Summary of Terminal Evaluation

1. Outline of the Project	
Country: Vietnam	**Project Title:** The Project for the Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam
Issue/Sector: Environment	**Cooperation Scheme:** Technical Cooperation Project
Division in charge: Forestry and Nature Conservation Division 1, Forestry and Nature Conservation Group, Global Environment Department, JICA	**Total cost (at the terminal evaluation study):** About 500,000 thousand yen
Period of Cooperation: 1st October 2003- 30th September 2008 (5 years)	**Partner Country's Implementing Organization:** - Department of Forestry, Ministry of Agriculture and Rural Development (MARD/DOF) - Forest Science Institute of Vietnam (FSIV) - Sub-Department of Forestry of Hoa Binh Province, Ministry of Agriculture and Rural Development (Sub-DOF)
Related Cooperation Project: N/A	**Supporting Organization in Japan:** - Ministry of Agriculture, Forestry and Fisheries - Forestry Agency - Forestry and Forest Products Research Institute

1-1. Background of the project

Restoration of forest cover has been a high priority by the Government of the Socialist Republic of Vietnam (hereinafter referred to as "GOV"). Forest cover in Vietnam declined during the 1940s - 1990s due to the impact of war, increasing demand of forest products and agricultural land due to population increase and migration, and overexploitation of forest resources. 14,300 thousand ha of the total forest land in the year 1943 (the forest cover was 43% of the total land area) was reduced to 9,300 thousand ha (the forest cover was 28%) in the year 1995.

The long-term strategy of the forest sector in Vietnam was set in the Forest Development Strategy 2001-2010 (FDS), with objectives of forest product export turnover reaching USD 2.5 billion, number of people participating in forestry reaching 6 to 8 million, and forest cover reaching 43-44%. The 5 Million Hectare Reforestation Program (hereinafter referred to as "5MHRP": also known as the 661 Program) is one of the priority programs under the FDS, which sets its goal to reforest 5million ha by 2010.

Silvicultural technique for natural forest rehabilitation is one of the key areas where technical development is urgently needed in order to enhance the GOV's effort to increase national forest cover through the 661 Program. There had been few research activities closely integrated with the 661 Program at the time of starting. Existing information on the techniques was scattered and had not been compiled, analyzed, and disseminated effectively, in forms that can be easily referred to and applied by forest management practitioners. Furthermore, past research activities had tended to have less consideration on the needs and capacities of their clients.

There was also a concern in the economic aspects of natural forest rehabilitation. Under the 661 Program, local farmers, Watershed Management Boards (hereinafter referred to as "WMBs"), and State Forest Enterprises (hereinafter referred to as "SFEs") are the main entities involved in the implementation. GOV provides subsidies for the operations, but there has been a question as to whether the current modus operandi provides sufficient incentive for them to manage forests properly. Meanwhile, there was also an opinion that the level of subsidy should be reduced in view of the sustainability of the 661 Program. In this context, there was a critical need to

identify suitable species and to develop silvicultural techniques that would bring reasonable economic return, and which can be introduced and maintained at the level of investment affordable by those involved.

In summary, there was a pressing need to identify appropriate technology, both in technical and economic terms, through compilation and analysis of existing information and through the conduct of new research and trial activities, to accelerate the implementation of 661 Program. This Project was designed under this context, based on the request by the GOV to the Government of Japan (hereinafter referred to as "GOJ"), which was originally forwarded to GOJ in July 2000.

1-2. Project Overview

(1) Overall Goal

Sets of technology for natural forest rehabilitation developed by the Project are applied by policy makers and by end users.

(2) Project Purpose

Sets of technically appropriate and economically affordable measures for natural forest rehabilitation are developed that can be used by forest enterprise, watershed management board and extension workers.

(3) Outputs

Output 1: Information on existing techniques and policies in relation to natural forest rehabilitation and on techniques developed by the Project is complied and disseminated in a timely manner.

Output 2: Silvicultural techniques for natural forest rehabilitation in watershed area are developed through research and on-farm trials.

Output 3: Farmland management techniques in watershed area are developed for Song Da FE, Song Da WMB, extension workers of AFE and local farmers through on-farm trials.

