activity. Other valuable experiences on native species seedling production by FSIV and Hoa Binh Plant Breeding Centre will also offer useful information for this PO activity. One of the most critical factors for the success of this project is the native tree seedling production. It is critical for the project to secure the sources of seed supply. Through this PO activity, the Project should carefully evaluate seed sources at the beginning of the project. Under this Activity, the Project should also examine agents of seed dispersion. In tropical regions, it is said that up to 90 percent of vascular plants rely on animals to disperse their seeds. Studies indicate that a forest close to primary forest attract more seed dispersers and show more rapid regeneration.

Critical Assumption:

The list of species and design for seedling production should be based on the information gained from the documents collected, field survey, existing models, and opinions of experts who have experiences in seedling production. The most important output expected from this activity is the identification of seed sources. The Project has to identify seed sources from which the Project purchases or acquires, or mother trees of which shapes are well-formed and seasonal rhythms are already known.

Expected Obstacles:

1. Identification of seed sources.
2. Secured seed sources that provide seeds constantly.
3. Whether seasonal rhythm of seed production is suitable for the planting season.
4. The biological knowledge of prominent species is still limited.
5. Cutting propagation methodology is not established in many of prominent species.

Required equipment and materials

Field survey tools (tape measure, compass, and other survey tools),
Ladders
Climbing cables and air-gun (To collect seeds from mature trees)
Refrigerator for seed storage at Hoa Binh Plant Breeding Centre
Need to specify other items

Species for this experiment

Native	Canarium	Castanopsis	Cinnamomum	Dracoutumelum	Chukrasia
Exotic	Acacia	Gmelina			

(Please check seed sources of so-called Buddha trees, which are naturally grown along the road to Da Bac.)

List of Tree Species Seedling Production

No	Scientific name	Vietnamese name	Seed source	Amounts
1	Acacia hybrid	Keo lai		
2	Acacia mangium	Keo sai bong		
3	Acacia auriculiformis	Keo l. trum		
4	Eucalyptus urophylla	Bich dun		
5	Dracopisium dupretianum	Sau		
6	Canarium album	Tr. m. trng		
7	Canarium nigrum	Tr. m. đen		
8	Cinamomum iners	Re hu-ng		
9	Michelia medicifolia	Giai xanh		
10	Cassia siamea	Muang đen		
11	Erythrophloeum fordii	Lim xanh		
12	Paltocarpum tonkinensis	Lim xit		
13	Pinus merkusii	Thang nhua		
14	Castanopsis indica	Gif sai		
15	Paulownia fortunei	Kang		
16	Chloreria tabularis	L. l. hoa		
17	Tecora grandis	Tach		
18	Cunninghamia lanceolata	Sa mu		
19	Cinnamomum cassia	Quo		
20	Maya senegalensis	Mu co		
21	Sophora japonica	Hoi		
22	Lagerstroemia speciosa	Song luc		
23	Alstonia scholaris	Hoa sta		
24	Jacaranda mimosifolia	Phing vu		
25	Terminalia catappa	Bung		
26	Calamus platyacanthus	Song met		
27	Calamus tetradactylus	Moy mop		
28	Bambusa oldhamii	Tre phi loan		
29	Dendrocalamus flagellifer	S-02		
30	Dendrocalamus membranaceus	Luang		
31	Ilex kauehu	Chi pang		
32	Camellia oleifera	Sa		
33	Leucaena leucocephala	Keo dfu		
34	Camellia sinensis	Chi san		
35	Pyrus beshia	Muc met		
36	Albizia leonensis	Muc sa		
Total				

List of Fruits Tree Species Seedling Production

No	Scientific name	Vietnamese name	Seed source	Amounts
1	Litsea chinensis	Vgi		
2	Mangifera indica	Xouy		
3	Sapindus longana	Nh-n		
4	Diospiros kaki	Hang		
5	Citrus sinensis	Cam		
6	Citrus reticulata	Quy-t		
7	Citrus limon	Chanh		
8	Citrus paradisi	Bei		
9	Evaphoa carambola	Khô		
10	Ananas comosus	Đoa		
11	Annona squamosa	Na		
Total				

No. 1.4	Activities	Publish leaflets on hands-on techniques targeting local farmers
Main output		Hands-on and user friendly manuals based on currently available information for farmers and forestry officers
Location		
Period		10 months
Responsible Organization		Main: FSIY, Sub: DFD, Sub-DFD
JICA Expert		Main: PFM, Sub: STD
Main user of this output		Local farmers, forest management organizations, project

Purpose of this activity:

Local farmers have their own experiences in planting and tending trees. However, their involvement in forest activities is usually within the government programs. Thus, the activities haven't become part of their daily lives. Observations reveal that information on forest management is also limited at the farmers' level. Farmers need to access techniques on forest rehabilitation that are easy to understand and apply. User-friendly leaflets (manuals), which use diagrams and pictures to assist their understanding, will enable farmers to access useful information and experiences developed or proved in other regions. These leaflets and manuals can also be used during the on-farm trials, which will be conducted under the Project, to provide useful information to the participating farmers.

Important Concept and Strategy:

Activities 1.1 and 1.2 will offer the basis of this Activity (1.4), as there have been/are many forestry related projects and researches in Vietnam, and many of them have published easy-understandable manuals. Many of these manuals are comprehensive, but might contain information that may not be applicable for the on-farm trial. It is necessary for the Project to examine and analyze how these existing manuals would suit the purpose of the on-farm trials. There should be some additional information that would become available through the establishment of the Hoa Binh demonstration site, analysis of the baseline survey, and the implementation of on-farm trials. Since these new findings should feed into the leaflets, the leaflets should not be printed in a large volume. A desktop publishing system that allows constant changes on demand would be most suitable and recommended.

Critical Assumption:

There should be a Vietnamese counterpart who understands the importance of visual information on the leaflets, who can elaborate them with easy and simple words. At the same time, this person should clearly understand the purpose of on-farm trial, and the kinds of hands-on techniques needed and useful for farmers.

Expected Obstacles:

None

Required equipment and materials

Computers, Scanner, Desk-top publishing software, Low cost printing machines

No. 1.5	Activities	Establish web-based database for collected information
Main output		Establishment of a platform for information sharing
Location		FSIV
Period		4 years
Responsible Organization		Main: FSIY, Sub: DFD
JICA Expert		Main: STD, Sub: PFM
Main user of this output		All peoples who has interest in this subject

Purpose of this activity:

The purpose of this activity is to establish a web-based database in which existing information are compiled and disseminated in a systematic manner. Project results should also be integrated and channeled through this database. The database should be accessible by all interest parties. This database can also offer the Project an opportunity to have open public relations and to exchange views and opinions with people who are interested in the Project's subjects.

Important Concept and Strategy:

It would be difficult for the Project to establish a platform of the web-based database in the first year, as the project will have to carry out many other activities in the first year. Therefore, it is proposed that this activity is initiated in the 2nd year. FSIV possesses a server and staff, which the Project can utilize for this activity. During the 1st year, it is recommended to send the Vietnamese information counterpart from FSIV who will be in charge for maintenance of the server and the system, to Okinawa Training Center. S/he will acquire advanced technology on web-based data base system to prepare the smooth inception of the establishment in the second year. Hiring of local web designers to assist the establishment may also be considered by the Project.

Critical Assumption:

Establishment and maintenance of database require good knowledge and skills in written English. FSIV needs to assign an officer who is fluent English.

Expected Obstacles:

Establishment of a search system and a large data (documents such as reports) store system (A good example of web-database system for this type is the World Bank web page) Project reports and written documents should be bilingual in both English and Vietnamese. Translation will require a lot of capital investment and time.

Required equipment and materials:

Several terminals (PCs), Routers, LAN system (Wireless preferably) in the Project office, UPS (large Back-up system), Web-design software (Photo shops, Front Page, Dissiler, etc.)

No. 2.1.1	Activities	Design and plan research and farmland management activities for the Hoa Binh Demonstration Site based on currently available techniques
	Main output	Design and plan of establishment of Hoa Binh Demonstration Site where exhibits many of currently available techniques on Forest Rehabilitation and farmland management
	Location	Hoa Binh Demonstration Site
	Period	2 months
	Responsible Organization	Main: FSIV, Sub: Sub-DFD
	JICA Expert	CA/NFR, STD, and PFM
	Main user of this output	Project, DFD, FSIV, Sub-DFD

Purpose of this activity:

The main purpose of this PO Activity is to design and plan the Hoa Binh Demonstration Site based on currently available techniques of which information will be accumulated through Output 1. The appropriate design and plan will assure smooth implementation of the Demonstration Site.

Important Concept and Strategy:

Information from the document collection, field visits, and past FSIV and Sub-DFD experiences, will be analyzed in terms of their applicability to 661 Program at the initial stage of the Project implementation. The purpose of the establishment of Hoa Binh Demonstration Site (PO 2.1.3) is to exhibit techniques on forest rehabilitation and farmland management, which would be applicable within the framework of 661 Program. This does not exclude possibilities of exhibiting techniques that are effective but expensive to establish. However, cost analysis should be conducted, and information on establishment cost should be presented to the visitors, to enable them analyze the applicability of the demonstrated techniques in their own contexts.

The end-users (targets users) of the techniques exhibited at the Site are farmers who would be participating 661 Program. Therefore, the techniques exhibited at the Site should be low in establishment and maintenance costs (at the level affordable by the farmers).

When government organizations establish demonstration sites, there is a tendency to establish such sites with high level of investment, to show well-designed and maintained examples. Level of investment (labor and other input) should be carefully planned in order to avoid such tendency, because dissemination of the techniques among the potential farmers may be negatively affected (i.e., if the labor requirement were received to be too high for farmers to introduce the techniques on their own, they may not adopt the techniques).

It is also important for the Project to design the site in a way that allows continuous change (incorporation of results of research activities and on-farm trial findings: See PO 2.6.1). Thus, the initial design of the Site should not use the whole area, but should leave some space for the later years.

Techniques on farmland management will also be exhibited in the Demonstration Site (For details see PO 2.5.8). The techniques on farmland management would not be operated directly within the framework of 661 Program. Rather, this activity will be conducted aiming at improving the farming system on sloping land (i.e., reducing slash-and-burn agriculture), thereby addressing one of the main causes of the forest degradation. Without having access to effective farming methodologies, farmers who rely on upland farming are likely to continue slash and burn agriculture. Therefore, farming methods that will enable farmers to refrain from slash and burn agriculture should also be demonstrated in the Hoa Binh Demonstration Site.

The Technical Task Force (TTF) has to take the main role in designing and planning the Demonstration

Site. Before making any plans, the project has to hold a series of meetings with the communities surrounding the Hoa Binh Demonstration Site, to build good relationship with them in order to ensure smooth implementation. The plan should not be based on desk-study alone. Sub-DFD and JICA Expert on PFM have to take an important role in the series of meetings explained above, to facilitate the meetings in order to understand farmer's ideas and communities' needs.

Expected Obstacles:

1. Communities' expectations on the Project may differ from what the Project will actually implement. It is important for the Project to provide explanation of the project's purpose from the outset, and also to maintain good communication.
2. Farmer's experiences and ideas should be incorporated into the design and plan. However, it will be a difficult task to integrate them.
3. Place where model to be established will have site condition that represents the characteristics of the target area.

Critical Assumption:

The Project will be able to build close collaborative relationship with neighboring communities

Required equipment and materials

None

No. 2.1.2	Activities	Design and plan on-farm trial activities in the selected two communes
	Main output	Design of trial model and plan of trial activities.
	Location	Two previously selected communes in the Project area
	Period	2 months
	Responsible Organization	Main: Sub-DFD, Sub: FSIV
	JICA Expert	Main: PFM, Sub: CA/NFR
	Main user of this output	Project, DED, Sub-DFD

Purpose of this activity:

There are two objectives for this activity: (1) To assess the problems and constraints of the 661 Program at the operational level (i.e., the reality of the 661 Program), both in terms of *implementation procedure* and *technical aspects*, and (2) to initiate the field verification of existing techniques on forest rehabilitation and farmland management, which have been assessed (through the activities under Output 1) to have high potential for field adaptation. This activity will also be useful for the Project Staff to familiarize themselves with the 661 procedures and techniques, while they are expected to study on-going activities under the 661 Program as well.

Lessons and findings from this activity will feed into the designing phase of the research and on-farm trial activities of 2nd year and onwards (PO 2.2.4 and 2.2.5)*.

In view of the Project's strategy, which is to develop sets of technologies that can be used within the framework of the 661 Program, on-farm trials under this activity must be implemented following 661 Program procedures, including the cost norms and level of input. As for activities on farmland management, the Project should collaborate with AFE.

* The designing phase will have 3 important inputs: (1) the Baseline survey (PO 2.2.1) on the reality of farmers; (2) Lessons from past experiences and analysis of existing information (Output 1); and (3) this activity).

Important Concept and Strategy:

The main actor in this PO Activity will be Sub-DFD, W/4B, and FE for the implementing forestry related on-farm trials and AFE for farmland management. The most important issues to consider here is to analyze the workloads that Sub-DFD, W/4B, FE and AFE have to take in the implementing stage. These organizations have to operate their own routine works in addition to the tasks under this Project. Careful labor and budget allocation to these 2 communes must be decided in this planning phase. For the plots to assess the constraints and problems of 661 Program, the designing on the tree plantings must be done by local authorities based on the current system. For the plots to verify existing techniques, designing will be done jointly by the Project and local authorities. Designing on the forest rehabilitation and farmland management should be based on the information compiled and analyzed during the 1st half of the 1st year through Output 1.

Critical Assumption:

None

Expected Obstacles:

None

Required equipment and materials:

Site survey equipment

No. 2.1.3	Activities	Construction of the Hoa Binh demonstration site
	Main output	The Demonstration site where techniques that the Project promotes are exhibited
	Location	Hoa Binh Demonstration Site
	Period	9 months
	Responsible Organization	Main: FSIV, Sub: Sub-DFD
	JICA Expert	Main: CA/NFR, Sub: STD, PFM
	Main user of this output	Local Farmers, Forestry related organizations, DFD, Sub-DFD, FSIV, W/4B, FE

Purpose of this activity:

It will take a long period to establish a demonstration site. This PO Activity will try to ensure establishing a demonstration site within the project period (5 years) using currently available techniques on natural forest rehabilitation and farmland management. The Demonstration Site will display different types of silvicultural and farmland management techniques based on the designs established in PO 2.1.1.

Important Concept and Strategy:

One of the most important matters in this activity is to establish a close collaborative relationship with the neighboring communities. Proposed area for Hoa Binh Demonstration Site is located on land allocated to local farmers. The basic agreement to carry out activities for construction of the Demonstration site must be reached before the initiation of the Project. However, detailed negotiations and agreement may take place after the Project actually starts. The role of Sub-DFD in this negotiation processes will be critical. Past experience in securing land for the project funded by "Missal Greening Funds" in the same communities will serve as a useful example to follow. FSIV was the implementer for the Nissel Forest, and the project has been successful so far.

In order to construct the Demonstration Site, an access road to the proposed area will be needed. The road should be carefully designed and needs to have an easy access from the adjacent Hoa Binh Nursery. This has to be done right after the detailed agreements are reached between the Project and the Communities. Construction will be done using local contractor(s). Bidding process should be taken to assure that cost of the construction will be Vietnamese price, not foreign price.

For the establishment of the Demonstration Site, local people from the neighboring communities will be hired as laborers on daily basis. The Project needs to assign a Vietnamese counterpart as the site manager, who is responsible for the establishment and maintenance of the Demonstration Site. The first year establishment will be done based on currently available techniques, and for following years, the Project is expected to introduce new designs to the Demonstration Site, which are developed along the course of the project implementation.

Careful assessment on the species and amounts of seedlings for the Demonstration Site will be required right after the initiation of the Project. Close collaboration with the Hoa Binh nursery center will facilitate smooth implementation of this activity.

Critical Assumption:

1. Agreement on the use of the area will be reached before the initiation of the Project
2. The project will build good collaborative relationship with the neighboring communities.
3. Road construction will be finished by February of Year 2004 in order for the Project to enable a proper site preparation before the actual tree planting scheduled in March.
4. The project will assign a Vietnamese counterpart who is knowledgeable on local setting and able to be the manager in locally and have responsibilities for the establishment of the Demonstration Site.

Expected Obstacles:

1. Once the agreement is reached between the GOV and the adjacent communities, the main obstacle to establish the Demonstration Site will be eliminated.
2. The project has to keep track on the cost of the establishment of the site for economic analysis.
3. At this point in time, actual cost for the construction of the access road to the site is unknown.

