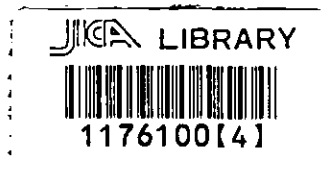


ベトナム北部荒廃流域天然林回復計画 事前評価調査・実施協議報告書

平成16年2月
(2004年)



独立行政法人国際協力機構
森林・自然環境協力部森林環境協力課

自然森
JR
04-006

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序 文

国際協力事業団（現：独立行政法人 国際協力機構）は、ベトナム社会主義共和国政府から技術協力の要請を受け、平成 13 年 11 月に短期調査団、同 14 年 7 月に基礎調査団を現地に派遣し、関連情報を収集するとともに協力の枠組みについてベトナム国政府関係者と協議を行い、同 14 年 11 月に実施協議調査団を現地に派遣し、調査結果をプロジェクト・ドキュメントに取りまとめました。

この報告書が本計画の今後の推進に役立つとともに、この技術協力が両国の友好・親善の一層の発展に寄与することを期待します。

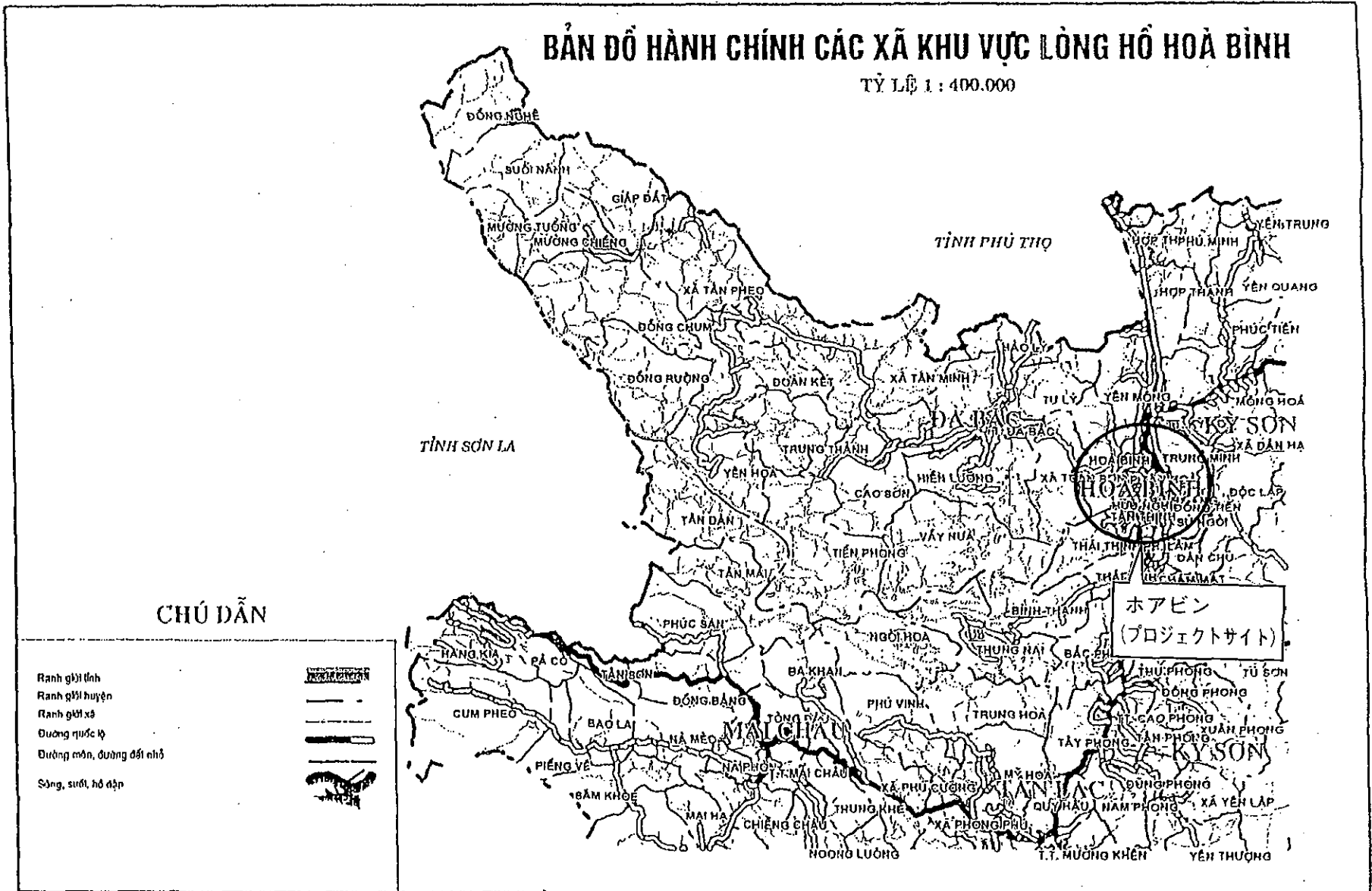
終わりにこの調査にご協力とご支援をいただいた両国の関係者の皆様に対し、心から感謝の意を表します。

平成 16 年 2 月

独立行政法人 国際協力機構
理事 鈴木信毅

BẢN ĐỒ HÀNH CHÍNH CÁC XÃ KHU VỰC LÒNG HỒ HOÀ BÌNH

TỶ LỆ 1 : 400.000





サイト周辺状況 その2



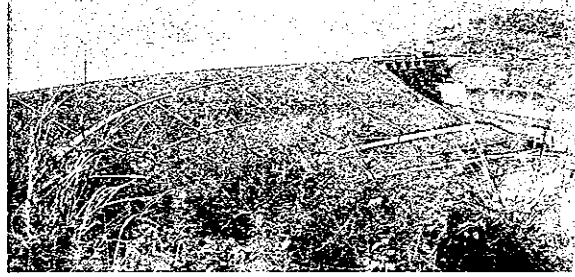
試験植栽状況



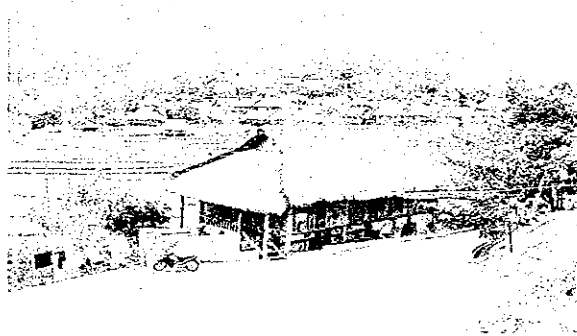
天然林更新状況



現地農家ヒアリング状況



ホアビン・ダム



プロジェクトサイト周辺地の村落



プロジェクトサイト予定地



現地ワークショップ状況

第1章 調査の背景・目的

1-1 調査団派遣の背景

ベトナム社会主義共和国（以下、ベトナム）においては、建材や燃料材生産のための無秩序な伐採、人口増加に伴う食料需要の増加による森林の耕地化等により、森林面積が急速に減少した。そのため、ベトナム政府は1997年に「500万ヘクタール造林計画」を策定し、国全体の森林面積を1943年時の面積に相当する1430万haに回復することを目標としている。

この500万haの内、100万haについては天然更新による森林回復を目指すこととしているが、その技術的手法が確立されていないため、「北部熱帯天然林更新技術開発計画」が要請された。この案件形成のため、2001年11月には第1回短期調査を派遣した結果、天然更新技術を中心とした天然林管理に係る技術開発の必要性及び緊急性について再確認し、ドナー協調の動きであるフォレスト・セクター・サポート・プログラムの進捗や他ドナーの当該分野の取り組みを調査し、有機的な連携を図る方法を検討する必要があると判断した。

そのため、2002年7月に基礎調査を派遣し、森林セクター分析を行い、ベトナム当該分野における本件協力の位置づけ及び妥当性を確認した。また、先方の本件協力に関するニーズは非常に高く、上記技術開発は必要性、緊急性ともに高いと判断した。

これを受け、本調査はプロジェクトの対象地域の現状調査を行い、適切な投入規模や協力内容について精査することとなった。

1-2 調査の目的

前回派遣した基礎調査の結果を踏まえ、本案件の協力すべき分野、活動内容、投入規模を検討することを目的とし、以下の点についてベトナム側とともに調査・協議を行い、日本側とベトナム側の合意事項を討議議事録（M/M）として取りまとめ、署名、交換する。また、協力の概要についてプロジェクトドキュメント案を作成する。