Output 4: Examples of silvicultural techniques for natural forest rehabilitation and farmland management techniques in watershed area are demonstrated for technical officers and local farmers to apply in their localities.

Output 5: Monitoring system is established for assessing the achievement of each Output and for deriving the lessons of each Output to attain the Project Purpose.

(4) Inputs (JFY 2003-2008)

1) Japanese Side Total: 500 million yen
   - Long-term Experts 6 (158.5M/M)
   - Short-term Experts 15 (7.5M/M)
   - Trainees received in Japan 29
   - Trainees dispatched for the third-countries (Philippines and China) 17
   - Equipment 45,700 thousand yen (approximately equivalent to 460,221 USD)
   - Local cost 123,131 thousand yen (approximately equivalent to 1,239,980 USD)

2) Vietnam Side
   - Counterpart personnel 57
   - Land and Facilities Land for Experimental Forest
     Project Office and related facilities in Hanoi and Hoa Binh
   - Local cost 3,533 million VND

2. Evaluation Team

Members of Evaluation Team	**(1) Japanese members** 1) Mr. Kenichi TAKANO (Leader) Executive Technical Advisor to the Director General, Global Environment Dept., Japan International Cooperation Agency 2) Mr. Takayuki SATO (Silviculture Techniques) Assistant Director, International Forestry Cooperation Office, Forestry Agency, Ministry of Agriculture, Forestry and Fisheries 3) Mr. Hiroomi MATSUURA (Cooperation Planning) Project Officer, Forest and Nature Conservation Div. I, Global Environment Dep., Japan International Cooperation Agency 4) Mr. Kazuo IIYAMA (Evaluation/Analysis) Researcher, Social Development Dept., Nippon Koei Co., Ltd. **(2) Vietnamese members** 1) Mr. Nhu Van Ky (Leader) Officer in Forest Development Division, Department of Forestry, Ministry of Agriculture and Rural Development 2) Mr. Pham Van Hanh Senior Officer in Forest Management Division, Department of Forestry, Ministry of Agriculture and Rural Development 3) Mr. Nguyen Van Tho Vice head of Technical division, Sub-department of Forestry of Hoa Binh, DARD FIoa Birth		
Period of Evaluation	April 27 to May 3 and May 13 to May 23 in 2008	**Type of Evaluation**	Terminal Evaluation

3. Results of Evaluation

3-1. Accomplishment of the project

(1) Outputs

[Output 1] Information on existing techniques and policies in relation to natural forest rehabilitation and on techniques developed by the Project is complied and disseminated in a timely manner.

[Indicators]

- Web-based database is established by March 2005 and is regularly updated.
- By March 2005, information on existing techniques and policies in relation to natural forest rehabilitation is compiled and make available in forms of the Internet and publication.
- Information on newly developed techniques by the Project and by other organizations is regularly compiled by the Project throughout the project period.

This output was accomplished by the time of evaluation.

The existing technical information related to the project activities was organized and information was provided to general public through internet. A web-site of the Project was established in April 2006. The information on the web-site has been occasionally updated. A database of the existing 130 references is also available on the web-site. References prepared by other organizations and projects are regularly being collected and sorted out and reflected to the web-site (http://www.fsiv.org.vn/). Techniques developed by the project were compiled and

those references are also available on the web-site.
Results of studies and activities were summarized in reports and published as RENFODA Publication Series (RPS). 24 publications were compiled in two languages in English and Vietnamese. Also, monthly newsletters were published since Jan 2007. The visual images for introducing the RENFODA was compiled in DVD and distributed to relevant organizations and TV program was produced by the local TV station in Hoa Binh.

[Output 2] Silvicultural techniques for natural forest rehabilitation in watershed area are developed through research and on-farm trials.

[Indicators]

- By 2007, at least one experimental site is established for each of the silvicultural techniques stated under activities 2.4.2 - 2.4.8 in the PO, that have potential for field application.
- By the end of 2007, at least one silvicultural technique for natural forest rehabilitation is identified that can be applied for plantation, additional planting, and regeneration categories of the 661 program.
- By end of the Project, more than one new techniques of seedling production is introduced.