Required equipment and materials

Detail for this activities should be decided before the inception of the Project

No. 2.1.4	Activities	Conduct on-farm trial activities in the selected two communes
Main output		Analysis on the currently employed system in the implementation of 661 Program
Location		2 Selected communes
Period		8 months
Responsible Organization	Main: Sub-DFD, Sub: FSIV	
JICA Expert	PFM	
Main user of this output	Project, DFE, Sub-DFD, FSIV, WMB, FE, AFE	

Purpose of this activity:

As stated in PO 2.1.2, there are two objectives for this activity: (1) To assess the problems and constraints of the 661 Program at the operational level (i.e., the reality of the 661 Program), both in terms of *implementation procedure and technical aspects*, and (2) to initiate the field verification of existing techniques on forest rehabilitation and farmland management, which have been assessed (through the activities under Output 1) to have high potential for field adaptation. Through this activity, the Project Staff, especially the JICA Expert on PFM and his/her counterparts, will be able to examine 661 Program through participating in the actual implementation on the ground. Lessons and findings from this activity will feed into the designing phase of the research and on-farm trial activities of 2nd year and onwards (PO 2.2.4 and 2.2.5)*.

Important Concept and Strategy:

It is important for JICA Expert on PFM and his/her counterparts to participate in all steps from the identification of farmer to the monitoring of the sites. In view of the Project's strategy, which is to develop sets of technologies that can be used within the framework of the 661 Program, on-farm trials under this activity must be implemented following 661 Program procedures, including the cost norms and level of input.

Careful elaboration of document based on analysis will provide the basis of the future design (PO 2.2.4 and 2.2.5) and recommendation (PO 2.6.7).

Activities on farmland management will also be implemented in this 1st year, based on the currently available techniques and procedures. The Project must coordinate well with AFE to implement the activities, and let the AFE to take its initiative.

As the detailed procedure and criteria for on-farm trials will be decided in PO 2.2.5 after the implementation of baseline survey, it is recommended that activities on farmland management is initiated with a low level of investment.

Critical Assumption:

None at this moment.

Expected Obstacles:

1. The implementation of activities might bring a difficult situation because detailed criteria and procedure will not have been established.

Required equipment and materials

Detail for this activities should be decided before the inception of the Project.

No. 2.1.5	Activities	Analyze and evaluate the initial findings of 2.1.3 and 2.1.4, and feed them into PO 2.2.4 and PO 2.2.5
	Main output	Integrated design and procedure in PO 2.2.4 and PO 2.2.5
	Location	
	Period	3months
	Responsible Organization	FSIV and Sub-DFD
	JICA Expert	CA/NFP, STD, and PFM
	Main user of this output	Project, FSIV, Sub-DFD

Purpose of this activity:

The effective use of the experiences and analytical results in the designing and planning phases (PO 2.2.4 and PO 2.2.5) is the main purpose of this activity. Activities in PO 2.2.4 and PO 2.2.5 will bring the results of the initial phase of the project (completion of documents, field visits, and baseline survey) together, for analysis and evaluation. Experiences from PO 2.1.3 and 2.1.4 will also provide valuable information for the designing phase.

Important Concept and Strategy:

In order to accomplish the purpose of this Activity, a series of workshops should be held to integrate, analyze, and evaluate the initial findings. Such workshops should be attended by Project staffs and relevant advisers. The Technical Task Force (TTF) should take the lead role in this process.

Critical Assumption:

The Project has personnel who are able to facilitate the series of workshops for the above purpose.

Expected Obstacles:

1. The integration would not be easy.
2. Time lag might happen between PO 2.1.3 and PO 2.1.4 and the designing phase.

Required equipment and materials

None

No. 2.2.1	Activities	Implement and analyze baseline survey.
	Main output	Report on socio-economic conditions and natural condition of the project area.
	Location	Commune Profile: The whole target area (20 communes) Detailed Survey: 5 or 6 selected communes
	Period	4 months
	Responsible Organization	Main: Sub-DFD, Sub: FSIV
	JICA Expert	PFM
	Main user of this output	Project

Purpose of this activity:

The results of this baseline survey will serve as the basis for all Project activities. Research and on-farm trial activities under the Project should all be based on the reality of farmer's needs, which will be assessed by the baseline survey. Base on the result of this PO Activity, the Project may revise or add activities. Objectively verifiable indicators stipulated in the PDM will also be refined based on the findings of the baseline survey.

This survey will also provide basic information for identify: 3 criteria on the input level, selection of farmers, and procedures for on-farm trials. Identification of key variables for the economic analysis should also be coordinated with this PO Activity.

Important Concept and Strategy:

This PO Activity is the one of the key activities of this Project on which other activities will be build on. It is recommended to dispatch a short-term JICA expert who is knowledgeable on the socioeconomic analysis and who can integrate the analytical results into the research and on-farm trial designs. (TOR for this short-term expert is provided in Annex 7 of the Project Document.) The Project must have carried out information compilation and field visits prior to the implementation of the baseline survey, so that key variables, hypothesis, and the key questions the project wish to have answered in the baseline survey are made clear.

As described in the box of "Recommendation" below, it is wise to carry out the questioner survey with the targeting communes where on-farm trials actually will take places. Thus, the baseline survey should be implemented with the close relationship with PO 2.2.3 on the selection of communes.

While the survey may face some biases as explained in "Expected Obstacles", this activity on the baseline survey will provide a valuable learning opportunity not only for Vietnamese counterparts, but also for JICA experts to become familiar with the reality of farmers. It is necessary for all project staff to be involved in the processes. It is also important to consider this PO activity as a training opportunity for Vietnamese counterparts, especially for field staff of Sub-DFD, WMB, FE, and extension officers on the socioeconomic survey methodology.

The Technical Task Force (TTF) should also take a leading role in this activity to design the questionnaire and to utilize the results in the designing of the PO activities.

Expected Obstacles:

1. Once a JICA short-term expert carries this PO activity, no difficult obstacle is foreseen. However, it would be a challenging task to integrate the results of the baseline survey into the designing processes of research and on-farm trials. The questionnaire should be carefully designed to enable such integration.
2. It is proposed that DARD extension officers, and the technical officers of WMB and FE will be involved in the survey as field assistants to collect the questionnaires. Since they are governmental officers,

- farmers might feel uncomfortable to give honest response. Results of the survey might have biases in this regard.
- In order to carry out a field survey with those governmental officers mentioned above, training on how to implement a field survey is necessary.
 - It would take at least 2 weeks to complete field survey. It is necessary to coordinate well with DARD on the timing of the implementation in order to avoid time conflicts with the necessary routine works. Tiring (i.e., time of the year, day of the week, time in the day) of the survey should also take into consideration the schedule of the farmers.
 - The total numbers of targeting communes and farmers have to be thoughtfully examined.
 - The sample size of the survey should be 200 or more.

Required equipment and materials:

Means of transportation, cameras, software to create an interface between the questionnaire and Excel (such as file maker or access)

Recommendations:

There are many ways to carry out the baseline survey. It is recommended, however, to follow the steps described below in order to implement other PO Activities smoothly:

- Elaboration of 20 commune profiles
- Creation of selecting criteria (together with PO 2.2.3)
- Selection of 8 to 10 communes based on the criteria
- Elaboration of hamlet profiles for the selected communes
- Final selection of 5 or 6 communes (or decide to carry out questionnaire survey with selected communes: 8-10)
- Implementation of questionnaire survey for the target communes
- Analysis of data
- Village workshops in the hamlets where the Project is sure to carry out on-farm trials to confirm the results of questionnaire survey
- Integration of the research results into designing, criteria, and procedure

No. 2.2.2	Activities	Identify potential sites for research activities
Main output	Selection of suitable research sites	
Location	FSIV Hoa Binh Research station and other sites in the watershed	
Period	4 months	
Responsible Organization	Main: FSIV, Sub: Sub-DFD	
JICA Expert	Main: STD	
Main user of this output	Project	

Purpose of this activity:

Effective and smooth implementation of the research activities of the Project highly depends on this Activity. The sites must meet the project's objectives (including types of forest, site condition, representativeness of farming systems) and the sites must be secured and maintained during project implementation period and after project termination. All research sites must also serve as demonstration sites. Careful selection of the potential research site is crucial.

Important Concept and Strategy:

Many of research activities can be done within the FSIV Hoa Binh Research Station. However, access to this site is not very easy, hence its value as a demonstration site is limited. Accessibility will also make it difficult for Vietnamese counterparts and JICA Experts to frequently visit to the FSIV Hoa Binh Research Station.

One of the main reasons for establishing the Hoa Binh Demonstration Site is to secure a demonstration site that is easy to access. Many research activities should take place at the Hoa Binh demonstration site as well. However, some of research activities require pre-established stands and naturally grown secondary stands, which the Hoa Binh demonstration site cannot offer. In this case, it is necessary to identify potential research sites in addition to the Hoa Binh Research Station and Hoa Binh Demonstration Site. Accessibility will be one of the important criteria in identifying these additional sites. It is also important to establish control plots for the research activities.

Critical Assumption:

The research sites have to be securely protected from intrusion by unidentified farmers and large animals such as cattle. If research sites are established outside of the FSIV Hoa Binh Research Station, it is essential to establish an agreement on the conduct of research activities between the Project and landowners.

Expected Obstacles:

- If research sites are established outside of the FSIV Hoa Binh Research Station, careful negotiations with landowners are important.
- Accessibility to the research station is the main obstacle to establish research sites as well as demonstration sites.

Required equipment and materials

Means of transportation, cameras, field survey tools such as compass and metric tapes, GPS, GPS data conversion software

No. 2.2.3	Activities	Identify potential sites for on-farm trial activities
Main output		Selection of suitable on-farm trial sites
Location		5 to 6 selected communes
Period		4 months
Responsible Organization		Main: Sub-DFD, Sub: FSTV
JICA Expert		Main: PFM
Main user of this output		Project

Purpose of this activity:

Effective and smooth implementation of on-farm trial activity for the 2nd year onwards is depending upon this PO activity. The identification of sites has to meet the project's objectives (including types of forest, site condition, and typical farming system by farmers) and the secured maintenance of on-farm trial activities after the termination of project is also very important.

Important Concept and Strategy:

The initial task for this PO Activity is to establish criteria on the selection of target sites for on-farm trial activities. Detailed selection criteria should be identified covering aspects of natural and socio-economic conditions, community organizations, state of forest management conditions, and accessibility. It is recommended to establish the selection criteria with WWB and FE because criteria that these organizations currently employ in the implementation of 661 Program should be fully integrated into Project's selection criteria.

The total numbers of the community where the Project will conduct on-farm trial will be 5 or 6. Since 2 communes would have been already selected for the first year on-farm trial activities, 3 to 4 additional communes will be selected through this PO activity based on the selection criteria mentioned above, from the remaining 18 communes. Actual selection processes should go along the implementation of baseline survey, which will elaborate commune and hamlet profiles. With the selection criteria and these profiles, the Project will be able to select the target 5 or 6 communes.

Critical Assumption:

None

Expected Obstacles:

1. No obstacles are foreseen.

Required equipment and materials

Means of transportation, cameras, field survey tools such as compass and metric tapes, GPS, GPS data conversion software

No. 2.2.4	Activities	Establishment of research design and procedures
Main output		Detailed plans for research activities
Location		
Period		3 months
Responsible Organization		Main: FSTV, Sub: DFD, Sub-DFD
JICA Expert		Main: STD, Sub: CAN/FR
Main user of this output		Local farmers and officers participating in implementation of project

Purpose of this activity:

In order to ensure successful results from research activities within the limited project duration of 5 years, it is important to have a well-defined and detailed project design, which can produce data that could meet the requirements for conducting statistical analysis. The design and plan must suit local conditions, which will become clear from Output 1 and the baseline survey.

The final product of the research activities will be scientific reports (see PO 2.6.2) and a recommendation to 661 Programs (see PO 2.6.7). Project staffs involved in designing research activities must keep these end-results in mind from the beginning.

Important Concept and Strategy:

This PO Activity is planned to start when Output 1 and baseline survey results have become available. Research design and procedures will be the key output that will be built on the efforts of the first 6 months of the project activities. Careful integration of all findings from the first 6 months into the research design and procedures could be done through a series of workshops.

It would be recommended to dispatch a JICA short-term expert who is knowledgeable on research design and research planning (based on the request of JICA Expert on STD).

The Technical Task Force (TTF) should play the key role to examine the research design that will be developed through this activity. Presentations at the Project Steering Committee (PSC) will be required, and the all research designs should be approved by the PSC.

Expected Obstacles:

1. Integration of the analytical results of compiled documents, field survey, and the findings from the baseline survey into research design will be a challenging task.
2. Selection of suitable species must be done carefully.

Required equipment and materials

Means of transportation, field survey tools such as compass and metric tapes, GPS, GPS data conversion software

short-term expert who will participate in the designing stage is also expected to provide advice in designing the on-farm trials.

Expected Obstacles:

1. Integration of the analytical results of compiled documents, field visits, findings from the baseline survey, and research results into the design of the on-farm trial will be a challenging task.
2. Integration of the project results of the first 6 months will require a lot of discussion and internal workshops among the project staff.
3. It might be difficult to design on-farm trial activities strictly within the framework (criteria, procedures, and cost norms) of the 661 Program. In some cases the Project may need to consider trials with some modifications (in which case the modification will be part of the recommendations to the 661 Program).
4. It may be difficult to ensure the income for households who participate in project activities in initial stage (e.g., Farmers may not be able to allocate sufficient level of labor on their farming activities, as they will be allocating part of their labor force on project activities).

Required equipment and materials:

Means of transportation, field survey tools such as compass and metric tapes, GPS, GPS data conversion software

No. 2.2.5	Activities	Establishment on-farm trial designs and procedures
Main output		Suitable guidance for each specific model.
Location		
Period		3 months
Responsible Organization		Main: Sub-DFD, Sub: FSIV
JICA Expert		Main: PFM, Sub: CA/NFR, STD
Main user of this output		Project

Purpose of this activity:

The purpose of on-farm trial activities is to assess whether sets of technologies developed by the Project are feasible within the local contexts or not. The results of on-farm trials will provide concrete basis for "PO 2.6.7 Make recommendations for 661 program based on experimental results and on-farm trial results." Similar to PO 2.2.4, a well-defined and detailed project design will be critical in order to obtain meaningful results from the activities within the limited years (5 yrs).

This PO activity has additional purposes, which is to identify criteria for selecting farmers for the on-farm trials, and to identify the level of inputs for the on-farm trials.

There is an opinion that the input level of 661 Program is too low to provide economic incentive to farmers. However, it is important for the Project to design the criteria on the level of input and procedures for the on-farm trial at the same level with (or a level close to) 661 Program, because these criteria are expected to be integrated into the 661 Program.

There will be 3 main products expected from on-farm trial activities: (1) hands-on manuals targeting farmers; (2) manuals for extension workers and educational materials to assist their work (see PO 2.6.3); and (3) recommendation to 661 Programs (See PO 2.6.7). The manuals for extension workers should include data that support the validity of the techniques to be introduced. Thus, Project staffs involved in designing on-farm trial activities must keep these end-results in mind from the beginning.

Important Concept and Strategy:

The design and process of the on-farm trial activities of the 1st year are explained in PO 2.1.2 and 2.1.4. This PO Activity (2.2.5) will be on the 2nd year onwards, and details will be designed based on the experiences from the 1st year.

Criteria for selecting target farmers, and the decision on the level of inputs, will require careful analysis and discussion among project staff. The decisions will be made based on the outputs from PO 1.1(Collection & analysis of written documents), PO 1.2(Field visits), and PO 2.2.1(Baseline survey). Similar to PO 2.2.3, this PO Activity will be the key output of the first 6 months, which would have integrated the finding that have accumulated by then.

While the designing of the on-farm trial should be flexible, and should reflect the lessons from the experiences in the 1st year, the design and procedure should be made keeping in mind the end result of the of the on-farm trial, which is to recommend sets of technologies applicable in the 661 Program (For example, the level of input should be considered realistically).

The main implementer of on-farm trial will be the field workers of WMB, FE, and AFE, coordinated by Sub-DFD. The design and procedure of the on-farm trials must be made in view of these organizations' and field workers' capacities.

As mentioned earlier, 2 different types of manuals are expected to be produced based on the results of the on-farm trial activities. These end-results must be kept in mind from the beginning of the designing phase.