(1) 協力内容の確認

- 1 基本計画（マスタープラン：上位目標、プロジェクト目標、プロジェクト成果と活動）
- 2 暫定実施計画
- 3 専門家派遣計画
- 4 機材供与計画
- 5 研修員受け入れ計画
- 6 ローカルコスト負担事業計画

(2) 相手国実施体制の確認

- 1 カウンターパート配置計画
- 2 機材・施設等配備状況
- 3 予算措置
- 4 その他（ローカルコスト負担、日本人専門家への特権・免税・便宜等、研究成果の有効活用、供与機材の免税措置と適正な維持管理等）

1-3 調査団員

担当分野	氏名	現職
総括	睦好 絵美子 Ms. Emiko MUTSUYOSHI	国際協力事業団森林・自然環境協力部 森林環境協力課 課長代理
森林管理	滝 勝也 Mr. Katsuya TAKI	農林水産省林野庁 森林整備部計画課 海外林業協力室 研修係長
協力計画	前田 陽子 Ms. Yoko MAEDA	国際協力事業団森林・自然環境協力部 森林環境協力課 職員
住民参加/計画分析	吉田 裕紀子 Ms. Yukiko YOSHIDA	グローバル・リンク・マネージメント株式会社 社会開発部研究員
森林管理制度分析	萩原 雄行 Mr. Takayuki HAGIWARA	株式会社ラ・セルバ 代表取締役

1-4 調査日程

月日	行程	
11/28 (木)	【移動 (成田→ハノイ) : 萩原、吉田】	
11/29 (金)	JICA 事務所打ち合わせ 在ベトナム大使館表敬 農業・農村開発省 (MARD) 林業局 (DFD) 表敬	
11/30 (土)	現地視察	
12/1 (日)	現地視察	
12/2 (月)	ホアビン省農業農村開発局協議 ワークショップ準備	
12/3 (火)	ホアビン省でのワークショップ (ブレインストーミング)	
	萩原	吉田
12/4 (水)	現地調査 ・森林管理制度に係る住民及びコミュニ ーインタビュー	現地インタビュー ・郡農林業普及ステーション ・林業公社 ・ホアビン省流域管理委員会 ・人民委員会
12/5 (木)	ホアビン省林業局との協議	
12/6 (金)	住民インタビュー	・人民委員会インタビュー (コミュニ ンレベル) ・村落調査準備、調整
	(ハノイへ移動) プロジェクト概要案 (1 st Draft) に関するコメント取付め切 (DFD、FSIV)	
12/7 (土)	プロジェクト概要案 (2 nd Draft) 作成	
12/8 (日)	資料整理及びレポート作成	(ホアビン省へ移動) 現地調査
12/9 (月)	FSIV 協議	現地調査
12/10 (火)	(ホアビン省) Workshop on Man Made Forest: Using Native and Exotic Species (by FSSP)	現地調査
	プロジェクト概要案 (2 nd Draft) 提出 (DFD、FSIV)	
12/11 (水)	Workshop on Man Made Forest: Using Native and Exotic Species (by FSSP)	

12/12 (木)	ソンラ省 (GTZ プロジェクト) 視察	現地調査
12/13 (金)	ソンラ省 (GTZ プロジェクト) 視察	現地調査
12/14 (土)	ソンラ省 (GTZ プロジェクト) 視察	現地調査 (ハノイへ移動)
12/15 (日)	資料整理、ワークショップ準備	
12/16 (月)	プロジェクト概要計画立案のためのワークショップ 【移動 (成田→ハノイ) : 睦好、滝、前田】 団内打ち合わせ	
12/17 (火)	JICA 事務所打ち合わせ 在ベトナム大使館表敬 計画投資省 (MPI) 表敬 農業・農村開発省 (MARD) 林業局 (DFD) 及び森林科学研究所 (FSIV) 協議	
12/18 (水)	(ホアビン省へ移動) ホアビン省農業農村開発局、林業支局表敬 ダバック郡人民委員会表敬 FSIV リサーチステーション視察	
12/19 (木)	現地調査 (対象候補コミュニティ) (ハノイへ移動)	
12/20 (金)	プロジェクト概要に関する協議	
12/21 (土)	団内打ち合わせ	
12/22 (日)	ミニッツ案作成	
12/23 (月)	ミニッツ協議	
12/24 (火)	・ミニッツ署名 ・FSIV 視察 ・JICA 事務所報告 ・大使館報告	
12/25 (水)	移動 (ハノイ→成田)	

1-5 主要面談者

日本大使館	一等書記官	宮川 健二
	二等書記官	魚谷 憲
JICA Vietnam	次 長	戸川 正人
	職 員	仲宗根 邦宏

Ministry of Planning and Investment (MPI) Agriculture and Rural Development Department

Deputy Director	Mr. Vuong Xuan Chinh
Senior Officer	Mr. Nguyen Xuan Tien
Expert	Mr. Tuong

Government Office

Expert	Mr. Phu
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Ministry of Agriculture and Rural Development (MARD), Department Of Forestry Development (DFD)

Director General	Mr. Nguyen Ngoc Binh
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MARD, DFD

Deputy Director	Dr. Nguyen Hong Quan
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MARD, DFD, Division of Silviculture

Director	Dr. Pham Quang Mnhinh
Officer	Mr. Pham Xuan Nam

MARD, International Cooperation Division (ICD)

Deputy Director	Dr. Nguyen Dinh Huong
Expert	Mr. Phamj Trong Hien

MARD, DFD, Division of Extension

Head	Mr. Pham Duc Tuan
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Forest Science Institute of Vietnam (FSIV)

Director	Dr. Trien Van Hung
Deputy Director	Dr. Vo Dai Hai
Deputy Director	Dr. Nguyenn Hoang Nghia

FSIV, International Cooperation Section

Officer	Dr. Nguyen Quang Trung
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FSIV, Research Center for Forest Ecology and Environment

Director	Dr. Ngo Dinh Que
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FSIV, Research Center for Forest Ecology and Environment

Official	Mr. Bui Doan
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FSIV, Research Center for Forest Tree Improvement

Director	Dr. Ha Huy Thinh
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FSIV Research Station

Researcher	Mr. Nguyen Anh Dung
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Hoa Binh Province DARD

Director	Mr. Le Xuan Lich
Deputy Director	Mr. Dinh Van Duc

Hoa Binh Sub-DFD

Director	Mr. Bu Van Chuc
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Da Bac District PC

Chairman	Mr. Dinh Van Le
Head	Mr. Nguyen Van Thang

Center of Breeding Plant in Hoa Binh Province

Director	Mr. Doi Van Chinh
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Dan Chu Commune People's Committee

Secretary	Mr. Nguyen Manh Hung
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第2章 調査の概要報告

2000年7月にベトナム側より要請された「北部熱帯天然林更新技術開発計画」は2001年11月の短期調査、及び2002年7月に派遣された基礎調査により協力の妥当性が確認されたとともに、協力の対象地域の選定が行われた。これらの調査結果を受けて、本調査団は2002年11月28日から（官団員は12月16日から）12月25日まで派遣され、案件の具体的な活動内容を検討することを目的とし、調査及び協議を行った。本調査の結果は以下のとおりである。

2-1 協議結果

関係者との協議及び現地調査の結果、下記のプロジェクト概要（案）について先方と合意した。また、プロジェクトデザインマトリックス（PDM）案、活動実施計画（PO）案についても現段階の案として合意を得たのでミニッツに添付した。

2-1-1 プロジェクト概要

プロジェクト名：ベトナム北部荒廃流域天然林回復計画

2-1-2 実施機関

- (1) 農業農村開発省（Ministry of Agriculture and Rural Development :MARD）林業開発局（Department of Forestry Development :DFD）：プロジェクト運営管理
- (2) 森林科学研究所（Forest Science Institute of Vietnam :FSIV）：研究及びオンファームトライアルにかかる技術指導
- (3) ホアビン省農業農村開発局（Department of Agriculture and Rural Development :DARD）林業開発局支局（Sub-DFD）：オンファームトライアル実施

2-1-3 プロジェクト対象地域

ホアビン省ホアビンダム流域の20コミューンをプロジェクト対象地とする。

2-1-4 プロジェクト所在地

- (1) プロジェクトオフィス
 - 1 プロジェクトオフィス：DFD
 - 2 リサーチオフィス：FSIV
 - 3 省オフィス：ホアビン省 Sub-DFD
- (2) 試験林