This output was accomplished by the time of the final evaluation. Related to the indicator 1 of the output 2, approximately 30 ha of the Experimental Forest were established in 2004 and 2005 with 7 models indicated in the 2.4.2-2.4.8 in the PO. The 7 models are including afforestation by native tree species, enrichment planting and non-timber forest products (hereinafter referred to as "NTFP") development. Additional sites for the experimental forest are on thinning of nurse trees (9 ha in Phu Tho province) and *Melaleuca* plantation (6 ha) developed in 2005.
Concerning indicator 2, the mid-term and final reports on the experiments on the lake side of Hoa Birth lake and in Phu Tho province were published as one of the RPS. Based on these reports, the silvicultural techniques which can be applied in 661 programs were identified by the Research component through the review meeting. The OFT component identified "promising tree species and procedure of planting trees", based on the monitoring and precise survey of forestry activities and the results of cost - benefit of forestry activities analyzed by the short term expert on farm house hold economic analysis.
The indicator 3 was achieved by introducing the techniques of producing the air pruning and container tray seedlings in Tan Lac nursery and OFT villages such as Ke, Dung, Cap and Khan Ho. Considering the availability of the local material and those advantages, the containers for seedlings made of iron plate were introduced in the small scale seedling production in Cap and Khan Ho villages.

[Output 3] Farmland management techniques in watershed area are developed for Song Da FE, Song Da WMB, extension workers of AFE and local farmers through on-farm trials.

[Indicators]

- By 2007, on-farm trial sites to apply and verify farmland management techniques of 10 villages are established involving at least 250 households in 5 communes.
- By the end of 2007, at least one effective farmland management technique in watershed area is identified in on-farm trial sites.

This output was accomplished, fully achieving its two (2) indicators by the time of the final evaluation.
Total number of 1,499 households in total participated to the OFT individual activities in the 10 target villages in 5 communes in Da river watershed area by the end of December 2007. The activities contain the Forest activities such as afforestation, enrichment planting and replanting and Non-forest activities such as fodder grass planting and home garden improvement as agriculture activity, animal provision and stall construction as animal husbandry activity and small-scale infrastructure and equipment provision as other activity. Target indigenous

tree species, nurse tree species (shade and fertilizer trees), bamboo and fruit tree species were planted in the area, approximately 265ha of the farmers land.
Following the results of monitoring and in-depth survey for non-forest activities as well as the results of farm economic analysis by Japanese short-term expert, "the core non-forest activities for improvement of livelihood" of local farmers participating in forest activities were identified for farm land management; such as a combination of animal husbandry and stall construction, compost tank, elephant grass planting and water tank,. With the trials in the farmer's land, effectiveness on the additional incomes generation and cash flow improvement of the farmers were confirmed.

[Output 4] Examples of silvicultural techniques for natural forest rehabilitation and farmland management techniques in watershed area are demonstrated for technical officers and local farmers to apply in their localities.

[Indicators]

- By 2008, established areas of the demonstration site reach 93 ha.
- By 2008, households who participate in demonstration site reach 110.
- By 2008, technical officers and farmers who visit the demonstration site reach 500.

This output was fairly accomplished at the time of the evaluation.
Currently available techniques have been adopted in 93 ha of the Demonstration Forest. For the activities, 125 households had participated by the end of the year 2007, The forest contains 1) mix plantation of native species and acacia, 2) mix plantation of native species and bamboo, 3) enrichment planting of native species, 4) multi-layer forest with additional planting of native species and 5)natural regeneration of Acacia mangium and 12 models in 2004, 5 models in 2005 and 3 models in 2006 were established. As supporting activities for participating local farmers, agroforestry with maize, soy bean, cassava and lemon grass and pig raising with revolving system that applied to the OFT were introduced.
Due to the current operation of the demonstration forest in which the management system is under development, exact number of local visitors has not been monitored. The number of Vietnamese visitors counted by the project was 167 by the end of the year 2007. Also, 133 foreign visitors visited to the site. Adequate management way of the demonstration forest with a commitment of local farmers will be expected to be established by the end of the project period with coordination of relevant organizations such as Sub-DOF, Watershed Management Board, Dan Chu Commune Peoples' Committee.