The Technical Task Force (TTF) will examine the designs of the on-farm trial. Final decision and approval of the design and procedures will be made by the Project Steering Committee (PSC). The JICA

No. 2.2.6	Activities	Conduct survey on natural condition of the research and on-farm trial sites.
	Main output	Basic natural information of the sites, and hands-on guideline and procedure on field survey
	Location	Project activity area
	Period	4 years and 5 months
	Responsible Organization	Main: FSVJ
	JICA Expert	STD
	Main user of this output	Project and field officers

Purpose of this activity:

In order to obtain concrete results from research and on-farm trials, basic information on natural conditions such as soil types, microclimate, and original vegetation types at each site is necessary. It will be very useful to create guidelines and procedures for field officers on how to conduct field surveys.

Important Concept and Strategy:

It is important to install a weather monitoring system at FSVJ Hoa Binh Research Station at the beginning of the project. It is also necessary to have detailed information on the current vegetation types at every site before any project activities will take places. Additionally, it is recommended to set up fixed points where the project can take photos periodically to check the changes of land use and tree developments. Easy-notable posts should be placed at these fixed points. Investigation on soil types is also necessary. However, this can be done while the project activities are on going unless the purpose of the project activities is targeting to see the effects of trees on soils and vice versa. The total number of fixed points and samples for survey should be well determined into the activity designs (PO 2.2.4 and 2.2.5). The number of samples should carefully be designed.

Expected Obstacles:

FSVJ has a lot of experience on this issue. No difficult obstacle is foreseen.

Required equipment and materials:

Means of transportation, cameras, field survey tools such as compass and metric tapes, GPS, GPS data conversion software, other equipment and chemical reagents should be well examined.

No. 2.3	Activities	Conduct and analyze research on native spp. seedling production
	Main output	Establishment of methodology on suitable native species and on mass production
	Location	Breeding Plant Center of Hoa Binh and Breeding Center of FSVJ
	Period	4 years and 5 months
	Responsible Organization	Main: FSVJ, Sub: Breeding Plant Center of Hoa Binh
	JICA Expert	Main: STD, Sub: CA/NFR
	Main user of this output	Governmental Seedling Center, Seedling production organizations

Purpose of this activity:

Many of Vietnamese seedling centers have long experiences in native seedling productions. FSVJ's experiences on native species are also great advantage for this activity. However, the experiences and information on the seedling production are scattered or not been disseminated well. Additionally, the lack of secure seed sources hinders mass production of native seedlings. The purpose of this PO activity is to establish and create foundation for native species seedling production, which will include the identification of secure and stable seed source.

As the research design and research needs will be determined along the course of the project implementation, coordination between FSVJ and Hoa Binh Plant Breeding Centre will be important.

Important Concept and Strategy:

Detailed design and research needs are not well established so far. However, the past experiences on native species seedling production and "PO 1.3 Identify prominent species and methodology for the natural regeneration experiment and on-farm trials" should provide the right direction for this PO activity. This PO Activity also tries to establish a method on mass seedling production, which include secure acquisition of native species seeds. Thus, it is clear that this PO activity has to start with the identification of seed sources. If seeds are not available, vegetative propagations have to be tested. Seedling production must start right after project inception in order to meet the demand of the initial year activities. Usually, the volume of seedling production has to be based on the demand for each species. In the first year, however, the details of project activities and their scale will not be precisely determined. Thus, the level of seedling production for the first year must estimated based on best knowledge.

Critical Assumption:

1. Native species seeds are available during the for the first year seedling production.
2. Seeds will be securely supplied along the course of the Project implementation.

Expected Obstacles:

1. Seedling supply for the first year activities. The Project has to coordinate well with Hoa Binh Plant Breeding Centre on the first year production.
2. Identification of stable (reliable) seed sources

Required equipment and materials:

Seed storage refrigerator, other seedling production equipments will be well examined in the project

No. 2.4.1	Activities	Establish control plots to examine and analyze natural regeneration
Main output		The bases of information on natural condition
Location		Project area (Research sites and on-farm trial sites)
Period		4 years and 2 months
Responsible Organization		Main: FSIV
JICA Expert		Main: STD
Main user of this output		Project

Purpose of this activity:

To evaluate and compare research and on-farm trials result accurately.

Important Concept and Strategy:

It is essential to establish control plots for all research designs, in order to obtain data that can be used for statistical analysis. Control plots should be clearly delineated and signboards should be installed. Establishment control plots should be integrated as part of all activity designs (PO 2.2.4 and PO 2.2.5). Sites for control plots must be selected carefully, to represent conditions where no intervention has (and will not) occurred. Establishment, monitoring and analysis of data measured in controlled plots will provide scientific basis for accurate evaluation of natural regeneration and forest rehabilitation in project area.

Several difficulties are expected in the establishment of control plots in on-farm trial activities. The procedure to establish control plots with farmers has to be carefully developed.

Expected Obstacles:

1. Establishment of control plots for on-farm trials will be difficult, as it will involve farmers' activities which the Project may not have full control over.
2. Identification of measurable variables need to be done carefully.

Required equipment and materials

Means of transportation, cameras, field survey tools such as compass and metric tapes, GPS, GPS data conversion software, signboards

No. 2.4.2	Activities	Experiment on plantation of selected native spp. on bare-land
Main output		List of species, and technology for plantation of native species on bare land.
Location		Research sites
Period		4 years and 2 months
Responsible Organization		Main: FSIV
JICA Expert		SDT
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE

Purpose of this activity:

There are several on-going projects that deal with plantation of native tree species in Vietnam. However, systemized and integrated sets of technology for planting native species for degraded land have not been developed and disseminated so far. This activity, which aims to develop silvicultural strategies and guidelines for the rehabilitation of degraded bare-lands with native tree species, is an important initiative.

The initial hypothesis:

It is possible to plant native species on bare land if suitable silvicultural techniques and afforestation techniques are applied.

Important Concept and Strategy:

The use of exotic species for the plantation on bare lands tends to be more favored due to their well-known management methods, developed markets, and the high availability of readily improved seeds. On the other hand, the use of native species for reforestations tends not to be favored due to unknown behavior of most species, limited markets (for only traditionally well-known tree species), and the low availability of seeds.

This PO activity aims to establish silvicultural methodologies for the use of native species on degraded bare land. Thus, many of different species, especially the pioneer species, will be tested in this PO activity. It is also fundamental to identify and establish seed sources for the prominent native tree species in the accordance with PO 2.3. As the techniques developed in this activity need to ensure forest rehabilitation on bare land, it would be ideal that selected species are fast growing with high economic value that will bring income to local people.

Having an idea of multi-strata forests, it is also recommended to combine exotic species that are able to grow on a harsh environment, which can also create favorable microenvironments for native species that require a delicate micro condition. Regarding species selection, as stated in PO 1.3, a forest which is close to primary forest attracts more seed dispersers and show more rapid regeneration. Thus, it would be also worthwhile for the Project to consider whether the seeds are edible for seed dispersers, in the selection of native tree species.

Expected Obstacles:

1. Soil erosion may increase in the first years.
2. Selection of native tree species (PO 1.3) requires integration of currently available knowledge and experiences, which will be a challenging task.

Required equipment and materials:

The tools for afforestation and establishment of plots. Details of the tools have to be analyzed carefully.

No. 2.4.3	Activities	Direct sowing of tree species seeds on bare lands
Main output		Procedures and techniques for the treatments of vast area of unused degraded grass lands through direct sowing
Location		Research sites
Period		4 years and 2 months
Responsible Organization		Main: FSJV
JICA Expert		STD
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE

Purpose of this activity:

Many of degraded lands are covered with grass. Establishment of tree stands through planting is secure, but costly. However, very little investigation on the direct sowing of tree species seeds on bare lands has been carried out in Vietnam, and feasibility and potential of the methods have not been examined. This type of rehabilitation methodology is challenging, but would potentially have a wide range of applicability once established, as it will require lower cost than the planting methods.

Important Concept and Strategy:

Under the 661 program, the cost for establishing a new plantation is 2.5 million Dong per hectare. Government deducts the costs of seedlings from the above cost, and pays the remaining as labor cost to the participating farmers. If the direct sowing method is established, cost for seedling will not be required, hence the allocations to farmers may increase. There are several items to be tested: use of tilling methods, use of fire, and use of small clods (balls) with earth, seeds and fertilizer. Land preparations methods and patterns also need to be tested. The forms of sowing plots and the distances between each seed also need to be considered. One of the prominent species for direct sowing seeds is *Acacia*. However, several native pioneer species also needs to be tested. Direct planting of sticks using *Morus* spp. and *Grevillea sepium* could also be effective. Once the methods are established, thinning methods have to be introduced as well.

The initial hypothesis:

Direct sowing is applicable on certain site conditions

Critical Assumption:

None

Expected Obstacles:

Identification of prominent native tree species for direct sowing would be one of the main constraints.

Required equipment and materials

Soil preparation equipment, provision of seeds and other materials,

No. 2.4.4	Activities	Experiment on additional planting of selected native spp. in degraded forests
Main output		Appropriate technology and suitable native tree species for additional planting
Location		Research sites
Period		4 years and 2 months
Responsible Organization		Main: FSJV
JICA Expert		STD
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE

Purpose of this activity:

This PO Activity is one of the main research activities of this Project. Technique on additional planting will be directly utilized in 661 program. Currently, *Chukrasia tabularis* is mainly used under 661 program in Hoa Binh. This PO activity aims to examine other native tree species and their behaviors after additionally planted.

Important Concept and Strategy:

There are many naturally regenerated forests on abandoned upland, which use to be used for farming. Local farmers perceive that the economic value of these forests is low, and hence the forest is used for farming activities after been left for certain years in fallow. One way of increasing the value of forests is to plant economically valuable tree species, which are considered as late succession and able to adapt to shade condition. The 661 Program adopts additional planting as one of its activity, under the assumption that local people would not clear the forests for the purpose of up-land farming if they consider that forests have economic value. However, the current techniques and species used under the 661 Program are not sufficient to convince farmers on the economic value.

This PO Activity has to examine the effectiveness and feasibility of native species additional planting that is been conducted under the 661 Program. Experiences from the SFDP Song Da Project (MARD/GTZ) reveal that enrichment planting is technically difficult. If planting of native species on bare lands is more cost effective and technically feasible compared to additional planting, the Project may recommend 661 Program to reconsider the priority of this method. Likewise, if other techniques such as thinning and coppicing or the protection contract provides sufficient incentive for farmers to protect natural forests, the Project also needs to assess the priority of additional planting under the 661 Program.

It is also true that it would be difficult for the Project to analyze the results of additional planting, because additionally planted native species of which characteristics can survive under shade and harsh competitions among already established vigorous pioneer species might not grow big enough to be analyzed. Thus, this research might also have to consider analyzing the enriched forest stands that are already established under 661 Program.

The initial hypothesis:

It is possible to rehabilitate and increase value of depleted natural forest by additional planting of suitable species with high economic value.

Critical Assumption:

Species for additional planting have to match with site condition, ecological condition, fast growing, and have economic value.

Expected Obstacles:

1. Planting cost for site preparation and maintenance may be high.

Required equipment and materials

Equipment for transportation of seedlings, materials and tools for planting.

No. 2.4.5	Activities	Experiments on assisting (accelerating) establishment of valuable native tree species.
Main output		Appropriate technology for the establishing stands of valuable native tree species.
Location	Research sites	
Period	4 years and 2 months	
Responsible Organization	Main: FSIV	
JICA Expert	STD	
Main user of this output	Local people, DFD, Sub-DFD, WMB, FE	

Purpose of this activity:

The main focus of this research activity is the techniques for manipulation of degraded naturally re-grown tree stands through selective cutting, thinning, and coppicing methodology. Thus, identification of valuable tree species, and selection of trees to be left uncut, are the most fundamental for this activity. This research has to unveil currently unidentified valuable native tree species in the so-called degraded naturally re-grown stands. At the same time, this research has to create easy field guides for field officers and farmers to identify the valuable target tree species.

Important Concept and Strategy:

Creation of artificial gaps through silvicultural manipulations such as selective cutting, thinning and coppicing could accelerate the growth of targeted trees. At the same time, the thinned/cut woods can be utilized as firewood. This silvicultural methodology is likely to be widely accepted by farmers, but it is very important to teach cutting technique and purpose of this method. Without proper guidance, this method has a risk of accelerating the depletion of forest resources.

This research activity has to make sure that once thinned/cut low economic value trees, leaves and small branches should be left on the forest floor for both protection of soil and nutrient recycle.

The initial hypothesis:

It is possible to rehabilitate and increase value of depleted natural forest by assisting (accelerating) establishment of valuable native tree species.

Critical Assumption:

None

Expected Obstacles:

1. Identification of economically valuable species for regeneration.
2. Determination of the density of tree stands require lots of expertise.

Required equipment and materials

Means of transportation, cutting devices.

No. 2.4.6	Activities	Experiment on the combination of bamboo and other tree or non-timber spp.
Main output		Sets of technologies to establish mix-plantation of bamboo (<i>Dactyloctenium</i>) with other species.
Location		Research sites
Period		4 years and 2 months
Responsible Organization		Main: FSNV, Sub: Sub-DFD
JICA Expert		STD
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE

Purpose of this activity:

Bamboo is the most popular vascular plant among farmers in the project area due to its economical value and fast growing characteristic. However, bamboo stands do not allow other tree species to intervene or establish. It is difficult to observe other vascular plants within the stands, and their floors on a steep slope tend to be bare due to runoff. It is very important for farmers to have bamboo forests because they are one of important income sources. However, the creation of symbiotic stands of bamboo with other tree species is very needed from the point of view of watershed protection.

Important Concept and Strategy:

About half of the seedlings produced in Hoa Binh Province are bamboo (more than 200,000). However, bamboo is not the best species for watershed protection, but there is no other attractive tree species that can be accepted easily by farmers. It would be very difficult to replace the demand for bamboo, but a promotion of mix-plantation of bamboo with other tree species is possible under 661 Program. Currently WMB employs a planting methodology using 10m X 10m of bamboo plantation with 2.5m X 2.5m of *Cruciatia tabularis*. These past experiences in the mix plantation should be fully examined first. It is also needed to test other fast growing native trees or non-timber tree species in the mix-plantation.

The initial hypothesis:

Valuable native tree and non-timber species can grow within the bamboo forests.

Critical Assumption:

None

Expected Obstacles:

1. Identification of tree species which can establish and compete with bamboo.

Required equipment and materials

Equipment for transportation of tree, materials and tools for planting.

No. 2.4.7	Activities	Introduction of non-timber spp. in both degraded and established forests
Main output		Sets of technologies which would improve economic value of both degraded and established forests through the introduction of non-timber species.
Location		Research sites
Period		4 years and 2 months
Responsible Organization		Main: FSNV
JICA Expert		STD
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE

Purpose of this activity:

Farmers' activities to expand agricultural frontier is one of the main causes of forest depletion. Forests are converted to agricultural land, because farmers perceive that the economic value of forests is low. One way to preserve forest resources is to increase economic value of forests. Currently bamboo is regarded as an economically viable vascular plant in the project area. In this PO Activity, it is proposed to research non-timber species that can be introduced into both degraded and established forests, which is attractive enough for farmers to select instead of bamboo.

Important Concept and Strategy:

Voluntary tree planting activities by farmers are not commonly observed in this project area. Most farmers seem to have low interest in forestry related activities, except for planting bamboo, which guarantees short-term economic return. As stated PO 2.4.6, however, bamboo is not the best in species selection, but no other prominent species have been found. There is also a risk on sudden collapse of bamboo market due to rapid expansion of bamboo supply.

This activity on the introduction of non-timber species in both degraded and established forests is expected to examine other choices in non-timber tree species. This methodology is similar to PO Activity 2.4.4 on additional planting of selected native spp. in degraded forest. In this activity, enrichment methodology using non-timber spp. will be employed in degraded forests.

Many of farmers have stated in the past investigations that they could not find market for fruits, so that they have lost their interest in planting fruits. In the search of prominent non-timber tree species, therefore, analysis on market will be critical. (The investigation on market issues has to be done within the framework of PO 2.4.10 and PO 2.5.10 on economic analysis.) The project should aim at developing techniques for introducing a wide range of non-timber tree species, such as fruits, rattans, mushrooms, orchid, medicinal plants, etc. for anybody who are interested in the techniques. Publication and dissemination of hands-on technologies on these prominent non-timber tree species will be important. One of the proposed non-timber species is Rattan. Rattan has already been planted by FSNV in the Hoa Binh Research Station. Careful evaluation on this species including economic analysis has to be done.

The initial hypothesis:

Planting of economically valuable non-timber species will be perceived to be beneficial by local farmers.

Critical Assumption:

The Project is able to find a prominent non-timber species.

Expected Obstacles:

1. Market of non-timber tree species has to be identified.
2. So far, non-timber tree species with high economically potential have not been found.
3. It could be difficult to establish technologies of prominent non-timber tree species such as mushrooms and orchid within the project framework, due to limited experiences in the past among the participating organizations.