ホアビン森林環境リサーチステーションのオフィス及びステーション所有の森林（ホアビン省カオフォン郡）とし、試験及び実証を行う。

(3) 展示林

ベトナム側はR/D署名までにホアビン省ホアビン市内に展示林のための土地を確保することとする。

(4) オンファームトライアル（農家試験林）

対象地20コミュニティのうち、プロジェクトが設定した基準に基づき選定された5～6コミュニティで既存の技術及び新たに開発した技術を実証する。選定基準としては、自然条件、社会経済状況、組織及び森林管理状況、アクセスといった観点を含めるものとする。また、プロジェクト開始直後から活動が開始されるようR/D署名までに対象地2コミュニティを選定する。ビンタイン・コミュニティ（カオフォン郡）、ヒエンルオン・コミュニティ（ダバック郡）を2コミュニティの候補地とする。

(5) 苗畑

ホアビン省苗木育成センター（ホアビン市）において苗木生産及び研究活動を実施する。

2-1-5 受益者

プロジェクトの受益者はプロジェクトが取りまとめた或いは新たに開発した技術を現場で活用するユーザーである。具体的には土地分与を受けている農民或いは森林管理委託契約を結んでいる農民、ダ川流域管理委員会、ダ川林業公社、農林業普及関係者。

2-1-6 プロジェクト実施期間

5年間

2-1-7 長期目標（スーパーゴール）

森林面積が回復されるとともに森林の環境及び経済的な価値が高められる。

2-1-8 上位目標

プロジェクトが開発した天然林回復のための技術パッケージが政策決定者及び地域住民により活用される。

2-1-9 プロジェクト目標

林業公社、流域管理委員会、普及関係者により活用されることを目的とした天然林回復のための適正かつ経済的な技術パッケージが開発される。

2-1-10 成果

- (1) 技術、他プロジェクトの成果、マニュアル、天然更新技術に係る経験実績、土壌保全手法、流域における高地農業、林業関連方針、住民参加に関する情報が参照可能な形に取りまとめられる。
- (2) 研究及びオンファームトライアルを通して現場で活用可能な天然林回復、郷土樹種苗木生産、農地保全活動の技術が開発される。
- (3) プロジェクトの実施管理、研究、実証活動のモニタリング・評価システムが設定され実

施される。

2-1-11 活動

- (1.1) 関連資料を収集し、分析する。
- (1.2) 参考にすべき他プロジェクトや他事例を視察する。
- (1.3) 天然更新試験やオンファームトライアルで活用するための樹種や導入方法を確定する。
- (1.4) 既存の情報を基に農民のための実践的な技術ガイドラインを発行し、情報を共有する。
- (1.5) 収集した情報を取りまとめ、ウェブサイトを立ち上げる。
- (2.1) 展示林及びオンファームトライアル対象地を設定し、既存の技術を導入、実証する。
- (2.2) 天然林回復技術及び農地保全技術の研究とオンファームでの実証について計画立案を行う。
- (2.3) 郷土樹種の苗木生産に関する研究分析を行う。
- (2.4) 天然林回復技術に関する研究分析を行う。
- (2.5) 天然林回復技術及び農地保全技術を用いたオンファームトライアルを実施し、その結果を分析する。
- (2.6) プロジェクトの成果を他関連機関と共有する。
- (3.1) ベースライン調査の結果に基づき、活動計画（PO）と PDM のプロジェクト目標及び成果部分の指標を精査する。
- (3.2) プロジェクト全体及び研究計画、オンファームトライアルの活動についてモニタリング評価を実施する。

2-2 プロジェクト運営委員会（Project Steering Committee）

現在、想定される委員は以下のとおり。

議長：林業開発局(DFD) 局長

委員：

(1) ベトナム側

- 1 FSIV 所長または副所長
- 2 DFD 副局長または関連部長
- 3 MARD 国際協力部 (ICD) 代表者
- 4 MPI 農業農村開発局代表者
- 5 ホアビン省 DARD 局長または副局長
- 6 ホアビン省 Sub-DFD 局長
- 7 ベトナム側プロジェクト専門家

その他、必要に応じ議長が承認した関係者

(2) 日本側

- 1 チーフアドバイザー
- 2 業務調整
- 3 日本側プロジェクト専門家
- 4 JICA ヴィエトナム事務所長

5 「林業開発計画」個別派遣専門家

その他、必要に応じ議長が承認した関係者

注：在ベトナム日本大使館職員はオブザーバーとして参加することができる。

2-3 両政府による措置

2-3-1 日本側

日本政府は JICA を通じて以下の措置を取る。

(1) 専門家派遣

1 長期専門家（3名）

- ・ チーフアドバイザー
- ・ 業務調整
- ・ その他、下記分野専門家
 - a. 造林技術開発
 - b. 天然林回復
 - c. 参加型森林管理
 - d. その他

*チーフアドバイザー及び業務調整は上記分野を兼任する。

2 短期専門家

年間活動計画の実施に際し必要な短期専門家を派遣する。（専門家数および専門分野に年間活動計画や日本側の予算状況に応じて適宜決定される）

分野としては下記が想定される。

- ・ 試験計画
- ・ 森林土壌
- ・ 社会経済調査
- ・ 育苗
- ・ 森林保護(病虫害対策)
- ・ 非木材林産物
- ・ アグロフォレストリー/農業
- ・ モニタリング評価
- ・ その他

(2) カウンターパート研修

日本及び第3国でのカウンターパート研修を実施する。

(3) 資機材、設備等

プロジェクトの実施に必要な車両、設備、資機材が供与される。

(4) 試験林、展示林の設置

試験林、展示林の設置に必要なローカルコストを負担する。

2-3-2 ベトナム側

(1) スタッフ配置

- 1 プロジェクトディレクター：DFD 副局長
- 2 研究部門マネージャー：FSIV 副所長
- 3 省マネージャー：ホアビン省 Sub-DFD 局長
- 4 プロジェクト調整：DFD 職員
- 5 研究部門調整：FSIV 研究者
- 6 省調整：DARD または Sub-DFD 職員

上記担当者の詳細についてはプロジェクト開始までに決定する。

(2) オフィス、設備、資機材

ベトナム側は下記について準備する。

- 1 ハノイ、及びホアビン省におけるオフィス及び必要な設備
- 2 機材保管及び設置のためのスペース
- 3 電気、空調、水道、テレコミュニケーション設備等（電話、ファックス、E-mail）
- 4 プロジェクト実施に必要な土地、設備

(3) ローカルコスト負担

プロジェクト活動実施に必要なローカルコストを負担する。

(4) 日本人専門家の特権、免除、便宜

- 1 所得税免除
- 2 海外からの送金に関する免税措置
- 3 専門家及びその家族の個人用資材、またプロジェクト資機材の関税免除

2-4 今後の予定

2-4-1 JICA はプロジェクトドキュメント案及び R/D 案を2003年2月までに作成し、MARD は JICA ベトナム事務所長を通じてコメントを提出する。

2-4-2 上記コメントを受けて、プロジェクトドキュメント及び R/D を完成する。

2-4-3 R/D 署名（MPI、MARD(DFD)及び JICA による署名）

2-5 上位目標の達成について

調査団はプロジェクトの上位目標を達成するためにベトナム側により下記の重要事項が検討
或いは準備されるよう提案した。

2-5-1 プロジェクトの成果をより広い範囲に普及させるため、林業開発局関係職員、普及員、
コミュニティのリーダー等を対象とした現地国内研修の実施についてプロジェクト
期間中に検討する。

2-5-2 プロジェクトにより開発された技術が用いられることにより 661 プログラムの技術指
針が改善されるよう適切な措置を取ることが望ましい。

第3章 森林管理分野団員報告

3-1 協力対象地の森林の現状と必要な技術開発

本技術協力のプロジェクト対象地のホアビンダム上流域を2日間にわたり視察し、当地域の森林荒廃の状況が深刻で、緊急な対策が必要であることを確認した。また、荒廃の状況は、劣化した二次林や完全に草地化してしまった箇所等多様であり、必要とされる技術開発課題も多岐にわたることも確認した。

特に斜面上部で草地化している箇所は、傾斜が急であり、しかも土壌劣化が著しいと考えられる。この部分における森林再生は相当困難であることが想定されるが、同様の荒廃地は相当面積存在するため、この技術開発課題は最重要課題のひとつといえよう。確実な成林を図るためには在来種の植栽のみにこだわらず、最初は外来早生樹種を植栽した後、樹下に在来種を導入する等、柔軟な取り組みが必要である。また地形上、アクセスが困難であり、造林作業の省力化を目指すことも重要である。