[Output 5] Monitoring system is established for assessing the achievement of each Output and for deriving the lessons of each Output to attain the Project Purpose.

[Indicators]

- Monitoring report is periodically prepared.
- Procedure to derive the lessons of each Output is prepared.

This output was fairly accomplished at the time of the evaluation.
Monitoring for respective components, research, OFT and demonstration forest activities are implemented. Monitoring reports were prepared 4 times for the OFT, 2 times for the research component.
To accomplish the project purpose, the Roadmap was established as a step of the procedure for deriving lessons of the each output. However, the actual progress of the activities was behind schedule. An overall project monitoring was not fully implemented. Periodical monitoring was conducted through JICA progress report, twice a year, sharing the information within both Japanese and Vietnamese sides based on the monitoring activity result on the each working group.

(2) Project Purpose

Project Purpose is "Sets of technically appropriate and economically affordable measures for natural forest rehabilitation are developed that can be used by forest enterprise, watershed management board and extension workers". Accomplishment of the Project purpose is as follows.

1) Interpretation of the Project Purpose

Interpretation of the project purpose was confirmed in the mid-term evaluation. The expression of "technically appropriate and economically affordable" means that "sets of measures" which can be applied to the other areas only by the Vietnamese side under the economic, social and environmental conditions in Vietnam. Also, at the time of PDM revision and preparation of roadmap for achieving project purpose in May 2007, the meaning of "sets of measures" was defined that the methods to apply silvicultural techniques for natural forest rehabilitation and farmland management techniques in watershed area.

2) Indicator 1: By the end of the project period in 2008 recommendation report on the methods to apply silvicultural techniques for natural forest rehabilitation and farmland management techniques in watershed area is submitted to 661 programs.

This indicator has not been achieved at the time of final evaluation and will possibly be achieved by the end of the project period. The preparation of the recommendation report was in progress. Thematic reports on each component, demonstration forest, OFT, Research and information components were completed in English and Vietnamese language as drafts. The time schedule on the completion of the recommendation report in the process for compilation of the recommendation report is being prepared. Further process is required for making recommendation report based on the thematic reports.

3) Indicator 2: By the cud of the project period in 2008, a manual on hands-on techniques on the sets of natural forest rehabilitation techniques and farmland management techniques in watershed area targeting local technical officers and farmers is prepared.

This indicator has not been achieved fully at the time of final evaluation and will possibly be achieved by the end of the project period. A manual on hands-on techniques for local technical officer and farmers is planned to be made by simplil5 fing the contents of the recommendation report. Also, the following manuals and teaching materials for trainings were confirmed as a part of achievement of the output at the mid-term evaluation.

- Manual on land evaluation for reforestation, March 2005
- Teaching material for grafting and cutting, November 2004
- Teaching material for seedling production of native tree species, February 2005
- Monitoring method for data in the Experimental Forest, May 2005
- Teaching material for cutting propagation techniques of trees in enclosed cutting beds covered with a special film, November 2005
- Training manual (forestry and animal husbandry) for OFT participants, 2004
- Training manual (forestry and animal husbandry) for OFT participants, 2005

4) Indicator 3: 80 technical officers of FE, WMB, and AFE learn new techniques through technical seminars.

This indicator was achieved by the time of the final evaluation. Eighty one (81) technical officers in total learned the new techniques developed by the project through the seminar by the time of final evaluation. The project plans to have another seminar by the end of the project period and the number of participants will be increased.

In order to share the results of OFT activity, the OFT technical seminar was held in Hoa Binh in Sep.2006. Forty five (45) technical officers were attended to the seminar and the total participants were 50. In March, 2008

another technical seminar was held to introduce results of activities of OFT to officers and extension workers of people's committees of 20 target communes and relevant offices (AFE, DARD, PMU, WMB, DOF, and FSIV) and a technical document on hands-on techniques was provided. Total participants were 76 of which 36 were technical officers.