Required equipment and materials:
Detailed equipment for research on non-timber tree species have to be discussed.

No. 2.4.8	Activities	Multi-strata methodology with newly introducing native spp. in currently established Acacia and Eucalyptus forests
Main output		Sets of technologies which would improve ecological value of already established exotic species such as Acacia and Eucalyptus forest through the introduction of economically valuable native species to create multi-strata forest structure
Location		Ready established Acacia and Eucalyptus forest
Period		3 years and 8 months
Responsible Organisation		Main: FSIV
JICA Expert		STD
Main user of this output		FE, DFD, Sub-DFD, WMB.

Purpose of this activity:
This PO Activity tries to find a way to establish techniques to change species composition of the forests that have been rehabilitated through the reforestation using Acacia and Eucalyptus. The main technology that will be used in this activity is the creation of multi-strata forests through plantation of native species that possess the characteristics of late succession and ability to grow under canopy of Acacia and Eucalyptus.

Important Concept and Strategy:
Acacia and Eucalyptus have been widely used for reforestation on degraded landscapes. Many of the results of these reforestation activities have accomplished rehabilitation of degraded areas. However, the government does not have clear vision on how to use or change the already rehabilitated forest stand.
The main strategy for this PO Activity is to introduce native tree species into already established Acacia and Eucalyptus forests to create multi-strata forests, aiming at converting the mono-structural exotic species forests to multi-structural native species forests. Under this PO Activity, research will also be conducted to develop methods on adequate thinning methodology for establishing multi-strata forests. Native species have to be tested within the established exotic forests in the form of single native species and combination of native species.
JICA's past project in Malaysia on the multi structural forest development can provide important experiences.

The initial hypothesis:
Several native species are able to establish under the exotic species canopy.

Critical Assumption: None

Expected Obstacles:

1. The Project needs to find out potential sites, which are preferably possessed by FE.
2. In order to test several designs, this project activity has to carry out manipulations in several established exotic species stands that possess different ages. It could be difficult to find forest stands to meet its criteria.

Required equipment and materials
The tools for afforestation and establishment of plots. Details of the tools have to be analyzed carefully.

No. 2.4.9	Activities	Economic analysis for application of research results
Main output		Effective evaluation criteria for each model Results of economic analysis on each research subjects
Location		Research sites
Period		4 years
Responsible Organization		Main: FSIV, Sub: Sub-DFD
JICA Expert		STD
Main user of this output		DFD, Sub-DFD, WWB, FE

Purpose of this activity:

Every research results have to prove their economic effectiveness. Since the budget for 661 Program is limited, and as farmers' incentives to plant trees are largely based on economic returns they will gain, costs and benefits of introducing the sets of techniques developed by the Project is a very important factor that would determine the acceptability. This PO Activity needs to establish a methodology and variables of economic analysis.

Important Concept and Strategy:

There are good models and rehabilitation techniques, but most of them are too costly for local people to apply at their own costs, and/or the economic return is not attractive enough for them to pay the initial investment cost. The main purpose of this PO Activity is to examine the costs and benefits of the newly developed techniques.

Without considering the economic aspects of the techniques from the designing phase, it could be difficult to conduct the economic analysis during and after the project implementation period. Thus, this PO Activity requires to identify the key indicators the Project must maintain the record of (e.g., unit cost and amount of material, labor, and other inputs) under each research activity, especially for activity of 2.1, 2.3 and 2.4. It would be required for the Project staffs to keep records of expenditure for their activities. Using these data, and by estimating the economic benefits expected from the newly introduced techniques, economic analysis should be done to assess the feasibility. If the analysis proves the economic feasibility, it will provide strong justification for the technique to be applied under the 661 Program.

While the Project does not exclude possibilities of conducting research on techniques that are effective but expensive to establish, main focus will be given on developing technology that can be applied within the framework of the 661 Program. Economic analysis should be done taking the above into consideration (i.e., to assess the feasibility of being applied under 661 Program).

This PO activity also needs to create an economic analysis model for research activities.

If the Project does not have a suitable staff who can conduct economic analysis, the Project should request a JICA short-term expert. This JICA short-term expert should also investigate current market situation on forestry and non-timber forest products. (TOR for this short-term expert is provided in the Annex 7.)

Critical Assumption:

Recruitment of a JICA Short term expert for this PO Activity would be very critical.

Expected Obstacles:

1. Setting of economic variables for research activities needs good understanding both on research activities and on economic analysis.
2. It is needed to do literature research for finding other examples on the economic analysis model for research activities.
3. Project duration is short. Thus, it is difficult to undertake accurate evaluation of economic value of forest plantation using native species (e.g., it will be difficult to incorporate long term benefits into the economic analysis).

No. 2.4.10	Activities	Identify the cause of pest and disease and conduct experiment on the control
Main output		Suggestion of pest and disease prevention and control measures
Location		Research sites
Period		Period is not well defined. Need to start from the second year
Responsible Organization		Main: FSIV
JICA Expert		STD
Main user of this output		DFD, Sub-DFD, WMB, FE

Purpose of this activity:
Currently no major pest and disease have been reported in the project area. However, there are several incidents of pests and disease in other areas. The purpose of this activity is to prepare to unexpected future outbreak.

Important Concept and Strategy:
Since no major outbreak have been reported in the target area, the identification of the cause of pest and disease, which might trigger any spread of pest and disease, will be the first step.
There is a risk that unknown pest or disease may occur, when mono-structured plantation forests of native species are established in the Project area, which have not been widely planted before. This PO activity will be undertaken as a preventive measure, to be prepared for potential outbreak. Thus, the activity could be done at a small scale in a sporadically manner, unless any serious incidences are observed during the project duration.
If there is any serious pest or disease identified, a JICA short-term expert can be requested to support this PO activity.

The initial hypothesis:
None.

Critical Assumption:
At this moment, there is no critical assumption that might undermine this PO Activity.

Expected Obstacles:
1. There are many pests and diseases, and it would be difficult to identify those that are likely to pose high risks, which need to be studied in detail.
2. It would be difficult to decide the level of inputs for this PO Activity.

Required equipment and materials:
Detail equipment for this PO Activity has to be well analyzed

On-Farm trial and its purpose:

The main purpose of "On-farm trial" is to verify whether the technologies and species developed by the Project matches farmers' realities and interests. If the technologies and species proposed do not match them, then the project has to seek how and in what way the proposed technologies and species would be adapted by farmers. The basic procedure of "On-farm trials," therefore, should allow these try and error processes.

The planting designs will be the same or similar to that of "PO Activity 2.4 Conduct and analyze research on silvicultural measures for natural regeneration." PO Activity 2.5 on "On-farm trials," however, must to follow the procedure and criteria elaborated in PO Activity 2.2.5. The level of input will be decided in PO Activity 2.2.5, but the Project has to ensure that the input will not exceed the limit defined in the Project criteria. The purpose of on-farm trials is to verify the technology and species that the Project recommends, that are economically affordable for the farmers. Therefore, putting too high investment into on-farm trial activities for the sake of demonstrating 'good model' may undermine the purpose of the on-farm trial.

Farmers' expectations tend to be high when they recognize that international donors are involved in the project. The Project must explain the purpose of the on-farm trial activities to the farmers very clearly, and as to what the Project can and cannot offer.

The field staff of WMB, FE and AFE will take the main role in the implementation of on-farm trials, together with the Project staff. The main task of JICA Expert on Participatory Forest Management (PFM) and his/her counterparts is to provide managerial guidance, supervise, and coordinate the field activities with the field officers from WMB, FE, and AFE. Thus, it is important for the project to emphasize that these field workers should not consider their participation in the project as a special task. It is important for them to understand that their work with the Project is a part of their routine work, and that they are participating in the processes to improve the procedure and guideline of the 661 Program. Therefore, the guidance to local officers at the initial stage is fundamental to get close coordination and collaboration among the participating organizations.

This project is designed to give "On the Job Training (OJT)" to Vietnamese counterparts and field officers. Especially to field officers, technical guidance by the Research Component is essential. Using the framework of PO Activity 2.6.4, training opportunities to provide technical and managerial guidance will be offered for the local officers in order to guarantee the coherent and standardized activities among all project implementers.

No. 2.5.1	Activities	Identify farmers for on-farm trial
Main output		List of farmers who participate in the on-farm trial Revised guideline for selecting participating farmers based on the initial guideline created in PO 2.2.5.
Location		In selected communes
Period		2 years
Responsible Organization		Main: Sub-DFD, Sub: FSIV
JICA Expert		PFM
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

It is crucial to identify appropriate farmers based on the criteria to guarantee the success of on-farm trials. The processes and experiences of identifying farmers (based on the criteria created in PO 2.2.5) will be used to refine and improve the criteria for selecting the farmers in the later years.

Important Concept and Strategy:

This activity will be based on the criteria that will be established under PO 2.2.5. For the identification and selection of farmers, it is needed to design a format to record profiles of commune, hamlet (basic data will be gathered in the Baseline Survey) and farmers. The formats and data should be stored in the database, which allow easy access, and should be utilized at WMB and FE for their daily works. When the Project carry out this on-farm trials, the project has to finish the identification and selection of farmers by the year 2006 (Year 3) because the farmers who will be selected in the year 2007 (Year 4) and 2008 (Year 5) will not receive the complete payments due to the end of the project in year 2008.

Critical Assumption:

WMB, FE and AFE will take this project as a part of their work to improve the quality of their routine work.

Expected Obstacles:

1. Local staff would tend to take that the project is a special task, which is not part of their regular work. If they consider that they are just supporting the Project, they will remain as outsiders who would not take the results seriously. Thus, the Project has to emphasize that the main role of on-farm trials should be taken by local authorities, not by Japanese Experts.

No. 2.5.2	Activities	Plantation of selected native spp. on bare-land with local farmers
Main output		Results on native tree species plantation technique on bare-land, which is verified with farmers on its adaptability.
Location		On-farm trial sites
Period		3 years and 10 months
Responsible Organization		Main: Sub-DFD, Sub: FSIV
JICA Expert		PFM
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The main purpose of this activity is to verify the same or similar design of the research activity, PO 2.4.2 on the plantation of selected native species on bare-lands, in the local context with farmers. It is important to feed back the experiences and the results from this trial into research activities to improve and adjust sets of techniques on the plantation of selected native species on bare-lands.

Important Concept and Strategy:

Most of farmers do not have incentive to plant trees with their own financial investments. Usually, they plant trees under government programs, receiving financial supports from the government. Thus, on this PO activity the Project cannot assume that farmers would start to plant trees if the Project provides only technical support. When the Project carries out this on-farm trial, the project has to use the same framework that current 661 Program applies because the Project has to deal with farmers who would not plant trees without any financial supports. (661 Program supports farmers financially for reforestation activities providing 2.5 million dong, dividing into three years. 661 Program provides farmers with minimum amounts considering their opportunity costs on labor allocation for reforestation. Cost of seedlings is deducted from 2.5 million dong.)

The initial hypothesis:

It is possible for farmers to rehabilitate degraded land through plantation of selected native spp.

Critical Assumption:

1. Adequate number of native species seedlings will be produced at Hoa Binh Nursery centre for this PO Activity.
2. Farmers are willing to plant native species (refer below).

Expected Obstacles:

Probably, the Project will be faced farmers who are interested in planting native tree species, but at the same time they will request to plant bamboo together. There is PO Activity 2.5.6 on the combination of bamboo and other tree species. Thus, it might be difficult for the Project to find out farmers who would accept planting only native species, of which economical value is unknown.

Required equipment and materials

Detail should be examined well

No. 2.5.3	Activities	Direct sowing of tree spp. on bare-land
Main output		Results on direct sowing techniques on degraded grasslands, which is verified with farmers on its adaptability.
Location		On-farm trial sites
Period		3 years and 10 months
Responsible Organization		Main: Sub-DFD, Sub: FSIV
JICA Expert		PFM
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The main purpose of this activity is to verify the same or similar design of the research activity, PO 2.4.3 on the direct sowing on degraded grass lands, in the local context with farmers.

Important Concept and Strategy:

The purpose of this PO Activity is to develop techniques to establish rehabilitated forests in low cost. It is unclear whether this technique can be developed because there has not been any relevant experiment in Vietnam in the past. This technique, however, has wide range of applicability once developed. This trial would be undertaken on experimental basis, rather than to introduce already established techniques. Therefore, the input level and workload of this trial has to be carefully defined in the research activity, and then introduced in on-farm trial. For this activity, the Project has to use species of which characteristic is well known, and the species should not be restricted to native species.

The initial hypothesis:

It is possible for farmers to rehabilitate degraded land through direct sowing of tree seeds.

Critical Assumption:

1. There are farmers who would be interested in this type of activity (There has not been any experience on this technique under the 661 Program).
2. Several basic results will be accumulated in Hoa Binh Demonstration Site or research activity before the introduction to on-farm trial.

Expected Obstacles:

1. It is unknown whether this technology is effective.
2. Farmers might not understand the way to practice this techniques without good instruction.

Required equipment and materials

Detail should be examined well

No. 2.5.4	Activities	Additional planting of selected native spp. in degraded forests
Main output		Results on additional planting techniques of selected native species in degraded grasslands, which is verified with farmers on its adaptability.
Location		On-farm trial sites
Period		3 years and 10 months
Responsible Organization		Main: Sub-DFD, Sub: FSIV
JICA Expert		PFM
Main user of this output		Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The main purpose of this activity is to verify the same or similar design of the research activity, PO 2.4.4 on additional planting of selected native species in degraded forests, in the local context with farmers.

Important Concept and Strategy:

Site preparation and tending methodology after planting will be the main issues to be examined in this activity with farmers. Site preparation and tending methodology will be carried out mainly by participating farmers. Thus, careful instruction and training should be done for them. Species selection has to be done carefully in the research activity.

The initial hypothesis:

It is possible for farmers to rehabilitate depleted natural forest by additional planting of suitable species with high economic value.

Critical Assumption:

1. Species used for planting have to be matched with site condition, fast growing, and have economic value.
2. Farmers who participate in this activity will implement planting and tending procedure in a proper manner after getting instructions and training from the Project.

Expected Obstacles:

1. Additional planting is a method that requires high cost (input), but the expected economic return is low.

Required equipment and materials

Equipment for transportation of tree, materials and tools for planting.

No. 2.5.5	Activities	Assisting (accelerating) establishment of valuable native tree species.
	Main output	Techniques on assisting (accelerating) establishment of valuable native tree species, which is verified with farmers on its adaptability.
	Location	On-farm trial sites
	Period	3 years and 10 months
	Responsible Organization	Main: Sub-DFD, Sub: FSIV
	JICA Expert	PFM
	Main user of this output	Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The main purpose of this activity is to verify the same or similar design of the research activity, PO 2.4.5 on assisting (accelerating) establishment of valuable native species in degraded forests, in the local context with farmers.

Important Concept and Strategy:

The first step of this PO Activity is to identify degraded forests that can be utilized for this PO Activity. After reaching agreements with communities, the most important step for the Project and farmers is to identify valuable tree species in the identified stands. For this purpose, the project has to create a booklet that describes important trees and identification methodology. Farmers also could provide their own knowledge on the identification of valuable tree species. It is also necessary to publish a booklet describing cutting and thinning silvicultural methodology in an easy manner targeting farmers. GTZ's experience in Son La will provide useful information on this issue. The Project must limit the amount of thinning and cutting tree. This PO Activity allows the participating farmers to enter into forests, to practice cutting and to use cut wood as firewood. It is crucial for the farmers to understand that the cutting practices are mainly for assisting (accelerating) establishment of valuable native tree species (and not to provide firewood).

The initial hypothesis:

It is possible for farmers to rehabilitate depleted natural forest by assisting (accelerating) establishment of valuable native tree species.

Critical Assumption:

After receiving instruction from the Project, farmers could maintain the rule of the magnitude of intervention in the manipulated forests.

Expected Obstacles:

1. Control of density of tree stands by farmers

Required equipment and materials

Cutting devices,

No. 2.5.6	Activities	On-farm trials of the combination of bamboo and other tree or non-timber spp.
	Main output	Techniques on the combination of bamboo and other tree or non-timber spp., which is verified with farmers on its adaptability.
	Location	On-farm trial sites
	Period	3 years and 10 months
	Responsible Organization	Main: Sub-DFD, Sub: FSIV
	JICA Expert	PFM
	Main user of this output	Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The main purpose of this activity is to verify the same or similar design of the research activity, PO 2.4.6 on the combination of bamboo and other tree or non-timber spp., in the local context with farmers.