ベトナムでは竹類が在来樹種として取り扱われ、現在かなりの植栽が行われている。竹材や筍の利用など住民に現金収入をもたらすため、住民からの希望も多いとのことであるが、竹林は植生が単一化しやすく、今後は慎重に対処する必要があるだろう。本プロジェクトでは技術開発課題として竹と在来樹種の混植を取り上げており、多様な森林造成に貢献することが期待できる。また、竹に替わり、農民が進んで植えるような有用樹種を開発することも必要であろう。

また、試験地のみならず、現地適応性を実証するオンファームトライアルもこのプロジェクトの特徴である。この活動はFSIVだけではなく、ホアビン省 Sub-DFD が主体となって活動を実施することになるが、両機関の連携が活動の成否に大きく関係してくることを認識するべきであろう。

さらに森林回復の主要な担い手である農民が開発された技術を利用するためには、この技術がコストベネフィットなものでなければならない。担当者は技術開発の過程で常にそのことを念頭において実行することが肝要である。

3-2 試験地、苗畑

今現地調査では、FSIV のリサーチステーションを訪問した。ここでは、すでに在来果樹やアグロフォレストリーモデルのデモンストラーションプロットが設定されている。また、現段階では確認していないが、FSIV 本部の既存の研究成果も含めるとすでに現地で適用可能な技術は相当数有していると推察した。

ここは300haの試験地を有しており、当初はここをプロジェクトの試験地として活用することを期待していたが、ホアビンダム湖畔に位置し、移動手段がボートしかないことから、展示効果が低いと調査団内で判断し、展示林の代替地を検討した。その候補地として挙がった、ホアビン市街近郊に位置する苗畑裏の丘陵地が適当であると判断し、ベトナム側と協議したところ了解を得た。この丘陵地はなだらかな傾斜地で、現在は草地化しているが、植栽は十分可能と判断した。この土地所有は人民委員会であるため、R/D 署名までには確保することをベトナム

ム側と確認した。

一方、今回の調査で現地は確認できなかったが、当初から予定していたリサーチステーションが所有する 300ha の試験地は、展示効果は低いものの技術開発サイトとしては適当であり、プロジェクトでは活用することを判断した。

また、前述の苗畑では、在来種、外来種、果樹を含め 20 種の苗木が生産されていた。管理体制は極めて良好で、本プロジェクトで必要とされる苗木生産の場として適当であると判断した。

3-3 長期専門家の業務

このプロジェクトでは、多様な森林荒廃の状況に対応するため、数多くの技術開発課題に取り組むことになる。FSIV の研究者も多く参加するが、開発された成果を FSIV 内の関係者、行政実施機関である DFD、さらには現場技術者や農民が共有し、使われるものに加工していくことがこのプロジェクトで求められるものである。ベトナム側関係者は十分にこの問題を認識しているが、今後派遣される予定の日本人長期専門家も同じ見識を持ち、個別技術の指導よりもむしろ、関係者間の調整を図ることがこのプロジェクトで求められる業務となるであろう。

第4章 総括

本プロジェクトは、水源保護林として重要性が高い荒廃流域を対象として天然林回復のための技術体系の整備を行うものである。その技術は、実用性が高い適正レベルの技術であるとともに、経済性に配慮した安価な技術であることが求められている。本プロジェクトの計画策定にあたって留意した点は以下のとおりである。

4-1 既存の技術の活用

FSIV や他機関にある既存の技術や情報が共有されていないことが重要な課題であることから、既存の技術や情報が活用されやすい形で整備されることを第1の成果とした。

4-2 開発した技術の現場への適用

4-2-1 第2の成果である技術開発については、既存技術の現場への適用（on-farm trial）と新技術の開発(research)の2本柱とした。天然林回復に関する既存の技術の現場への適用も十分に行われていないことから、協力期間の初期から、既存技術の有効性の実証を目的として農家管理林における実証試験や展示林の造成を行うことにした。また、同時に天然林回復に関する未開発の技術について試験林の設置や既存苗畑の活用により技術開発を行うこととした。天然林回復技術については、天然更新技術のみならず、在来樹種の植栽や竹などの経済樹種との混植など幅広い技術を含めている。

4-2-2 開発した技術の現場への適用に関しては、FSIV と DFD（とくにホアビン省 DFD）の2機関の連携が重要になる。FSIV の指導や協力を得つつ、事業の実施者であるホアビン省 sub-DFD が中心となって、普及指導者となる林業公社、流域管理委員会、DARD 農林業普及機関の技術スタッフを動員して農家の指導を行うことは、容易ではないと推察する。具体的には農家試験林の設置活動を行いながら有効で効率の良い方法を模索していくことになる。その際、661プログラムの投入規模や実施システムを目安にした活動とすること、また農家が得られる便益を明確にすることが重要である。そのため、天然林回復のための技術指導に付随してアグロフォレストリーや農地保全技術の指導も行うことを目指しているが、具体的には協力のなかでローカルリソースも含めて活動内容を検討することが必要である。

4-2-3 活動対象地の選定

20 コミューンはホアビン県内のホアビンダム流域に位置する全コミュニティであるが、ホアビン市からのアクセスはかなり困難な場所が大半である。そのため、日本人専門家と FSIV の研究者が直接指導にあたる農家試験の対象とするコミュニティは5ないし6コミュニティに限り、各ディストリクトに1箇所程度（ダバックについては2箇所程度）を選定することにした。ベトナム側の希望として、20 コミューンすべてを対象とした活動に対する期待が大きいことから、それらについては普及指導者や農民リーダーの研修（セミナー）や苗木の無料配布を行うこと

にした。

4-2-4 本プロジェクトの成果

本プロジェクトの終了時の成果としては、天然林回復技術に関し次のような成果が期待される。

FSIV : 研究設備改善、情報共有機能整備 (HP 管理)、技術普及のための指導能力向上、展示林、試験林

DFD : 技術普及のための指導体制整備

農家試験対象コミュニティ: 農家試験林、小規模苗畑、セミナー参加、マニュアル配布

協力対象 20 コミュニティ: セミナー参加、マニュアルおよび苗木配布

全国関係者: ホームページ、論文、ガイドライン、マニュアル、セミナー、展示林、試験林

4-3 開発した技術の国全体への適用 (上位目標の達成)

プロジェクトで開発された技術が全国に普及するためには、現地国内研修により多くの技術者の研修を行うことも重要であるが、500 万 ha 造林計画のうち 100 万 ha を占める天然林回復の対象地について 661 プログラムの技術指針に反映され、政府の方針として周知徹底されることが重要である。プロジェクトで開発された技術が協力終了後 1 年以内に MARD によって検討され政府に提言されることが望ましい。

4-4 今後の検討事項

4-4-1 プログラム調整員

本プロジェクトは、技術開発活動と農家を対象とした実証活動の両方が 2 本立てとなっていることから、日本人専門家には技術的指導以外にベトナム側リソースの活用とマネジメント業務が求められる。とくに、FSIV での技術情報整備や育苗試験と並行して、展示林、試験林、農家試験林と多くのサイトを造成し管理する必要があるため、最低 3 人の長期専門家が専任で必要となると考えている。したがって、プログラム調整員の配置に関しては、3 人の長期専門家に加えて配置することが望ましい。

4-4-2 展示林用土地の確保

展示林についてはホアビン市のなかで展示効果が高いと考えられる場所を候補地としているが、土地の使用には人民委員会および使用権を有する農民との交渉が必要であるため、今後 JICA 事務所や個別専門家の助言を得ながら協力開始までに確保するよう先方に求めている。土地の確保に関してトラブルが予想されるようであれば、場所を変える必要もあるので今後協議していきたい。

4-4-3 機材リスト

今回定まった活動内容にもとづき 5000 万円 (初年度 2000 万円) を目安として機材リストを FSIV、DFD、Sub-DFD の 3 者で作成し、優先順位を付して 1 月末までに提出するように依頼した。

添付資料

1. 討議議事録 (R/D)
2. 実施協議調査協議議事録 (M/M)
3. プロジェクト・ドキュメント

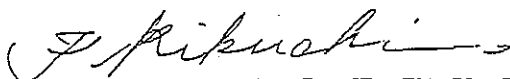
MINUTES OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE SOCIALIST REPUBLIC OF VIET NAM
ON
THE JAPANESE TECHNICAL COOPERATION PROJECT
FOR
THE REHABILITATION OF NATURAL FOREST IN DEGRADED WATERSHED AREA
IN THE NORTH OF VIET NAM

Resident Representative of the Japan International Cooperation Agency (hereinafter referred to as "JICA") Viet Nam Office and the Vietnamese authorities concerned (hereinafter referred to as "the Vietnamese side") had a series of meetings for the purpose of working out the details of the technical cooperation program concerning Project for Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Viet Nam (hereinafter referred to as the "Project").