Also, two seminars were held in 2005 related to the afforestation technique (techniques on land evaluation and classification for afforestation) and watershed management (technical seminar on watershed management). Those were organized in September 2005 and in October 2005. Thirty nine (39) technical officers and farmers attended technical trainings of seedling production.

3-2. Summary of Evaluation Result

(1) Relevance

The Project which aims the development of silvicultural techniques for natural forest rehabilitation was relevant from the following perspectives.

1) Regarding the conformity of the Project with Forest Policy of the Vietnamese Government, the Vietnamese government has been implementing the 661 program (5MHRP), and direction of the forestry-related policies will be basically maintained after 2010.
2) Regarding relevance to the needs of target groups and target area, qualitative forest improvement may be required because the quality of the forests in the north of Vietnam remains still poor condition, although the forest cover in the area has currently been increasing.
3) In addition, most ethnic minority people remain poor, live in mountainous area, and many of them are practicing slash-and-burn cultivation that adversely affects forest rehabilitation in the north of Vietnam.

(2) Effectiveness

The effectiveness of the project is fairly good. The project purpose will be probably accomplished by the end of the project period in 2008. All outputs are expected to be achieved by the end of the project period. Based on the activities corresponding to those outputs, the recommendation report is on progress at the time of evaluation.

Initiative of the each component orienting to the project purpose was improved by raising the awareness of the monitoring activities after the mid term evaluation. The PDM was revised through the PCM workshop among the relevant personnel facilitated by the short term expert. Effectiveness of each activity toward the project purpose was confirmed among all components at the revision of PDM and roadmap to make recommendation report was prepared. However, the monitoring of the roadmap was not fully implemented. Delay for preparing the recommendation report as an indicator of project purpose was found and it required revision of the roadmap toward the completion of the project.

(3) Efficiency

The efficiency of the project is evaluated as slightly high.

Almost all the outputs were fairly accomplished, although some inputs from both Vietnamese and Japanese governments have not been made appropriately in terms of quantity, quality and timing to be pointed out in the mid term evaluation.

At the beginning of the project, dispatch of the long-term expert on silvicultural techniques development had delayed for approximately eight (8) months. On the other hand, the official approval of the project by Vietnamese government was delayed and approved in May 2005. This affected allocation of counterpart budget and it was not made for the first two years in 2003 and 2004. The frill-time technical officials as counterpart personnel recommended by the mid-term evaluation team have not been assigned by Vietnamese government.

Those inappropriate inputs might affect invisibly the progress in the project. Progress on the compilation on the recommendation report as an indicator of the project purpose was delayed at the final stage of the project.

(4) Impact

The possibility to accomplish the overall goal as a positive impact of the project can be expected if the project purpose will be frilly achieved. The achievement of the project purpose was aimed to contribute the forestry policies related to natural forest rehabilitation, 66t program and the future program with the same objective through the technical development compiling the results of the project in the recommendation report. Because the compilation of the results is still on progress, certain impacts of the project purpose toward the overall goal have not been observed in policy level.

However, in the activity level, as some positive impacts were observed during the evaluation.

Those are;

1) Awareness and willingness of farmers participating in the project for forest conservation become higher According to the participant for the demonstration forest, they themselves found the necessity of the forest to maintain the well water as the effect of reforestation.
2) Activities introduced by the project as growing elephant grass, raising porcupine, setting compost tanks were extended in other area beyond target villages.

(5) Sustainability

Under this section the sustainability of the project is evaluated on the viewpoint of the activities of each component and application of the sets of measure.

1) Sustainability of activities on the OFT, the Demonstration forest and Research

OFT:

The members of the OFT working group learned basic knowledge on the measures of planning and implementing the participatory method for rehabilitation of forest combining the non-forestry and forestry activities. It is possible to utilize the WG members as facilitator and OFT villages as model villages in order to disseminate the participatory forest rehabilitation methods. It is, however, important to secure the enough facilitators (extension workers in communes, other technical staff) in quantity and in quality. Regarding the financial aspect, the budget by the Vietnamese side for the extension activities is still limited.