Important Concept and Strategy:

This technique will be widely accepted by the local farmers and Sub-DFD (WMB and FE) has experiences. One consideration that the Project has to analyze before the implementation of this activity is whether the Project would allow the farmers to clear existing bushes for the establishment of the combination of bamboo and other vascular plants. The bush is considered to be worthless economically speaking, but the cleaning processes might accelerate soil erosion and lose regeneration of valuable native tree species. There should be a guideline for the selection of sites. Potential for other non-timber tree species to combine with bamboo, which are currently not introduced under the 661 Program, will also be explored under this PO activity.

The initial hypothesis:

Valuable native tree and non-timber species can establish within the bamboo forests.

Critical Assumption:

None

Expected Obstacles:

None

Required equipment and materials

Materials and tools for planting.

No. 2.5.7	Activities	Introduction of non-timber spp. in both degraded and established forests
	Main output	Techniques to introduce of non-timber spp. in both degraded and established forests, which is verified with farmers on its adaptability.
	Location	On-farm trial site
	Period	3 years and 10 months
	Responsible Organization	Main: Sub-DFD, Sub: FSIV
	JICA Expert	PFM
	Main user of this output	Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The main purpose of this activity is to verify the same or similar design of the research activity, PO 2.4.7 on introduction of non-timber spp. in both degraded and established forests, in the local context with farmers.

Important Concept and Strategy:

This activity could be one of the most difficult activities due to its high cost characteristic for the establishment. The economic return after the forest establishment is not well known. The species to be introduced should be a well-known species from which economic return is expected. However, since this trial has to identify prominent non-timber species, the Project has to find farmers who are willing to participate in the try and error processes.

As the economic risk of this PO Activity is relatively high, it is recommended that the farmers involved in this Activity should be involved in PO Activity 2.5.8 (farmland management) so that the Project could offset the risks the farmers participating in this PO Activity may experience.

The initial hypothesis:

Planting economically valuable non-timber species is able to prove its viability.

Critical Assumption:

The Project is able to identify farmers who are willing to participate in this PO Activity.

Expected Obstacles:

1. Species selection
2. Identification of farmers

Required equipment and materials

Detailed equipment for establishment of non-timber tree species have to be discussed.

No. 2.5.8	Activities	On-farm trials on farmland management
	Main output	Sets of techniques on sustainable upland agriculture
	Location	On-farm trial site
	Period	3 years and 10 months
	Responsible Organization	Main: Sub-DFD, Sub: FSIV
	JICA Expert	PFM
	Main user of this output	Local people, DFD, Sub-DFD, WMB, FE, AFE

Purpose of this activity:

The one of the main reasons of forest depletion in the Project Area is slash and burn agriculture in the uplands. Past studies reveal that farmers often stop cultivating the same plot after 3 consecutive years due to the depletion of soil nutrients. Many farmers possess several farm plots among which they rotate the cultivation and fallow periods. This practice has been placing pressure on rehabilitated forestland. It is urgent for farmers who reside in the Project area to acquire sets of techniques that enable them to cultivate same plots continuously.

This PO Activity aims to establish a set hands-on methodology of techniques and management that promote sustainable agriculture.

Important Concept and Strategy:

The principal techniques for this PO Activity would be the soil conservation measures in upland agriculture such as use of organic fertilizer, green manure, hedgerow planting, etc. This activity has to also assist the establishment of an appropriate farmland management model, through improvement of household budget management based on the income from agricultural and livestock products and the expenditure for maintenance of their livelihood.

This PO Activity needs a holistic approach in both technical and managerial aspects of farmland management, looking for solutions that could be effective in reducing slash and burn agriculture practices and in stabilizing of income sources. At the same time, it is necessary for the Project to promote the establishment of farm forestry (a type of small-scale forest management taken places within the household compounds and farmlands). Establishment of fruits orchards, hedge, windbreaks, avenue planting for the house entrance, wood plots for firewood or fodder, shade, etc. are some examples of farm forestry. Seeding that will be utilized in these activities can be provided in PO Activity 2.5.9 on small-scale seedling production.

The first step for designing this PO Activity will be the implementation of baseline survey. It is important for JICA Expert in PFM and the short term expert who would be dispatched for the baseline survey to establish initial hypothesis on the prominent product model before the implementation in order to verify farmers' needs and market demand with the prominent product model. Thus, JICA Expert in PFM is required to study measures to stabilize upland agriculture, through literature review and field visits. Close collaboration with DARD and other agriculture related organizations is recommended.

In order to accomplish the requirement of this PO Activity, the Project has to seek additional assistances by requesting JICA a short-term expert on tropical agriculture on sloping land, or by using local institutions. The designing of this activity should be done with the advices from these supports. It is also important to start with small agricultural plot to verify the farmers' adaptability, so that the magnitude of loss can be kept at a marginal even if they fail.

The initial hypothesis:
Techniques and management methodology developed in farmland management activity will lead to the reduction of slash and burn practice among the participating farmers.

Critical Assumption:
Farmers who are practicing slash and burn in upland agriculture will change their farming pattern, if they are equipped with appropriate sets of technology and farmland management methods.

Expected Obstacles:

1. The key implementing agencies (DARD, FSTV, Sub-DFD) are not directly involved in agricultural activities. Therefore, they are not familiar with the technical issues.
2. Farmers may be reluctant to adopt production systems that they are not familiar with.

Required equipment and materials
Needed to be specified.

Special Concern:

Promoting new practices among farmers means that farmers will change their farming methods to new more labor intensive methods. Practically speaking, farmers will have to adapt themselves to new tasks they have never done before. Furthermore, farmers will not just manage crops, but will need to manage diversified lands with multiple uses. This type of change in land use methods will also bring changes in production and life patterns.

The numbers of farmers in a village who are willing to accept such changes and apply new technology are likely to be small. Additionally, some farmers who show interest initially might quit later, and other farmers may become interested at a later time. Therefore, in order for farmland management to be successful, the Project must be in constant communication with the farmers building a relationship of trust. They should also agree on easily achievable goals and gradually proceed to accomplish those goals.

For farmers to enter the unknown territory of new farmland management, the cooperation among each other and the exchange of information while carrying out tasks are all very important. In the case of fruit tree production, in order for farmers to benefit from scale in marketing many farmers should produce the same product at the same time. Therefore, although the decision to apply new farmland management on his/her land is the individual decision of each farmer, the farmers should not each go their separate ways. Extension on the new cropping management should be seen as part of village development, and should be undertaken by organizing the villagers so that they can work for their own developments. The Project should also work closely with existing organizations in the village, such as farmers' association.

No. 2.5.9	Activities	Conduct and analyze small scale seedling production
	Main output	Well adapted and hands-on technology on small scale seedling production
	Location	On-farm trial sites
	Period	3 years and 10 months
	Responsible Organization	Sub-DFD, FSTV and Breeding Plant Center of Hoa Binh Province
	JICA Expert	PFM
	Main user of this output	Households in project area

Purpose of this activity:

It is necessary for farmers to understand the importance of forest and trees. The purpose of construction of small-scale nursery aims to provide the participating farmers an opportunity to understand the importance of trees and to change their attitude toward forests. Construction and maintenance of nursery is an educational opportunity for the participating farmers.

Important Concept and Strategy:

In the Project area, it is rare to observe small-scale nurseries run by local farmers. The main reason for this situation is the lack of the well-established market and distribution channel of forestry products. While it will be difficult for the Project to influence the market and distribution channel within its framework, there is a value for establishing small-scale nurseries by the farmers participating in the on-farm trial activities. It will provide a good opportunity for the farmers to deepen their understanding on the importance of forest trees.

Manuals and leaflets have been published in JICA's past projects in forestry, as well as by other donors' projects in Vietnam. The Project would have sufficient information on small-scale nurseries to build this activity on. After producing an adequate hands-on manual targeting farmers, it is recommended to hold one day training for farmers to understand the importance of establishment of small-scale nurseries. The trainers should be extension workers from AFE. Thus, providing trainers' training to extension workers is equally important to standardize training methods to farmers.

The seedling they produce can be used for the establishment of farm forestry (PO 2.5.3). The level of input to farmers from the Project for this activity should be kept low, because the cost for nursery establishment should only require locally available materials. Furthermore, the maximum number of seedling that each farmer produce should not exceed one hundred (100), because nursery establishment is not for commercial purpose, but for providing an education opportunity. If farmers find out that the seedlings they have produced are wastes, they may lose their interests rapidly. Most important purpose here is to continue this activity at a sustainable level, in which they can produce the amount of seedlings they can plant.

Farmers may also be able to use their own seedling under the on-farm trial. As described in PO 2.5.2, seedling costs are deducted from the subsidy the 561 Program provides. Thus, if the quality and quantity of seedlings from the small-scale nurseries meet the requirements of the 561 Program, farmers may receive the full amount of payment without the deduction. This could create a high incentive for the farmers to participate in the establishment of small-scale nurseries.

The initial hypothesis:

Farmers who maintain nurseries have tendency to preserve forests more than people who do not maintain it.

<p>Critical Assumption: There are farmers who would be interested in producing seedlings. There are farmers who would be interested in establishing farm forests.</p>
<p>Expected Obstacles:</p> <ol style="list-style-type: none"> To provide appropriate training to farmers on the establishment and maintenance of nurseries may be difficult. Farmers may lose interest in nursery maintenance because: <ol style="list-style-type: none"> Planting site for the seedlings may be unclear. There is no direct economic benefit for those involved in nursery management. Farmers may lack time and funds for planting trees. To integrate nursery activities and farm forest establishment may be challenging.
<p>Required equipment and materials Local materials especially bamboo should be utilized</p>

No. 2.5.10	Activities	Economic analysis for application of on-farm trial results
Main output:		Effective evaluation criteria for each model
Location		Research sites
Period		4 years
Responsible Organization		Main: FSTV, Sub-DFD, Sub-DFD
JICA Expert		PFM
Main user of this output		DFD, Sub-DFD, WMB, FE, AFE
<p>Purpose of this activity: Economic analysis for on-farm trials is very important, in order to provide bases for the economic affordability of the techniques that are developed. If the analysis proves the economic affordability, it will give strong justification for the technique to be applied under the 661 Program. Along with PO 2.4.10, this PO activity also needs to establish a methodology and variables for economic analysis.</p>		
<p>Important Concept and Strategy: Most of the on-farm activities will be carried out within the framework of 661 Program. Design and procedure should be elaborated with PO 2.4.10 at the same time. One special item for the economic analysis on-farm trials, however, is to investigate household budget.</p>		
<p>Critical Assumption: Recruitment of a JICA Short term expert for this PO Activity would be very critical.</p>		
<p>Expected Obstacles:</p> <ol style="list-style-type: none"> Setting of economic variables for on-farm trial activities needs good understanding on both the design on on-farm trial activities, and on economic analysis. It is needed to do literature research for finding other examples on the economic analysis model. Project duration is short. Thus, it may be difficult to undertake accurate evaluation of economic benefit of the newly introduced technology (e.g, it will be difficult to incorporate long term benefits into the economic analysis). 		
<p>Required equipment and materials No special equipment will be needed.</p>		

No. 2.6.1	Activities	Reflect the research results and on-farm trial findings on to the Hoa Binh Demonstration site
	Main output	Exhibition of well adapted technologies at Hoa Binh Demonstration site
	Location	Hoa Binh Demonstration Site
	Period	4 years
	Responsible Organization	Main: FSIV, Sub: Sub-DFD
	JICA Expert	Main: CA, Sub: STD and PFM
	Main user of this output	Local Farmers, Forestry related organizations, DFD, Sub-DFD, FSIV, WMB, FE

Purpose of this activity:

Timely reflection of the research results and on-farm trial findings on the Hoa Binh Demonstration Site is the main purpose of this activity. Through this activity, it is expected that Hoa Binh Demonstration Site will equip with well-adapted technologies that have been tested through research and on-farm trial activities.

Important Concept and Strategy:

The Technical Task Force (TTF), which examines all design of Hoa Binh Demonstration Site, research activities, and on-farm trials, will take the main role in reflecting research results and on-farm trial findings.

The establishment and maintenance of Hoa Binh Demonstration Site should be an on-going process, which allows constant change and new establishment after the 1st year (See PO 2.1.3). Thus, only part of the area should be used in the 1st year, leaving some space for the 2nd year onwards (See PO 2.1.1). This PO Activity also requires creation of a field guide leaflet of Hoa Binh Demonstration Site for people who will visit the Demonstration Site. This leaflet also should be created by desktop publishing, which permits constant changes.

Critical Assumption:

The research and on-farm trial activities will bring a new finding and well-adapted techniques.

Expected Obstacles:

No obstacle to continue activities and establishment at Hoa Binh Demonstration Site is foreseen once the GOV establishes basic agreement with adjacent community.

Required equipment and materials

Same as in PO 2.1.3

No. 2.6.2	Activities	Publish the experimental results
	Main output	Publication of experimental results on web and as hard copies.
	Location	
	Period	1 year and 8 months
	Responsible Organization	Main: FSIV, Sub: DFD, Sub-DFD
	JICA Expert	STD
	Main user of this output	Forestry related organizations, DFD, Sub-DFD, FSIV, WMB, FE

Purpose of this activity:

The purpose is to share information and experimental results to contribute directly to the improvement of the 561 Program.

Important Concept and Strategy:

The Technical Task Force (TTF) will take the main role in examining the quality of project publications. All research activities are required to be published twice, in forms of interim report and final report. The interim report should be published before the first-term JICA Experts leave. The interim report can be done by desktop publishing and on web, but the final reports should be printed in a printing house and on web.

DFD will ensure effective dissemination of the information compiled by the Project to relevant organizations.

Critical Assumption:

5 years' research activities can bring results that could be publishable.

Expected Obstacles:

None

Required equipment and materials

Computers, Desk top publishing equipment

No. 2.6.3	Activities	Publish manuals on hands-on techniques
Main output		Hands-on manuals on techniques that will be developed in on-farm trials
Location		
Period		1 year and 8 months
Responsible Organization		Main: FSTV, Sub: Sub-DFD, DFD (needs to be assessed)
JICA Expert		PFM
Main user of this output		Local Farmers, Forestry related organizations, DFD, Sub-DFD, FSTV, WMB, FE

Purpose of this activity:

The purpose of this activity is to share the results of on-farm trial, to contribute directly to the improvement of the 661 Program. The Project will publish two different types of manuals: (1) hands-on manuals targeting farmers; and (2) manuals for extension workers and educational materials to assist their work. These manuals will enable the Project to transfer the techniques smoothly to the end-users.

Important Concept and Strategy:

The final products from this PO Activity have two types of manuals: (1) hands-on manuals targeting farmers; and (2) manuals for extension workers. The hands-on manuals need to contain a lot of practical information and experiences through the implementation of the trials, addition to a lot of illustrations and pictures. The manuals for extension workers also need to be user friendly, but should be more comprehensive and contain data that support the validity of the techniques to be introduced. The Technical Task Force (TTF) will take the main role in examine and guarantee the quality of the publication. The results of on-farm trials should be published twice, in forms of interim report and final report. The interim report should be published before the first-term JICA Experts leave. The interim report can be done by desktop publishing and on web, but the final reports should be printed in a printing house and on web. DFD will ensure effective dissemination of the information compiled by the Project to relevant organizations.

Critical Assumption:

5 years' research activities can bring results that could be publishable.

Expected Obstacles:

None

Required equipment and materials

Computers, Desk top publishing equipment

No. 2.6.4	Activities	Hold technical seminars to give technical instructions and to share the project results with the local technical officers
Main output		Field workers who are well equipped with the knowledge on the natural forest rehabilitation techniques
Location		Hoa Binh Town
Period		OJT: Throughout the project period, Seminar: Starting from the 3 rd year
Responsible Organization		Main: Sub-DFD, Sub: FSTV
JICA Expert		PFM
Main user of this output		Field workers, Sub-DFD, WMB, FE, AFE, DFD

Purpose of this activity:

Through seminars and on-the-job training, field workers will be well equipped with knowledge on techniques on natural forest rehabilitation, and on the procedures and criteria for the project implementation.

Important Concept and Strategy:

There are two different target groups for this Activity.

- The 1st group is the field officers from Sub-DFD, WMB, FE and AFE, who will be directly involved in the on-farm trial activities in the 5 to 6 communes.
 - The 2nd group is the field officers from the organizations listed above, who work in the target 20 communes, but who are not directly involved in the implementation of the on-farm trial activities.
- For the 1st group, the purpose of this PO Activity is to standardize field workers' activities at each communes and hamlets levels. It is necessary to make them understand clearly the purpose, procedure, and criteria of each activity under the on-farm trials, so that they will implement the project activity using a common method. Training for this group will mainly be done through on-the-job training (OJT). The first two communes (refer PO 2.1.4) should be utilized for the purpose of OJT. The Project will also hold technical seminars to give technical instructions to the field officers who will be directly participating in the Project Activities. The field officers participating in the Project will also be trained on monitoring and evaluation methods, which will be designed in PO 3.2.1.
- For the 2nd group, opportunities will be provided by the Project in forms of seminars to share the project results. They will be able to learn the newly developed techniques, and how they can be used in the field.