As a result of the discussions, JICA and the Vietnamese side agreed to recommend to their respective Governments the matters referred to in the Record of Discussions (hereinafter referred to as "R/D") signed on August 22, 2003.

Both JICA and the Vietnamese side also agreed to make this Minutes of Discussion in order to confirm the mutual understandings reached through the discussions as attached hereto.

Hanoi, August 22, 2003



Mr. Fumio Kikuchi
Resident Representative
Vietnam Office,
Japan International Cooperation
Agency (JICA),
Japan



Mr. Nguyen Ngoc Binh
Director General
Department of Forestry Development (DFD),
Ministry of Agriculture and Rural
Development (MARD),
Viet Nam



Mr. Nguyen Dinh Huong
Deputy Director General
International Cooperation Department (ICD)
Ministry of Agriculture and Rural
Development (MARD), Viet Nam



Mr. Bui Liem
Deputy Director General
Department for Foreign Economic Relations
Ministry of Planning and Investment (MPI),
Viet Nam

THE ATTACHED DOCUMENT

1. MEASURES TO BE TAKEN FOR THE SMOOTH IMPLEMENTATION OF THE PROJECT

Department of Forestry Development (hereinafter referred to as "DFD"), Ministry of Agriculture and Rural Development (hereinafter referred to as "MARD") is responsible for coordinating and supporting the Project activities. Also, cooperation and coordination with related organizations such as the Forest Science Institute of Viet Nam (hereinafter referred to as "FSIV") and Sub-Department of Forestry Development (hereinafter referred to as "Sub-DFD"), Department of Agriculture and Rural Development (hereinafter referred to as "DARD"), Hoa Binh Province and so forth will be maintained for smooth operation of the Project. In case where problems arise, the related authorities concerned should hold discussions to solve the problem.

2. PROJECT DOCUMENT

JICA and the Vietnamese side have jointly prepared the Project Document for the implementation of the Project as shown in the annex. The Project Document is important to share consensus on any issues related to the Project, such as its background, strategy, purpose, activities, outputs, inputs and expected impacts. The summary of the Project Document will be opened to public in Japan.

3. PROJECT FRAMEWORK AND INPUTS

The Project Design Matrix (hereinafter referred to as "PDM") and Plan of Operations (hereinafter referred to as "PO") are shown in Annex 1 and 2 of the Project Document, respectively. Although it is ideal the Project shall be implemented in accordance with the PDM and PO without any amendment, they may be revised after the commencement of the Project through mutual discussions between Japanese and Vietnamese sides. The Joint Coordinating Committee (hereinafter referred to as "JCC") will be held at least once a year to discuss on the results and situations of the Project activities as well as the activity plans for the next fiscal year. PDM and PO can be modified from time to time within the framework of the R/D with an approval of the JCC according to the progress of the Project.

4. ORGANIZATIONAL CHART OF THE PROJECT

The organizational chart of the Project is shown in Annex 4 of the Project Document.

5. INPUTS MADE BY THE VIETNAMESE SIDE

(1) Budget allocation

DFD and other relevant organizations shall secure sufficient amount of budget for the necessary expenses in accordance with the articles defined in the Record of Discussions before the commencement of the Project, and is also expected to take necessary measures to ensure the self-reliant operation of the Project during and even after the period of the Japanese technical cooperation.

(2) Assignment of counterpart personnel

All the relevant organizations shall appoint full-time counterpart personnel throughout the cooperation period of the Project, in the appropriate technical fields before the commencement of the Project following the lists shown in Annex 8 and 9 of the Project Document. All the relevant organizations shall also be responsible for assigning necessary number of part-time counterpart personnel as well as administrative and technical staff to the Project through mutual discussions with the Japanese experts after the commencement of the Project. The Vietnamese counterpart personnel, as mentioned above, who may receive training in Japan, should be assigned continuously to the Project to ensure sustainability of the Project activities even after the technical cooperation period.

(3) Maintenance of the equipment

DFD shall be the major organization responsible for maintenance of equipment and other materials/facilities provided by the Project. However, particularly the equipment regarding research and technical development shall be maintained by the FSIV.

MINUTES OF MEETING
BETWEEN THE PREPARATORY STUDY TEAM
AND THE AUTHORITIES CONCERNED
OF THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIETNAM
ON TECHNICAL COOPERATION
FOR THE REHABILITATION OF NATURAL FOREST
IN DEGRADED WATERSHED AREA IN THE NORTH OF VIETNAM

The Preparatory Study Team (hereinafter referred to as "the Team") on technical cooperation for the Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam (hereinafter referred to as "the Project"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Ms. Emiko Mutsuyoshi, was dispatched to the Socialist Republic of Vietnam from November 28 to December 25, 2002. The purpose of the dispatch was to formulate the Project requested by the authorities concerned of the Government of the Socialist Republic of Vietnam (hereinafter referred to as "GOV") under the technical cooperation of the Government of Japan (hereinafter referred to as "GOJ").

During its stay, the Team exchanged views on the Project with the authorities concerned of GOV through a series of meetings and field observations.

As the result of the meetings, both parties reached common understandings concerning the matters referred to in the documents attached hereto. Both parties will convey the contents of this Minutes of Meeting to their respective governments.

Hanoi, December 24, 2002

睦好 絵美子

Ms. Emiko Mutsuyoshi
Leader,
Preparatory Study Team,
Japan International Cooperation
Agency (JICA)



Mr. Nguyen Ngoc Binh
Director General
Department of Forest Development,
Ministry of Agriculture and Rural
Development (MARD)

1 The Background of the Project

The Vietnam forest resources are decreasing rapidly because of slash-and-burn agricultural practices, unregulated tree cutting for domestic energy and demand of utility timber for construction. In order to resolve the situation, GOV launched the National Five Million Hectare Reforestation Program (hereinafter referred to as 5MHRP) with the overall goal to reforest and rehabilitate five million hectare of forest by the year 2010, of which one million hectare is planned to be recovered through assisted natural regeneration. This nation-wide program has a comprehensive approach aiming at enhancing environmental protection, reducing poverty and increasing the contribution of forest resources to the national economy.

Successful implementation of 5MHRP depends much on forest management by local people, because allocation of land and forests has been progressing since Decree no.02 was issued in 1994. Furthermore, many households are involved in forest protection, natural regeneration, and additional planting activities under contractual arrangements with Forest Enterprise or Watershed Management Board. GOV places high demands for enhancing environmental and economic value of forests to facilitate people's participation and to enable them enjoy benefits derived from sustainable use and development of the forests. Therefore, there is a strong need for the development of practical techniques to realize the assisted natural regeneration with indigenous and valuable species.

For the above stated reasons, GOV has requested technical cooperation to GOJ on Natural Regeneration Technology Development in the North of Vietnam in July 2000. In response to the proposal, JICA has dispatched two study teams since 2001, one in November 2001 and the other in July 2002. During the course of the study in July, the team conducted the forest sector analysis referring to the policies of the GOV and Forest Sector Support Program, and confirmed the justification of the Project.

As for the Project locations, watershed area of Hoa Binh Dam has been agreed as the first priority among three candidate sites (others are Thanh Hoa Province of the second priority and Thai Nguyen Province). Since the watershed area serves as sources of hydro-electricity, drinking water and irrigation, most of the forestland is identified as 'very critical' and 'critical' in terms of the protection forest classification in Vietnam. However, the poor living condition of local people has been driving them to practice slash-and-burn cultivation, therefore the forestland has been severely degraded. Hence the needs are high for developing technology for natural forest

rehabilitation applicable for the watershed area, which is technically appropriate and economically affordable for the local farmers. Such technology and its application method will not only contribute to improving the current situation of Hoa Binh Dam watershed, but are also expected to be widely applicable to critical watershed areas in Vietnam.

2 The Frameworks of the Project

The preliminary project design stated here may be modified and finalized over the course of discussions prior to the official signing of the document titled "Record of Discussions" (hereinafter referred to as "R/D").