Demonstration forest:

Demonstration Component accomplished to establish the demonstration forest. The most part of the forest which was established in 2004, have been currently maintained by the participants themselves since 2007. Farmer's awareness on the importance of the forest in the water catchment area can be an incentive for local farmer to maintain the forest. Sustainability of the forest will be much secured with the establishment of certain management way.

Research:

The Research Component, the experimental plots were established in the area where the FSIV is managing. Even after the project, the FSIV will continuously monitor and maintain the experimental plots. However, the FSIV will be an independent administrative corporation in 2010 and the management system may be changed.

2) Application of the sets of measure:

The "sets of measures" currently being developed is expected to be possibly applied by the MARD/DOF after the recommendation report is submitted. However, at the time of the final evaluation, the project purpose to develop the sets of measures has not been fully accomplished yet.

The on-going program of 661 will be terminated in 2010. A successive program for 661 programs will be expected due to the present condition on the achievement of natural forest rehabilitation in the 661 program. Especially, if the poverty reduction and livelihood improvement of the farmers are involved in the new program, sets of measure developed by the project will be accepted with high possibility.

3-3. Factors of promoting project progress

(1) Factors concerning to Planning

N/A

(2) Factors concerning to Implementation Process

Counterparts engaged in the field activities worked enthusiastically.

3-4. Factors of inhibiting project progress

(1) Factors concerning of Planning

Full-time counterparts were not allocated for the Project.

(2) Factors concerning to Implementation Process

There were so many stakeholders such as DOF, FSIV, Sub-DOF, Da River Forest Enterprise and Da River Watershed Management Broad that it was difficult to take the appropriate cooperation among the relevant agencies.

Though measures to ensure sufficient budget was recommended, budget of the Project activities for counterpart agencies were not allocated sufficiently because of the delay of the approval for the Project by the Government of Vietnam.

3-5. Conclusion

The final evaluation was conducted through the document review, questionnaire and interview to relevant personnel and field visit on the sites of Demonstration forest, On Farm Trial (OFT) and Experimental planting in Hoa Binh Province.

The team evaluated the achievement of the project outputs was fairly good. From the evaluation results in the viewpoints of the Effectiveness mentioned above, the accomplishment of the project purpose by the end of the project period will be expected. By the effort of the project personnel both Japanese and Vietnamese, Efficiency of the project secured, although some delay on the inputs from both countries happened. Some impacts on the activity level were found during the evaluation through the oral information by the villagers and relevant personnel and also actual observation of the project site. Sustainability may be ensured after the achievement of the project purpose.

3-6. Recommendations

(1) By the end of the Project

1) Revision of the Roadmap and finalization of the Recommendation Report

In order to achieve the Project Purpose securely, it is strongly recommended 1) to revise the roadmap as soon as possible and also 2) to finalize the recommendation report by the end of July, 2008.

2) Information sharing of the Project results

It is necessary to share contents of the recommendation report with organizations related to 661 Program and local authorities. Therefore, it is recommended to hold a seminar by the end of the project.

3) Management system of Demonstration Forest

In order to maintain Demonstration Forest properly for the end users, management system of Demonstration Forest should be established and operated as soon as possible. In such system, while local farmers are responsible for the maintenance of the forest, DARD and Sub-DOF, as well as Watershed Management Board should play a main role for the dissemination of project results.

4) Development of a manual of hands-on techniques

In order to achieve the indicator 2 of project purpose, it is recommended that a manual on hands-on techniques should be compiled by simplifying the contents of the recommendation report by the end of the project.

(2) Post-project activities

1) Application of “sets of measures” to 661 program

MARD/DOF should review the recommendation report and consider to apply “sets of measures” to be recommended by the report, to 661 program or future successive program for forestry development.

2) Sustainability of activities on OFT, Research and Demonstration Forest

- DARD and Sub-DOF are encouraged to provide continuous supports to local farmers, in order to maintain OFT activities. Especially, it is recommended that DARD and Sub-DOF seriously consider sufficient budget and personnel allocation to extension activities.
- FSJV should continue to monitor and maintain experimental sites to further improvement of techniques even after the organizational change.
- It is encouraged that DARD and Sub-DOF secure the budget and personnel to actively disseminate the results of the project through the Demonstration Forest.