Critical Assumption:

- Once the field officers are trained on the techniques on natural forest rehabilitation, and on the procedure and criteria for project implementation, they will be able to take the lead role in implementing on-farm trial activities under the guidance of the Project.

Expected Obstacles:

- It may be difficult to conduct on-the-job training (OJT) in the 1st year, when manuals are not yet produced.

Required equipment and materials

Equipment for seminars, CHP, Projectors, Computers, White boards, etc.

No. 2.6.5	Activities	Hold technical seminars to share the project results with relevant organizations and donors through technical seminars
Main output		Common knowledge and ideas on the project results and close collaborations among forestry and rural development related organizations and donors
Location		Hanoi and Hoa Binh Town
Period		Starting from the 3 rd year
Responsible Organization		Main: DFD, Sub: FSIV
JICA Expert		CA
Main user of this output		Forestry related organizations, DFD, Sub-DFD, FSIV, WMB, FE

Purpose of this activity:

Through seminars, the project results will be shared among forestry and rural development related organizations and donors (including FSSP MOA signatories). Close collaborations with these organizations will contribute to the future development of forest sector.

Important Concept and Strategy:

Seminars can take several forms such as presentations, workshops, and field visits, from 1 to 3 days. The organizers have to consider what the Project likes to show depending on the different interests of participants. It is necessary to hold several different types of technical seminars for different levels of targeting groups.

Hoa Binh Demonstration Site will take the main role to exhibit the results of integrated techniques from the currently available ones to the ones developed within the Project Activities, because it will be easy to access. However, the Project should also invite relevant organizations and donors to other experimental and on-farm trial sites to show project results under the real settings.

Critical Assumption:

None

Expected Obstacles:

None

Required equipment and materials

Equipment for seminars, OHP, Projectors, Computers, White boards, etc.

No. 2.6.6	Activities	Hold seminars and conduct field visits for local farmers from 20 communes to study successful on-farm trial results
Main output		Knowledge and awareness of local farmers are improved. Farmers are equipped to introduce newly developed methods.
Location		Research and On-farm trial site
Period		Starting from the 3 rd year
Responsible Organization		Main: Sub-DFD, Sub: FSIV
JICA Expert		PFM
Main user of this output		Farmers from the 20 communes

Purpose of this activity:

Due to the limited capital resources, and lack of capacities to organize themselves, it is very rare for farmers to have an opportunity to visit different places to learn advanced techniques on farmland management, natural forest management and rural development. It is crucial for farmers to have an idea on their future directions and how they can apply advanced techniques.

This PO Activity tries to provide opportunities for farmers who reside within the 20 communes to get familiar with the project results, with the expectations that these farmers will apply the demonstrated techniques.

Important Concept and Strategy:

When the Project invite farmers, it is necessary to invite farmers as a group, not individuals. In doing so, the Project could expect a dynamics of information exchange among participating farmers after the visits. It is also recommended to invite farmers who have already participated in plantation and additional planting activities under 661 Program, with the expectation that they would have higher incentives to preserve forest resources.

Field workers have to take the initial lead in this activity.

Since the techniques that will be introduced to the farmers at the seminar should be those that are technically appropriate and economically affordable for the farmers to apply by themselves, it is not recommended to give participants 'free presents' at the end of the field trip, except for seedlings. (If farmers do not apply the technology unless they receive free gift, it indicates that the technology is not adoptable for the farmers).

Critical Assumption:

If the farmers are provided information on new techniques through seminars, they will be able to apply the techniques by themselves.

Expected Obstacles:

None

Required equipment and materials

Means of transport (mini bus), Equipment for seminars, Projectors, Computers, etc.

No. 2.6.7	Activities	Make recommendations for 661 program based on experimental and on-farm trial results
	Main output	Recommendations for 661 Program
	Location	
	Period	1 year at the end of the project implementation
	Responsible Organization	Main: DFD, Sub: FSTV, Sub-DFD
	JICA Expert	Main: CA, Sub: FSTV, Sub-DFD,
	Main user of this output	DFD

Purpose of this activity:

This is the one of main outputs of the project activities. Through this recommendation, the best use of project results will be guaranteed.

Important Concept and Strategy:

Constant information exchanges between DFD and the Project assure the utilization of the project results. Especially, the project director and Project Steering Committee (PSC) have to make sure that the Project directions is on the right track and the results will be utilized into 661 Program. The purpose of the elaboration of the recommendation to 661 Program is to integrate all project results into the policy level. Thus, all participating organizations have to be involved in the elaboration processes. The Project Director has to take the main role in this integration process and the Technical Task Force (TTF) will take the role in creating drafts of the recommendation. In order to prepare draft of recommendation, a series of workshop with project participants will be recommended.

Critical Assumption:

The project results will bring concrete results within five years' activity.

Expected Obstacles:

The integration of the project result into recommendation requires a lot of patience and work.

Required equipment and materials

None

No. 3.1	Activities	Based on Output 1 and baseline survey (activity 2.2.1), refine the Plan of Operation and the indicators for project purpose and outputs described in PDM.
	Main output	Close analysis on PO and final decision on PO
	Location	
	Period	2 months
	Responsible Organization	Main: DFD, Sub: FSTV, Sub-DFD
	JICA Expert	CA
	Main user of this output	Project

Purpose of this activity:

The proposed POs has been developed based on information that were available at the time of the preparatory mission. As more information will to become available through the project's efforts under Output 1 and Baseline Survey, it may be useful for the Project Team to revisit and refine the POs 6 months after project inception.

This PO Activity also allows the Project to review the Objectively Verifiable Indicators (OVIs) for Project Purpose and Outputs described in the Project Design Matrix (PDM) based on the findings from the first 6 months.

Important Concept and Strategy:

This PO Activity 3.1 has been proposed, acknowledging that the POs might have been developed without some important information or facts that the Project should take into consideration at the initial stage. When Output 1 and the results of the baseline survey become available, the Project has to revisit all POs and their designs, and assess whether the Project needs to make any changes. In order to change POs and the OVIs, the Project must follow the procedures required by JICA. The Project Steering Committee (PSC) should also approve any changes to the POs and OVIs.

Critical Assumption:

None

Expected Obstacles:

None

Required equipment and materials

None.

No. 3.2.1	Activities	Design a monitoring and evaluation system for the overall project implementation and management, and for research and on-farm trial activities
Main output:	Monitoring and evaluation system that will be used in the courses of the Project Implementation	
Location		
Period	2 months	
Responsible Organization	Main: OFD, Sub: FSIV, Sub-OFD	
JICA Expert	CA	
Main user of this output:	Project	
Purpose of this activity:		
It is fundamental for the Project to establish a Monitoring and Evaluation (M&E) System for the overall project implementation and for each PO Activities. The Project Steering Committee (PSC) will take the key role in M&E of the overall project implementation, while the Project Management Unit (PMU) will take the main role for M&E of PO Activities. The M&E System will be used in PO Activity 3.2.2.		
Important Concept and Strategy:		
Each PO has been designed with implementation period and Benchmarks. Furthermore, detailed information on why each PO has been proposed, and how it should be implemented, are explained in the "Descriptors of Proposed PO Activities." These initial information and plan could serve as the bases for the M&E System. The Project, however, has to develop the M&E procedures, monitoring formats, and evaluation criteria. The M&E System should be designed having input from all project staffs. It is also important for the Project to design the M&E System that is operational (not too complicated). It is recommended to request a JICA short-term expert to establish the M&E System.		
Critical Assumption:		
None		
Expected Obstacles:		
None		
Required equipment and materials		
None		

No. 3.2.2	Activities	Implement the monitoring and evaluation system
Main output:	Base on the design (PO 3.2.1), the project implements continuous monitoring and evaluation system	
Location		
Period	4 years	
Responsible Organization	Main: OFD, Sub: FSIV, Sub-OFD	
JICA Expert	CA	
Main user of this output:	Project	
Purpose of this activity:		
Each PO Activity should be monitored and evaluated by the M&E System that will be established under PO 3.2.2.		
Important Concept and Strategy:		
There is a tendency for projects to place low priority on M&E especially when they are busy to implement other PO activities. This PO activity emphasizes that the Project must consider M&E as an important activity, to avoid such situation. The M&E should not be considered as a formality, but as an important activity to be implemented under the Project. Implementation of M&E System will contribute to smooth project management and implementation. It is very important to start the implementation of the M&E System from the initial stage of the Project implementation. Project Management Unit (PMU) will take the main role in the implementation of the system.		
Critical Assumption:		
None		
Expected Obstacles:		
None		
Required equipment and materials		
None		

No. 3.2.3 : Activities	Mid-term evaluation and final evaluation
Main output	Project evaluation and some PO changes if necessary
Location	
Period	Mid-term and Final
Responsible Organization	Main: DFD, Sub: FSTV, Sub-DFD
JICA Expert	CA
Main user of this output	Project

Purpose of this activity:

The purpose of mid-term evaluation is to assess the project's progress to date, and to modify/refine the POM (project activities, outputs, and indicators) as relevant, in order to improve the project's framework, thereby increasing the possibility of the project to achieve its purpose.
The final evaluation will be conducted to evaluate the project's achievement against its purpose, and to gain lessons that could be useful for future projects.

Important Concept and Strategy:

An evaluation team will be dispatched from JICA for the mid-term and final evaluations, and the evaluation will be done jointly by the Government of Vietnam and JICA. The evaluations will be done following the Project Cycle Management (PCM) methodologies. The evaluation team will require a lot of information on the project's progress. It will be important for the Project to implement the monitoring (PO 3.2.2) and keep good records of the monitoring results, so that they can provide the information required by the evaluation team in a timely manner.

Critical Assumption:

None

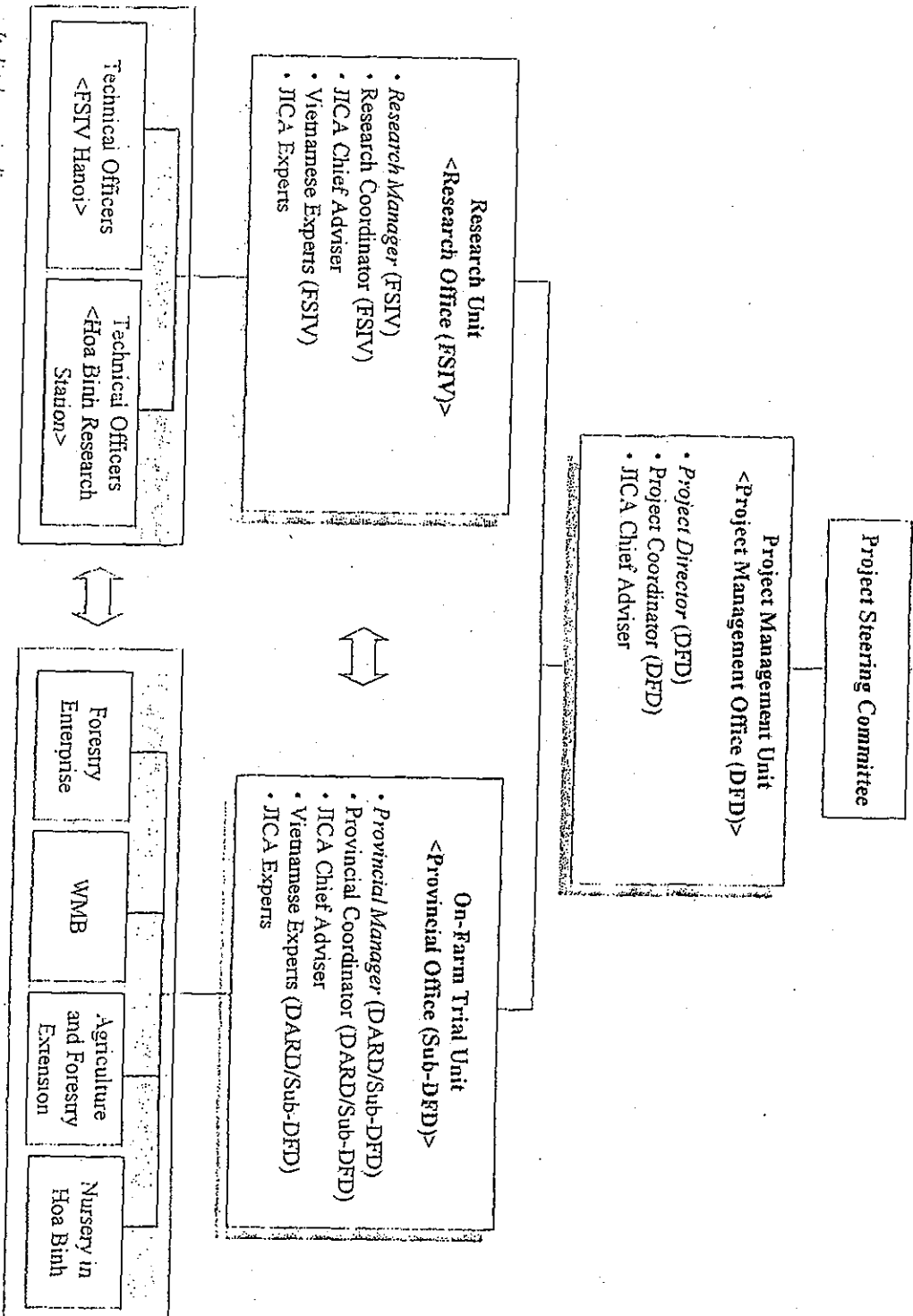
Expected Obstacles:

None

Required equipment and materials

None

Annex 4: Organizational Chart



Italic letter indicates part-time positions

Annex 5: Term of Reference (TOR) for the Project Steering Committee

1. Main Tasks:

Provide overall direction on the project implementation within the framework of the Record of Discussions signed by the GOV and JICA.

2. Detailed Descriptions of Tasks:

- Meet at its regular meeting (at least once a year), and whenever need arises to fulfill its function.
- To review and authorize the annual work plan of the Project based on the Plan of Operations within the framework of the Record of Discussions.
- To monitor and evaluate the progress of the Project and the results of the annual work plan, and provide guidance / recommendation on the project implementation.
- To review and exchange opinions on major issues that arise during the implementation period of the Project.
- Convene at the time of mid-term evaluation and final evaluation, review the findings of the evaluation mission, and provide guidance.

3. Proposed Composition of the PSC:

Chairperson:

Director General of DFD

Members:

1. Vietnamese side:

- a. Director or Deputy Director of FSIV
- b. Deputy Director of DFD, or Head of relevant division of DFD
- c. Representative of International Cooperation Division of MARD
- d. Representative of Agriculture and Rural Development Department, Ministry of Planning and Investment
- e. Director or Deputy Director of DARD in Hoa Binh Province
- f. Director of Sub-DFD in Hoa Binh Province
- g. Vietnamese Experts of the Project

Relevant personnel accepted by Chairperson, if necessary.

2. Japanese side:

- a. Chief Advisor
- b. Coordinator
- c. Japanese Experts of the Project
- d. Resident Representative, JICA Viet Nam Office
- e. Japanese Expert in the field of Forestry Development Planning (Long Term Expert attached to MARD/DFD)

Relevant personnel accepted by Chairperson, if necessary.

NOTE: Official(s) of the Embassy of Japan may attend the committee sessions as observer(s).

i. **Other:**

The PSC will be composed of the chairperson, the members and observers. The chairperson may declare closed sessions against the observers. The rules and guidelines for the management of the committee will be determined at the initial stage of the Project.

Annex 6: Terms of Reference (TOR) for the Core National Project Experts

6-1 Project Director

1. Summary description of the position

- (1) Main Tasks: Responsible for the overall project implementation.
- (2) Person to be assigned: Deputy Director of DFD
- (3) Period: FY 2003 to FY 2008
- (4) Location of the Office: Project Management Office (DFD)
- (5) Main location of activities: DFD, Hanoi

2. Job Description

To conduct the following actions in collaboration with the JICA Chief Adviser:

- Prepare annual project workplan and submit to the Project Steering Committee.
- Approve the appointments of project counterparts assigned by institutions, agencies and departments involved in project implementation at the central level.
- Supervise the Research Unit and the On-Farm Trial Unit on project implementation, based on the annual project workplan.
- Establish and implement the Monitoring and Evaluation (M&E) System.
- Organize and co-chair (together with the JICA Chief Advisor) regular meetings with project personnel, to monitor project's progress and to provide guidance on project implementation.
- Ensure effective co-ordination among the institutions, agencies, and departments involved in project implementation at the central level.
- Ensure the timely delivery of Project input (Equipment, facilities, and budget) by the Government of Vietnam agreed in the Minutes of Meeting (M/M).
- Take necessary actions to ensure that the results of the Project will be incorporated into the technical procedures of the 661 Program (or of any relevant government programs, should there be any changes to the government policy during the course of project implementation).