2.1 Project Title

The project is titled as "Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam".

2.2 Executing Agency

The project will be executed with the following structure:

- Department of Forestry Development (DFD) will take overall responsibility for project management and implementation.
- Forest Science Institute of Vietnam (FSIV) will execute all research activities and provide technical guidance to the on-farm trial activities.
- Department of Agricultural and Rural Development/Sub-DFD in Hoa Binh Province will implement on-farm trial activities in the target area.

The organizational structure of the project is shown in Annex 1.

2.3 Target Area

The target area of the Project is the 20 communes located within the watershed area of Hoa Binh Dam, Hoa Binh Province (refer Annex 2 and 3).

2.4 Project Locations

(1) Project Offices

Project Management Office in DFD (Hanoi) will be the base for all co-ordination work.

Research Office in FSIV (Hanoi) will be the base for research work.

Provincial Office in Sub-DFD Hoa Binh Province (Hoa Binh Town) will be the base for on-farm trial activities.

(2) Experimental site

The facility and fields of the Hoa Binh Research Station for Environment and Protection Forest (hereinafter referred to as "the Hoa Binh Research Station") in Cao Phong

District, Hoa Binh Province, will be utilized to serve both experimental and demonstration purposes.

(3) Demonstration site

Vietnamese side (Hoa Binh Province) will secure land for a demonstration site within Hoa Binh Town prior to the signing of R/D.

(4) On-farm trial

On-farm trial activities will be conducted in 5 or 6 communes selected from the 20 communes in the watershed area of Hoa Binh Dam, based on the criteria established by the Project. Criteria will cover aspects of natural conditions, socioeconomic conditions, organization and management capability, and accessibility. Two communes will be selected prior to the signing of R/D, to enable the project to initiate its activities soon after the inception. Candidates of the 2 communes are Binh Thanh Commune (Cao Phong District) and Hien Luong Commune (Da Bac District).

(5) Nursery

The Center of Breeding Plant in Hoa Binh Province (Hoa Binh Town) will be utilized for seedling production and research activities.

2.5 Project Beneficiaries

Project beneficiaries will be the users of the information compiled and the techniques developed by the Project. More specifically, they will include local farmers who have been allocated or contracted forestland, Song Da Watershed Management Board, Song Da Forest Enterprise, and staffs in charge of agriculture and forestry extension.

2.6 Project Duration: 5 years

2.7 Super Goal (Long Term Direction)

Forest coverage is increased, and the environmental and economical values of forests are improved.

2.8 Overall Goal

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

2.9 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.

2.10 Outputs

1. Information on technology, results from other projects, manuals, and valuable experiences regarding natural regeneration, soil conservation measures, upland farming forestry related policies and people's participation in watershed area is compiled and systemized.
2. Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.
3. Monitoring and evaluation system for the overall project implementation and for the respective research and trial activities are established and implemented.

2.11 Activities

- 1.1 Collect and analyze written documents.
 - 1.2 Conduct field visits to advanced projects and good examples.
 - 1.3 Identify prominent species and methodology for the natural regeneration experiment and on-farm trials.
 - 1.4 Publish leaflets on hands-on techniques targeting local farmers based on existing information and share with other projects.
 - 1.5 Establish web-based database for collected information.
 - 2.1 Establish a demonstration site and on-farm trial activity sites to apply and verify currently available techniques.
 - 2.2 Design research and on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management.
 - 2.3 Conduct and analyze research on native species seedling production.
 - 2.4 Conduct and analyze research on silvicultural measures for natural forest rehabilitation.
 - 2.5 Conduct and analyze on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management.
 - 2.6 Share the project results with relevant organizations.
 - 3.1 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.
 - 3.2 Design and conduct monitoring and evaluation system for the overall project implementation and for the research design and on-farm trial activities.
- (The draft Project Design Matrix (PDM) and the draft Plan of Operations (PO), which describe the project framework and detailed activities, are attached as Annex 4 and 5).

3 The Project Steering Committee

For the effective and successful implementation of the Project, the Project Steering Committee will be established to make decisions relevant to the Project. The Project Steering Committee will meet when necessity arises and at least once a year in order to fulfill the following functions:

1. To authorize the annual work plan of the Project based on the Plan of Operations within the framework of the Record of Discussions
2. To monitor and evaluate the progress of the Project and the results of the annual work plan.
3. To review and exchange opinions on major issues that arise during the implementation period of the Project.

The committee will be composed of the chairperson, the members and the 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.

Proposed Composition:

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).

4 Proposed Measures to be Taken by Both Governments

4.1 Japan

GOJ, through JICA, will make the following contributions:

(1) Expert

- Long-Term Experts

Three (3) full-time long-term experts will be dispatched, serving exclusively for the Project, subsequent to the official submissions of the Form A1 by GOV to GOJ.

1. Chief Advisor
2. Project Coordinator
3. Expert in the technical field of:
 - a. Silvicultural Technique Development
 - b. Natural Forest Rehabilitation
 - c. Participatory Forest Management
 - d. Others, when necessary

NOTE: Chief Advisor and Project Coordinator may serve concurrently as experts in one of the above-mentioned technical fields.

- Short -Term Experts

Short-term experts may be dispatched depending on the needs as specified in the annual plan of the Project, subsequent to the official submissions of the Form A1 by GOV to GOJ. (Number and technical fields of experts per year will be decided depending on the needs as specified in the annual plan of the Project and the budget condition of Japanese side.)

In the fields of:

- Experimental design
- Forest soil
- Socioeconomic survey

- Seedlings and nursery experiment
- Pests and diseases management
- Non-timber forest products
- Agroforestry / Farming systems
- Monitoring and evaluation
- Other technical fields if necessary.

(2) Training of Vietnamese Personnel in Japan

Training opportunities for the Vietnamese experts in Japan and/or third country will be provided, subsequent to the official submissions of the Form A2-A3 by GOV to GOJ.

(3) Machinery, Equipment and Materials

Vehicles, machinery, equipment and materials necessary for the implementation of the Project activities will be provided, subsequent to the official submissions of the Form A4 by GOV to GOJ.

(4) Establishment of experimental site and demonstration sites.

Local costs for establishment of experimental site and demonstration sites will be provided.

4.2 Vietnam

GOV, through MARD, FSIV and DARD Hoa Binh Province, will make the following contributions:

(1) Staff allocation

1. Project Director: Deputy Director of DFD
2. Research Manager: Deputy Director of FSIV
3. Provincial Manager: Director of Sub-DFD in Hoa Binh Province
4. Project Coordinator: Staff of DFD
5. Research Coordinator: Researcher of FSIV
6. Provincial Coordinator: Staff of DARD or Sub-DFD
7. Other Project Staffs who will participate in the project activities.

Vietnamese side will specify the names and positions of the above project staff prior to project inception.

(2) Office Space, Facilities, Equipment and Materials.

The following will be prepared by the Vietnamese side:

1. Office space and necessary facilities for the Project in Hanoi city and Hoa Binh province.
2. Rooms and space necessary for installation and storage of the equipment.
3. Electricity, air-conditioning, water supply and necessary telecommunication facilities including telephone, facsimile and e-mail services.
4. Land and other facilities necessary for the implementation of the Project.

(3) Administrative and Operational Costs

Administrative and operational cost, as necessary for the implementation of the Project, will be provided. The appropriation of local costs by GOV will be indispensable for the implementation of the Project.

(4) Privileges, Exemptions and Benefits for Japanese Experts

The Vietnamese side will grant exemptions from income tax and other charges of any kind imposed on or in connection with allowances remitted from abroad.

The Vietnamese side will grant exemptions from customs duties with respect to importation of personal effects by the Japanese experts and their families, as well as importation of machinery and equipment for their activities.

5 Schedule

5.1

JICA will prepare the draft Project Document and draft R/D by the end of February 2003. MARD (DFD) will submit written comments to the draft Project Document and draft R/D to the Resident Representative of JICA Vietnam Office.

5.2

Project Document and R/D will be finalized by JICA incorporating the comments received from the Vietnamese side.

5.3

R/D of the Project will be signed by MPI, MARD (DFD) and JICA as soon as possible after its finalization.

6 Achievement of Overall Goal

The team recommends that the Vietnamese side make efforts to achieve the overall goal, by taking the following important actions.

6.1.

To disseminate and apply the results of the project in a larger scale, the possibility of implementing in-country training courses targeting forestry officers, extension workers, community leaders, etc. should be explored during the Project implementation period.

6.2

It is desirable that appropriate actions are taken to improve technical procedures of 661 program by applying the technologies developed by the Project.

List of Annex

Annex 1: Organizational Structure

Annex 2: Map of the Target Area

Annex 3: List of the 20 communes located within the watershed area of Hoa Binh Dam, Hoa Binh Province

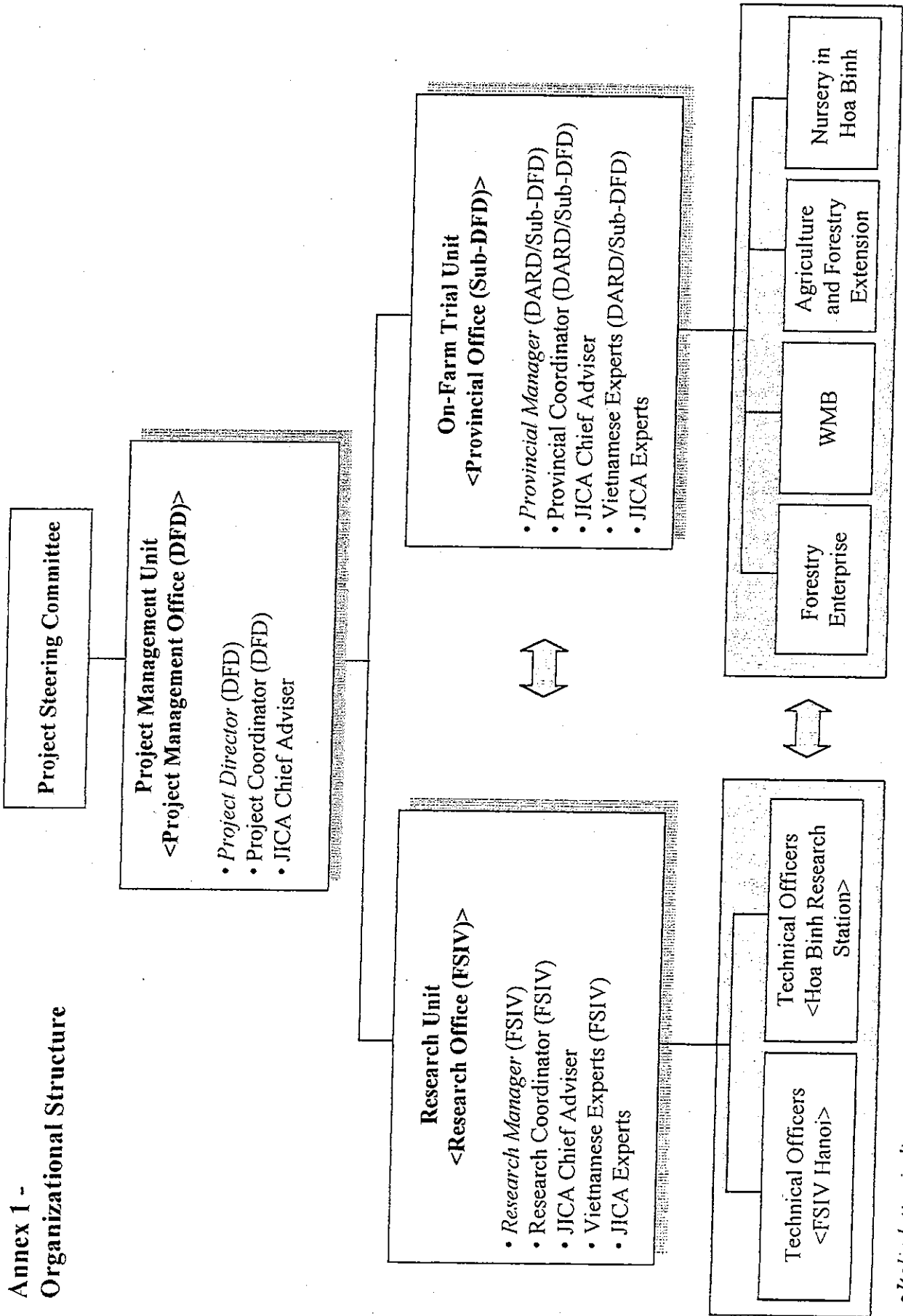
Annex 4: draft Project Design Matrix (PDM)

Annex 5: draft Plan of Operations (PO)

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Annex 1 -
Organizational Structure

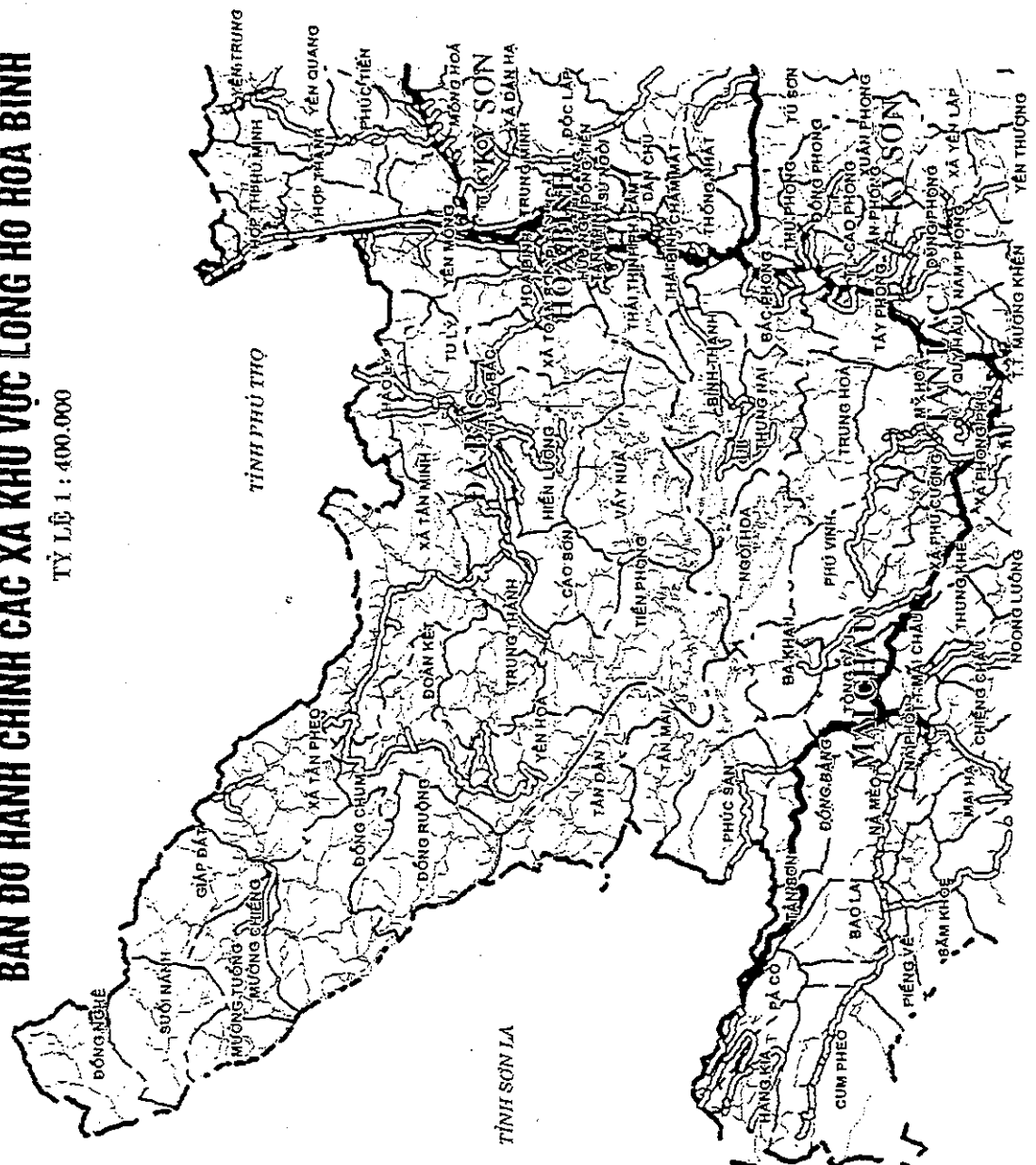


• *Italic letter indicates part-time positions*

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BẢN ĐỒ HÀNH CHÍNH CÁC XÃ KHU VỰC LÒNG HỒ HOÀ BÌNH

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CHỈ DẪN



Ranh giới tỉnh
 Ranh giới huyện
 Ranh giới xã
 Đường quốc lộ
 Đường xã, đường đất liền
 Sông, suối, hồ đập