3. Other

The Project Director will assign a Project Coordinator, to support the Project Director in fulfilling his/her tasks.

6-2 Research Manager

1. Summary description of the position

- (1) Main Tasks: Responsible for the implementation of research activities ensuring close collaboration between the Research Unit and the On-Farm Trial Unit.
- (2) Person to be assigned: Deputy Director of FSIV
- (3) Period: FY 2003 to FY 2008
- (4) Location of the Office: Research Office (FSIV)
- (5) Main location of activities: FSIV Office, Hanoi and Project Target Area in Hoa Binh

2. Job Description

To conduct the following actions in collaboration with the JICA Chief Adviser and JICA Experts.

- Prepare and submit monthly workplans of the Research Unit to the Project Management Unit (PMU) based on the Plan of Operations (PO).
- Regularly report to the PMU regarding the research activities.
- Assign staff for each PO Activities, and prepare the Terms of Reference (TOR) for each staff.
- Lead the Research Unit in designing, implementing, and evaluating research activities of the Project as per the workplan.
- Hold technical meetings with Research Unit staff.
- Ensure that technical guidance is provided by the Research Unit to the On-farm Trial Unit (OFTU).
- Regularly exchange information on the respective activities with the OFTU.
- Lead the Research Unit in compiling research results into reports and manuals as per the Plan of Operations.
- Ensure that relevant information at the Provincial level (e.g., policies, programs and projects implemented in the Province) is provided to the PMU in a timely manner.
- Ensure co-operation and collaboration with other research organizations.
- Take necessary measures to solve constraints faced by the Project in conducting research activities.

3. Other

The Research Manager will assign a Research Coordinator from FSIV, to support the Research Manager in fulfilling his/her tasks.

6-3 Provincial Manager

1. Summary description of the position

- (1) Main Tasks: - Responsible for project implementation at the provincial level ensuring close collaboration between the Research Unit and the On-Farm Trial Unit.
- Coordinate and collaborate with other provincial organizations to ensure smooth project operations.
- (2) Person to be assigned: Director of Sub-DFD
- (3) Period: FY 2003 to FY 2008
- (4) Location of the Office: Provincial Office (Sub-DFD)
- (5) Main location of activities: Sub-DFD Office in Hoa Binh Province and Project Target Area in Hoa Binh

2. Job Description

To conduct the following actions in collaboration with the JICA Chief Adviser and JICA Experts.

- Prepare and submit monthly workplans of the On-Farm Trial Unit (OFTU) to the Project Management Unit (PMU) based on the Plan of Operations (PO).
- Regularly report to the PMU regarding the on-farm trial activities.
- Assign staff for each PO Activities, and prepare the Terms of Reference (TOR) for each staff.
- Lead the OFTU in designing, implementing, and evaluating on-farm trial activities of the Project as per the workplan.
- Hold technical meetings with OFTU staff.
- Supervise the On-farm Trial Unit (OFTU) regarding project implementation.
- Regularly exchange information on the respective activities with the Research Unit.
- Lead the OFTU in compiling results of the on-farm trials into reports and manuals as per the Plan of Operations.
- Ensure that relevant information at the Provincial level (e.g., policies, programs and projects implemented in the Province) is provided to the PMU in a timely manner.
- Ensure that information related to project activities is provided to local authorities in a timely manner.
- Ensure co-operation and collaboration of local authorities for smooth implementation of on-farm trials.

- Take necessary measures to solve constraints faced by the Project in conducting activities at the Provincial level.

3. Other

The Provincial Manager will assign a Provincial Coordinator from DARD or Sub-DFD Hoa Binh, to support the Provincial Manager in fulfilling his/her tasks.

Annex 7: Terms of Reference (TOR) for Japanese Experts

7-1: Long Term Experts

7-1-1 Chief Advisor / Natural Forest Rehabilitation

1. Summary description of the position

(1) Job Title: Chief Advisor / Natural Forest Rehabilitation

(2) Assignment: Long-term expert dispatched from JICA for the technical cooperation

(3) Period: FY 2003 to FY 2008 (divided in 2 terms)

(4) Location of the Office:

Project Management Office (DFD), Research Office (FSIV), and
Provincial Office (Sub-DFD in Hoa Binh Province).

(5) Main locations of activities:

- Hoa Binh Demonstration Site in Hoa Binh Town, Hoa Binh Province.
- 20 communes of Hoa Binh Dam Watershed, Hoa Binh Province.

(6) Responsibility:

Under the overall supervision of the Project Steering Committee, s/he will take the overall responsibility in project management, and in providing technical guidance for the implementation of project activities as stipulated in the Plan of Operations.

(7) Qualification:

1) Area of expertise: Project Management and Natural Forest Rehabilitation

2) Academic Degree: Post graduate degree or equivalent post-graduate
professional development

3) Skills and professional experience:

- More than 15 years of experience in international cooperation or natural resources management.
- Demonstrated professional competence on the subject areas.
- High ability in project management.
- High ability in providing technical guidance in relevant subject areas, and in leading a task-orientated team.
- Excellent knowledge and skills in analyzing technical and scientific information, and in organizing and conducting technical meetings.
- Skills in making effective oral and written presentations, and in communicating effectively at all levels.

- Ability to work effectively at policy level with government officials, and to perform effective networking.

4) Language:

- Fluency in English (Oral and Written)
- Excellent communication skills for coordination and negotiation with national and international institutions.

5) Other:

- Ability to lead and work effectively with a team of people with diverse cultural backgrounds.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers.

1) Responsibilities as the **Chief Adviser**:

a. Common Responsibilities for **both the First and Second term** Experts

- Prepare annual project workplan.
- Supervise project implementation based on the annual project workplan.
- Organize and co-chair (together with the Project Director) regular meetings with project personnel, to monitor project's progress and to provide guidance on project implementation.
- Ensure effective coordination among the organizations involved in project implementation.
- Liaise, share information, and coordinate with international organizations participating in Forest Sector Support Program and Partnership (FSSP).
- Coordinate technical seminars to share the experimental results with relevant organizations and donors.
- Consolidate and analyze documents compiled by the Project.
- Make oral presentations at technical seminars organized by the Project.

Note: The Chief Advisor is expected to have full understanding of the 661 program, and to keep track of the new developments and directions of the forestry sector of Vietnam as a whole.

b. Specific responsibilities for the **First term** Chief Adviser

- Design a monitoring and evaluation system for the overall project implementation and management, and for research and on-farm trial

activities (Responsible for designing Output 3 and its activities).

- Submit the interim report, consolidating the reports prepared by the 3 experts, to the Steering committee prior to the completion of his/her assignment.

c. Specific responsibilities for the **Second term** Chief Adviser

- Submit recommendations for 661 program to MARD/DFD, based on experimental results and on-farm trial results.
- Submit the final report, consolidating the reports prepared by the 3 experts, to the Steering committee at the time of project completion.

2) Responsibilities as the **Expert on Natural Forest Rehabilitation**:

a. Common Responsibilities for **both the First and Second term** Experts

- Establish and maintain the Hoa Binh Demonstration Site.
- Provide technical guidance to the Expert on Participatory Forest Management and his/her counterpart on designing and implementing on-farm trials.
- Conduct technical evaluation on on-farm trials.
- Collect and analyze documents on natural forest rehabilitation.
- Make oral presentations at technical seminars organized by the Project.

b. Special Requirement for the **First term** Expert

- Design and develop a plan for research and farmland management activities for the Hoa Binh Demonstration Site based on currently available techniques.
- Establish the Hoa Binh demonstration site.
- Analyze and evaluate the initial findings from the Hoa Binh Demonstration Site, and feed them into the designing of project activities (refer. Activity 2.2.4 in the PO).
- Prepare an interim report, which will be consolidated together with other experts' reports, for the submission to the Steering Committee.

c. Special Requirement for the **Second term** Expert

- Consolidate project results and prepare technical reports and recommendations to 661 program.
- Prepare the final report, which will be consolidated together with other experts' reports, for the submission to the Steering Committee.
- Publish technical report and manuals on on-farm trials.

(2) Main Counterparts:

1) as Chief Adviser:

- Project Director
- Project Coordinator
- Research Manager
- Provincial Manager

2) as the Expert on Natural Forest Rehabilitation:

- Technical officers who will participate in the construction and maintenance of the Hoa Binh Demonstration Site
- Technical officers who will participate in the on-farm trials, and those who will give technical supports to the On-farm Trial Unit.

7-1-2 Silvicultural Technique Development

1. Summary description of the position

- (1) Job Title: Silvicultural Technique Development
- (2) Assignment: Long-term expert dispatched from JICA for the technical cooperation
- (3) Period: FY 2003 to FY 2008 (divided in 2 terms)
- (4) Location of the Office:
Research Office (FSIV), and Provincial Office (Sub-DFD in Hoa Binh Province).
- (5) Main locations of activities:
- Hoa Binh Demonstration Site in Hoa Binh Town, Hoa Binh Province.
 - Hoa Binh Research Station and other sites based on research needs.
- (6) Responsibility:
Under the overall guidance of the Chief Adviser, s/he will take the overall responsibility to provide technical and managerial support in developing and implementing research activities.
- (7) Qualification:
- 1) Area of Expertise: Silviculture, natural forest rehabilitation, and native species seedling production
 - 2) Academic Degree: Post graduate degree or equivalent post-graduate professional development
 - 3) Skills and professional experience:
 - More than 7 years of experience on international cooperation or silviculture.
 - Demonstrated professional competence and scientific excellence on the subject areas.
 - High ability in management and in providing technical guidance in the relevant subject areas.
 - Skills in designing silvicultural experiments based on statistical analysis.
 - Skills in processing and analyzing data, for updating and standardizing silvicultural techniques.
 - Skills in analyzing technical and scientific information.
 - High ability to organize and conduct technical meetings.

4) Language:

- Fluency in English (Oral and Written)
- Required to have high ability to make effective oral presentations and to prepare clear and concise documents, to communicate effectively at all levels, and to work in a task orientated team.

5) Other:

- Ability to conduct constructive appraisal on the work performance of counterpart officers.
- Ability to lead and work effectively with a team of people with diverse cultural backgrounds.
- Mature personality, high motivation and initiative in conducting the tasks, high sense of responsibility, and ability to effectively plan and organize one's work.
- Computer literacy, and capability to operate other professional equipment.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers.

a. Common Responsibilities for both the First and Second term Experts

- Prepare annual workplan in the research field on Silvicultural Technique Development.
- Manage and supervise the implementation of research activities based on the annual workplan.
- Collect and analyze documents on silvicultural technique for natural forest rehabilitation.
- Identify prominent species and methodology for the natural regeneration experiments and on-farm trials.
- Process and analyze data for updating and standardizing silvicultural techniques.
- Manage and supervise the team of project personnel on seedling production.
- Establish, maintain, and monitor seedling research activities.
- Identify the cause of pest and disease and conduct control experiments.
- Make oral presentations at technical seminars organized by the Project.

Note: The Expert is expected to have full understanding of the 661

program, and to keep track of the new developments and directions of the forestry sector of Vietnam as a whole.

b. Special Requirement for the First term Expert

- In collaboration with the Expert on Natural Forest Rehabilitation, design and establish the Hoa Binh Demonstration Site.
- In collaboration with the Expert on Natural Forest Rehabilitation, analyze and evaluate the initial findings from the Hoa Binh Demonstration Site, and feed them into the designing of project activities (refer. Activity 2.2.4 in the PO).
- Identify of potential site for research activities.
- Conduct the survey on natural condition of the potential sites for field experiments and on-farm trials.
- Develop research design and procedures.
- Establish of research sites.
- Develop economic analysis methodology for silvicultural techniques developed by the Project.
- Supervise team of project personnel on the establishment of web-based database.
- Prepare an interim report, which will be consolidated together with other experts' reports, for the submission to the Steering Committee.

c. Special Requirement for the Second term Expert

- In collaboration with the Expert on Natural Forest Rehabilitation, maintain the Hoa Binh Demonstration Site.
- Consolidate the analytical results on silvicultural techniques for natural forest rehabilitation.
- Develop manuals on silvicultural techniques for natural forest rehabilitation.
- Prepare technical recommendations for 661 program based on experimental results and submit to the Chief Advisor for consolidation.
- Prepare the final report, which will be consolidated together with other experts' reports, for the submission to the Steering Committee.

(2) Main Counterparts:

- Research Manager
- Research Coordinator
- Technical officers who will participate in the activities conducted by the Research Unit.

7-1-3 Participatory Forest Management / JICA Coordinator

1. Summary description of the position

- (1) Job Title: Participatory Forest Management / JICA Coordinator
- (2) Assignment: Long-term expert dispatched from JICA for the technical cooperation
- (3) Period: FY 2003 to FY 2008 (divided in 2 terms)
- (4) Location of the Office:
- Provincial Office (Sub-DFD in Hoa Binh Province).
 - Research Office (FSIV).
- (5) Main locations of activities:
- Five (5) to six (6) communes out of twenty (20) communes of Hoa Binh Dam Watershed Area, Hoa Binh Province.
- (6) Responsibility:
- Under the overall guidance of the Chief Adviser, s/he will take the overall responsibility in providing technical and managerial support for developing and implementing on-farm trial activities, and for JICA Project Coordination.
- (7) Qualification:
- 1) Area of Expertise: Participatory forest management, and coordination of different national and international institutions for implementation of field activities.
 - 2) Academic Degree: Post graduate qualifications or equivalent post-graduate professional development.
 - 3) Skills and professional experience:
 - More than 5 years of experience in international cooperation or coordination of project activities.
 - Demonstrated professional competence and scientific excellence on the subject areas.
 - Ability in providing managerial and technical guidance in the relevant subject areas.
 - Skills in designing on-farm trials based on statistical analysis.
 - Ability in processing and analyzing data to develop hands-on techniques that are technically appropriate and economically affordable.
 - Knowledge and experience in organizing and conducting technical and managerial meetings.
 - 4) Language:

- Fluency in English (Oral and Written)
- Required to have high ability to make effective oral presentations and to prepare clear and concise documents, to communicate effectively at all levels, and to work in a task orientated team.
- Ability to conduct constructive appraisal on the work performance of counterpart officers.

5) Other :

- Ability to lead and work effectively with a team of people with diverse cultural backgrounds.
- Mature personality, high motivation and initiative in conducting the tasks, high sense of responsibility, and ability to effectively plan and organize one's work.
- Computer literacy, and capability to operate other professional equipment.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers (except for the duties as the JICA Coordinator, which will be his/her sole responsibility).

1) Responsibilities as the Expert on Participatory Forest Management:

a. Common Responsibilities for both the First and Second term Experts

- Prepare annual workplan concerning on-farm trial activities.
- Collect and analyze documents on participation, agroforestry, watershed management, upland farming, natural resource economics, social forestry, etc.
- Supervise and manage the establishment of on-farm trial sites, and the implementation of on-farm trial activities, based on the annual work plan.
- Process and analyze data to update and standardize technically appropriate and economically affordable measures for natural forest rehabilitation by farmers, based on the findings from on-farm trials.
- Organize and coordinate field visits.
- Organize and coordinate seminars and field visits for local farmers from the twenty (20) communes to study successful on-farm trials.

- Make oral presentations at technical seminars organized by the Project.
Note: The Expert is expected to have full understanding of the 661 program, and to keep track of the new developments and directions of the forestry sector of Vietnam as a whole.

b. Special Requirement for the First term Expert

- Publish leaflets on hands-on techniques targeting local farmers based on currently available information.
- Design and initiate on-farm trial activities for the first year, which will be implemented in the selected two communes, using currently available technologies and in line with 661 program procedures.
- Analyze and evaluate the initial findings from on-farm trial activities in the first year, and feed them into the designing of project activities (refer. Activity 2.2.5 in the PO).
- Identify of potential sites for on-farm trial activities.
- Develop on-farm trial design and procedures (including the establishment of criteria for selecting target farmers, and the level of inputs).
- In collaboration with the Expert on Silvicultural Technique Development, develop economic analysis methodology, which will be used for monitoring on-farm activities based on the concept of technically appropriate and economically affordable silvicultural techniques.
- Prepare an interim report, which will be consolidated together with other experts' reports, for the submission to the Steering Committee.

c. Special Requirement for the Second term Expert

- Prepare technical recommendations for 661 program based on on-farm trial results and submit to the Chief Advisor for consolidation.
- Consolidate the analytical results on on-farm trials.
- Develop manuals on hands-on techniques based on on-farm trial results, targeting technical officers and farmers.
- Prepare the final report, which will be consolidated together with other experts' reports, for the submission to the Steering Committee.
- Provide information and assist the Expert on Natural Forest Rehabilitation in preparing technical report and manual on on-farm trial.

2) Responsibilities as JICA Coordinator

a. Common Responsibilities for both the First and Second term Experts

- Provide technical and logistical support to JICA Experts and counterparts.
- Provide management advice, and purchase equipment funded by GOJ budget.
- Manage the project expenditure under GOJ budget.
- Act as liaison officer for institutions participating in project management and implementation.

(2) Main Counterparts:

- Provincial Manager
- Provincial Coordinator
- Technical officers who will participate in on-farm trial activities.

7-2: Short Term Experts (1st year)

7-2-1 Socioeconomic Analysis

1. Summary description of the position

(1) Job Title: Socioeconomic Analysis

(2) Assignment: Short-term expert dispatched from JICA for the technical cooperation

(3) Period: FY 2003, for 2 months

(4) Location of the Office:

Provincial Office (Sub-DFD in Hoa Binh Province).

(5) Main locations of activities:

- 20 communes of Hoa Binh Dam Watershed, Hoa Binh Province.

(6) Responsibility:

Under the overall supervision of the Chief Adviser and JICA Expert on Participatory Forest Management, s/he will take the overall responsibility on the implementation and analysis of the baseline survey (PO 2.2.1). S/he will also provide inputs in clarifying procedures and directions for PO 2.2.3, PO 2.2.5, PO 2.5.1, and make recommendations for PO 3.1.

(7) Main output:

- Report on the socioeconomic condition of target communes.
- Procedure and criteria for selecting sites and target farmers, and on the level of inputs for on-farm trial activities.
- Recommendations for PO 3.1.

(8) Qualification:

1) Area of Expertise: Socioeconomic survey and analysis

2) Academic Degree: Post graduate degree or equivalent post-graduate professional development

3) Skills and professional experience:

- More than 10 years of experience in socioeconomic survey and analysis.
- Demonstrated professional competence on the subject areas.
- Advanced knowledge and skills in statistical analysis.
- Experience and skills in providing technical guidance in the relevant subject areas, and in leading a task-orientated team.
- Excellent knowledge and skills in analyzing socioeconomic and scientific information, and in conducting technical meetings.

- High ability in training field staff and in providing guidance for implementing survey work.
- Experience and skills in conducting participatory workshops.
- Experience and ability to work with local people in the rural areas.
- Skills in making effective oral and written presentations, and in communicating effectively at all levels.

4) Language:

- Fluency in English (Oral and Written).
- Required to have high ability to make effective oral presentations and to prepare clear and concise documents, to communicate effectively at all levels, and to work in a task orientated team.

5) Other:

- Ability to lead and work effectively with a team of people with diverse cultural backgrounds.
- This short-term expert is required to work closely with the short-term expert on Economic Analysis.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers.

- Prepare the workplan (in Japan).
- Prepare the overall design of the baseline survey, questionnaire format targeting farmers, and the data input interface.
- Set up the initial hypotheses.
- Train field officers and technical staff of WMB, FE and AFE to implement baseline survey.
- Supervise the survey and data input.
- Prepare the commune profiles for 20 communes.
- Prepare profiles of the target hamlets.
- Hold community meetings/workshops to triangulate (confirm) the baseline survey data and the initial hypothesis.
- Analyze the data obtained through the survey and meetings/workshops.
- Produce a report on the socioeconomic condition of the target communes.
- Make oral presentations at technical seminars organized by the Project on the results of the baseline survey to project staff and other relevant organizations.

- Provide information on critical factors that need to be considered in the processes of designing research and on-farm trial activities.
- Recommend procedure and criteria for selecting sites and target farmers, and on the level of inputs for on-farm trial activities.
- Make recommendations for PO 3.1.

Note: This short-term expert is required to have full understanding of the 661 program.

(2) Main Counterparts:

- Provincial Coordinator
- FSIV Staff who will participate in the baseline survey
- Officers from Sub-DFD, WMB, FE, and AFE

7-2-2 Economic and Market Analysis

1. Summary description of the position

- (1) Job Title: Economic and Market Analysis
- (2) Assignment: Short-term expert dispatched from JICA for the technical cooperation
- (3) Period: FY-2003, for 2 months (Note: Expected to be dispatched again in FY 2007 or 2008 for 2 months. Refer Plan of Operations.)
- (4) Location of the Office:
Research Office (FSIV), and Provincial Office (Sub-DFD in Hoa Binh Province)
- (5) Main locations of activities:
- 20 communes of Hoa Binh Dam Watershed, Hoa Binh Province
 - Hanoi (for Market Research)
- (6) Responsibility:
Under the overall supervision of the Chief Adviser and JICA Expert on Participatory Forest Management (PFM), s/he will take the overall responsibility in PO 2.4.10 and 2.5.10 on economic analysis and on market analysis, and in making recommendation for PO 3.1 and for research and on-farm trial activities.
- (7) Main output:
- Data collection format and analytical procedures for the economic analysis to assess the feasibilities of the techniques (for the demonstration sites, research, and on-farm trials).
 - Information package on the market of agriculture and forest products (including fruits, mushrooms, and other NTFPs).
 - Recommendations for PO 3.1.
- (8) Qualification:
- 1) Area of Expertise: Economic analysis and market analysis
 - 2) Academic Degree: Post graduate degree or equivalent post-graduate professional development.
 - 3) Skills and professional experience:
 - More than 10 years of experience in economic analysis and market analysis.
 - Demonstrated professional competence on the subject areas.

- Advanced knowledge and skills in statistical analysis and economic analysis.
- Experience and skills in providing technical guidance in relevant subject areas, and in leading a task-orientated team.
- Excellent knowledge and skills in analyzing economic and scientific information, and in organizing and conducting technical meetings.
- High ability in training counterparts and in providing proper guidance on data compilation and economic analysis.
- Skills in making effective oral and written presentations, and in communicating effectively at all levels.

4) Language:

- Fluency in English (Oral and Written).
- Required to have high ability to make effective oral presentations and to prepare clear and concise documents, to communicate effectively at all levels, and to work in a task orientated team.

5) Other:

- Ability to lead and work effectively with a team of people with diverse cultural backgrounds, mature personality, high motivation and initiative in conducting the tasks, high sense of responsibility, and ability to effectively plan and organize one's work.
- This short-term expert is required to work closely with the short-term expert on Baseline Survey.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers.

a. Responsibilities as the Expert on Economic analysis

- Literature review to identify suitable economic analysis methods for demonstration site, research and on-farm trial activities (in Japan).
- Prepare the workplan (in Japan).
- Hold workshops with FSIV staff to determine the methodology on economic analysis.
- Set up the initial hypotheses.
- Identify the key indicators the Project must keep records (e.g., unit costs and amount of material, labor, and other input).

- Design the economic analysis model.
- Conduct a pre-test, and adjust data collection formats and analytical procedures.
- Refine the key indicators, and finalize the data collection formats and analytical procedures for the economic analysis.
- *Reflect the design and variables into the Baseline Survey.*
- Make oral presentations at technical seminars organized by the Project to share the main outputs with project staff and other relevant organizations.
- Train counterparts and field technical staff of FSIV, WMB, FE and AFE on data collection and economic analysis methods.
- Provide information on critical factors that need to be considered in the processes of designing research and on-farm trial activities.
- Make recommendations for PO 3.1.

b. Responsibilities as the Expert on Market Analysis

- Prepare the workplan (in Japan).
- Hold workshops with FSIV staff to identify methodologies on market research and analysis.
- Set up the initial hypotheses.
- Prepare the design of the market research and analysis.
- *Conduct market research on main agricultural products such as maize, sugarcane, root crops, fruit products such as litchi, mango, persimmon, longan, etc., and forest products such as timber, bamboo, bamboo shoot, mushroom, and other NTFPs.*
- Make oral presentations at technical seminars organized by the Project on the results of market research and analysis to project staff and other relevant organizations.
- Provide information on critical factors that need to be considered in the processes of designing research and on-farm trial activities
- Train counterparts and field technical staff of WMB, FE and AFE on market research and analysis.
- Prepare an information package on the market of agriculture and forest products.
- Make recommendations for PO 3.1.

(2) Main Counterparts:

- FSIV staff who will participate in economic analysis and market analysis.

7-2-3 Experimental Design

1. Summary description of the position

- (1) Job Title: Experimental Design¹
- (2) Assignment: Short-term expert dispatched from JICA for the technical cooperation
- (3) Period: FY 2003 2 months
- (4) Location of the Office:
Research Office (FSIV)
Provincial Office (Sub-DFD in Hoa Binh Province)
- (5) Main locations of activities:
- Research sites
 - On-farm trial sites
- (6) Responsibility:
Under the overall supervision of the Chief Adviser, JICA Experts on Silvicultural Technique Development and Participatory Forest Management, s/he will assist the implementation of PO 2.2.3, PO 2.2.4, PO 2.2.5, PO 2.2.6, and PO 2.4.1.
- (7) Main output:
- Designs of research and on-farm trial activities.
 - Procedures for research activities.
 - Recommendations for PO 3.1.
- (8) Qualification:
- 1) Area of Expertise: Silviculture, Reforestation, and Forest Rehabilitation.
 - 2) Academic Degree: Post graduate degree or equivalent post-graduate professional development.
 - 3) Skills and professional experience:
 - More than 15 years of experience in research on silviculture, reforestation, and forest rehabilitation.
 - Demonstrated professional competence on the subject areas.
 - Excellent skills in statistical analysis and experimental design.
 - High ability in providing technical guidance on relevant subject areas, in leading a task-orientated team, and in conducting technical meetings.

¹ The decision as to whether this short-term expert should be dispatched or not will be based on the request by the JICA long-term Expert on Silvicultural Technique Development. The short-term expert should be recruited from either Japan Forestry and Forestry Product Institute or Forestry Universities.

- Excellent knowledge and skills in analyzing scientific information.
- High ability in training field staff and in providing guidance.
- Skills in making effective oral and written presentations, and in communicating effectively at all levels.

4) Language:

- Fluency in English (Oral and Written).
- Required to have high ability to make effective oral presentations and to prepare clear and concise documents, to communicate effectively at all levels, and to work in a task orientated team.

5) Other:

- Ability to lead and work effectively with a team of people with diverse cultural backgrounds.
- This short-term expert is required to work closely with the short-term expert on Baseline Survey, and Economic and Market Analysis.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers.

- Prepare the workplan (in Japan).
- Set up the initial hypotheses for research and on-farm trial activities.
- Design research and on-farm trial activities.
- Identify important variables for both activities.
- Design field data collection formats.
- Establish statistical analysis procedures.
- Train counterparts on the experimental designs.
- Prepare research design information package.
- Make oral presentations on the design and procedure of research and on-farm trials at technical seminars organized by the Project, to project staff and other relevant organizations.
- Make recommendations for PO 3.1.

(2) Main Counterparts:

- FSIV Staff who will participate in research activities.
- Officers from Sub-DFD, WMB, FE, and AFE who will participate in on-farm trial activities.

7-2-4 Monitoring and Evaluation

1. Summary description of the position

- (1) Job Title: Monitoring and Evaluation
- (2) Assignment: Short-term expert dispatched from JICA for the technical cooperation
- (3) Period: FY 2003 1 month
- (4) Location of the Office: Project Management Office (DFD) and Research Office (FSIV)
- (5) Main locations of activities:

- Demonstration sites
- Research sites
- On-farm trial sites

(6) Responsibility:

Under the overall supervision of the Chief Adviser, s/he will implement PO 3.2.1. S/he will also be responsible for conducting a series of workshops in relation to PO 3.1, should there be a need to refine the PO and indicators.

(7) Main output:

- Monitoring and Evaluation (M&E) System for the overall project implementation and management, and for research and on-farm trial activities.
- Manual for implementing the M&E System.
- Revised PDM and PO reflecting the proposed changes of activities and indicators (if there was a need for a revision).

(8) Qualification:

1) Area of Expertise: Project monitoring and evaluation.

2) Academic Degree: Post graduate degree or equivalent post-graduate professional development.

3) Skills and professional experience:

- More than 10 years of experience in project monitoring and evaluation.
- Demonstrated professional competence on the subject area.
- Excellent skills in conducting participatory workshops.
- Skills in making effective oral and written presentations, and in communicating effectively at all levels.
- Experience in conducting monitoring and/or evaluation in forestry related projects would be an advantage.

- Experience in establishing an M&E system for a technical cooperation project would be an advantage.

4) Language:

- Fluency in English (Oral and Written).
- Required to have high ability to make effective oral presentations and to prepare clear and concise documents, to communicate effectively at all levels, and to work in a task orientated team.

5) Other:

- Ability to lead and work effectively with a team of people with diverse cultural backgrounds.

2. Job Description

(1) Responsibilities:

To conduct the following actions in collaboration with the counterpart officers.

- Prepare the workplan (in Japan).
- Design the M&E System and prepare the procedures.
- Initiate the M&E System and refine the System (procedures, indicators, data collection format, etc.) as required.
- Train the project staff and technical officers who are involved in the implementation of the M&E System, including field technical staff of FSIV, WMB, FE and AFE.
- Produce a manual for monitoring and evaluation system.
- Conduct workshops with project staff and other stakeholders to revisit the PO and Objectively Verifiable Indicators (OVIs) described in PDM.
- (If there was a need for a revision) Prepare a revised PDM and PO reflecting the proposed changes of activities and indicators.
- Make presentations on the M&E System to the project staff at technical seminars organized by the Project.

(2) Main Counterparts:

- Project Coordinator
- Research Coordinator
- Provincial Coordinator

Annex 8: Tentative List of Project Personnel (FSIV)

FORESTRY SCIENCE INSTITUTE OF VIETNAM

Hanoi, December 19, 2002

PROPOSED LIST OF COLLABORATORS PARTICIPATING IN PROJECT "Rehabilitation of Natural Forest in Degraded Watershed Area in the North, Vietnam"

No	Name	Level of Education	Professional Knowledge
1	Research Manager (Responsible for Research Component) Vo Dai Hai	Doctor	Deputy Director of FSIV
2	Coordinator Dang Kim Khanh	Master	Staff of ICD of FSIV
3	Ngo Dinh Que	Doctor	Use of forestland, sites
4	Bui Doan	Doctor	Silvicultural technique, forest ecology
5	Tran Quang Viet	Doctor	Silvicultural technique
6	Nguyen Huy Son	Doctor	Silvicultural technique
7	Vu Tan Phuong	Master	Forest soil
8	Nguyen Duc Minh	Engineer	Ecology
9	Pham Anh Dung	Master	Silvicultural technique
10	Nguyen Tien Hung	Engineer	Silvicultural technique
11	Nguyen Quang Khai	Master	Silvicultural technique
12	Phan Minh Sang	Master	Silvicultural technique
13	Hoang Van Thang	Engineer	Silvicultural technique
14	Nguyen Duc Kien	Master	Research on improvement of forest tree species
15	Phi Hong Hai	Master	Research on improvement of forest tree species
16	Pham Dinh Tam	Engineer	Silvicultural technique
17	Dang Quang Hung	Engineer	Silvicultural technique
18	Nguyen Chi Trung	Engineer	Information, material publish
19	Nguyen Tien Phuc	Engineer	Establishment of web-based database and design of web page
20	Pham Quang Thu	Doctor	Pest damaged forest trees

Note: Original submission in Vietnamese.

Annex 9: Technical Staff of Sub-DFD, Hoa Binh Province

Name	Level of Education	Position
Provincial Manager Bui Van Chuc	Master of Science	Director
Bui Xuan Nhan	Graduate, Forest University	Deputy Director
Luu Huy Thiem	Graduate, Forest University	Chief, Planning Section
Phan Thi Duyen	Graduate, Forest University	Chief, Administrative Section
Dinh Thi Trinh	Graduate, Forest University	Chief, Technical Section
Dang Van Hai	Graduate, Forest University	Staff
Vu Huy Khiem	Graduate, Forest University	staff
Nguyen Van Tho	Graduate, Forest University	Staff

Note: The list is based on the information submitted by Sub-DFD in July 2002.