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Annex 3: List of the 20 communes located within the watershed area
of Hoa Binh Dam, Hoa Binh Province

Name of District	Name of Commune	Management Jurisdiction	
		WMB	FE
Đà Bắc District	Đồng Nghê Commune	X	
	Suối Nánh Commune	X	
	Mừng Tuồng Commune	X	
	Mòng Chiềng Commune	X	
	Đồng Chum Commune	X	
	Đồng Rượu Commune	X	
	Yên Hoà Commune	X	
	Tân Dân Commune	X	
	Tiến Phong Commune	X	
	Vấy Nua Commune		X
	Hiển Long Commune	X	
	Toàn Sơn Commune	X	
	Mai Châu District	Tân Mai Commune	X
Phúc Sạn Commune		X	
Ba Khan Commune		X	
Tân Lạc District	Trung Hoà Commune	X	
	Ngòi Hoà Commune	X	
Cao Phong District	Thung Nai Commune		X
	Bình Thanh Commune		X
Hoa Binh Town	Thái Thịnh Commune		X
		16	4

NOTE

WMB: Song Da Watershed Management Board

FE: Song Da Forest Enterprise

PROJECT NAME: Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam

PROJECT SITE: The Watershed Area of Hoa Binh Dam, Hoa Binh Province

DURATION: 2003 - 2008 (5 years)

TARGET BENEFICIARIES:

Local farmers who participate in forest management (i.e. those who have been allocated or contracted forest land), Song Da FE, Song Da WMB, and AFE.

DATE: 22 December 2002 (Version 2)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Super Goal (Long Term Direction) Forest coverage is increased, and the environmental and economical values of forests are improved.</p>			
<p>Overall Goal Sets of technology for natural forest rehabilitation developed by the Project are applied by policy makers and by end users.</p>	<p>1 By 2009, recommendations submitted by the Project based on the research and on-farm trial findings are reviewed by MARD/DFD for application to the 661 Program. 2 By 2010, the area of forest rehabilitated in the 20 communes applying the techniques developed by the project has reached X ha. 3 By 2010, the number of farmers in the 20 communes who are applying the techniques developed by the project has reached X persons.</p>	<p>1 Reports of the Technical Committee of MARD/DFD. 2 Sub-DFD's annual report of the 661 Program. 3 Monitoring record of the Sub-DFD on the number of farmers applying the techniques developed by the Project.</p>	<p>• The review process of the new techniques developed by the Project and the administrative procedure to revise the technical procedure of 661 Program takes place in a timely manner • There is no change in government's policies and strategies in terms of reforestation (i.e., promoting the use of indigenous species, and promoting the increase of forest cover by both plantation and by natural regeneration). • Vietnamese government's investment to reforestation is maintained beyond the duration of 661 Program (i.e., beyond 2010)</p>
<p>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.</p>	<p>1 By 2008 recommendations are submitted to 661 program based on the results from experiments and on-farm trials. 2 By 2008, a manual on hands-on techniques on the sets of natural forest rehabilitation techniques targeting local technical officers and farmers is prepared. 3 x technical officers of FE, WMB, and AFE learn new techniques through technical seminars.</p>	<p>1 Project Report of recommendations to MARD/DFD. 2 Publication of the manual on hands-on techniques. 3-1 Project record of seminar participants. 3-2 Seminar participant's feedback (evaluation sheet) on the applicability of new technology in their work.</p>	<p>• Sets of technologies developed by the Project is shared with forestry officers, extension workers, and community leaders in the 20 communes through the government's agriculture and forestry extension programs and/or through in-country training courses. • Economic conditions of the local people who participate in forest management do not fall below the current condition.</p>
<p>Outputs 1 Information on technology, results from other projects, manuals, and valuable experiences regarding natural regeneration, soil conservation measures, upland farming, forestry related policies, and people's participation in watershed area is compiled and systemized 2 Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials. 3 Monitoring and evaluation system for the overall project implementation and for the respective research and trial activities are established and implemented.</p>	<p>1 Web-based database is established by 2004 and is regularly updated. 2 By 2004, information on existing technology are compiled and made available in forms of internet and publication. 3 Information on newly developed technology by the Project and by other organizations are regularly compiled by the Project throughout the project period. 1 By 2007, at least one experimental site is established for each of the silvicultural measures stated under activity 2.4.2 - 2.4.9 in the PO, that have potential for field application. 2 By 2007, at least x on-farm trial plots are established involving y farmers in 5-6 communes. 3 By end of 2007, at least one silvicultural measure for natural forest rehabilitation is identified that can be applied for plantation, additional planting, and regeneration categories of the 661 Program. 1 Monitoring and evaluation system is effectively operating throughout the project implementation period.</p>	<p>1 & 3 Project record on database maintenance. 2 Project's publication list. 1 Evaluation report of the experimental sites. 2 Monitoring records of the on-farm trial activities. 3 Technical evaluation report of the on-farm trial activities 1-1 Monitoring records of the Project. 1-2 Evaluation records of the Project. 1-3 Assessment on how the evaluation results have been reflected to the project activities' design and implementation.</p>	<p>• Inflation rate remains at the level that do not affect the economic affordability of the technical measures developed by the project.</p>
<p>Activities 1.1 Collect and analyze written documents. 1.2 Conduct field visits to advanced projects and good examples. 1.3 Identify prominent species and methodology for the natural regeneration experiment and on-farm trials. 1.4 Publish leaflets on hands-on techniques targeting local farmers based on existing information and share with other projects. 1.5 Establish web-based database for collected information. 2.1 Establish a demonstration site and on-farm trial activity sites to apply and verify currently available techniques. 2.2 Design research and on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management. 2.3 Conduct and analyze research on native species seedling production. 2.4 Conduct and analyze research on silvicultural measures for natural forest rehabilitation. 2.5 Conduct and analyze on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management. 2.6 Share the project results with relevant organizations. 3.1 Based on Output 1 and baseline survey (activity 2.2.1), refine the Plan of Operations and the indicators for project purpose and outputs described in PDM. 3.2 Conduct monitoring and evaluation of the overall project implementation and on the experimental design and on-farm trial activities.</p> <p>Abbreviations FE: Forest Enterprise WMB: Watershed Management Board AFE: Agriculture and Forestry Extension System, which includes the following - Provincial Agriculture and Forestry Extension Center - District Agriculture and Forestry Extension Stations - Commune Extension Workers</p>	<p>Inputs <u>Vietnamese Government</u> - Project Director - Project Coordinator - Research Manager - Research Coordinator - Provincial Manager - Provincial Coordinator - Technical Officers of FSIV Hanoi - Technical Officers of FSIV Hoa Binh - Technical Officers of DARD / Sub-DFD Hoa Binh - Technical Staff of Song Da FE - Technical Staff of Song Da WMB - AFE workers - Nursery workers - Facilities - Office space (DFD, FSIV, and Sub-DFD in Hoa Binh) - Space for installation and storage of equipment - Electricity, telephone line, water supply, etc. - Administration and Operational costs</p>	<p><u>Japanese Government</u> - Long Term Experts (3) - Chief Advisor - Project Coordinator - Experts in the technical fields of: - Silvicultural Technique Development - Natural Forest Rehabilitation - Participatory Forest Management - Short Term Experts (No. to be decided) - Experimental Design - Forest Soil - Socioeconomic Survey - Seedlings and Nursery Experiment - Pest and Diseases Management - Non-Timber Forest Products - Agroforestry/Farming Systems - Monitoring and Evaluation - Other technical fields if necessary - Training of Vietnamese Personnel in Japan - Machinery, Equipment, and Materials - Office equipment - Equipment for research - Equipment for nursery - Vehicles, Motor Boat, etc. - Establishment of experimental site and demonstration sites</p>	<p>• No severe natural disasters occur during the project implementation period (such as heavy rain and forest fire) that have severe impact on the research and trial activities. Pre-conditions • Vietnamese government's investment to the reforestation program is maintained at least at the same level as present (i.e., 661 program). • Investment of various programs aiming at improving local peoples' livelihoods (e.g., 747 Program, 135 Program) is maintained at least at the same level as present.</p>





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Draft Plan of Operations (PO)

Outputs	Activities	Year												Responsible Organization(s)	Benchmark
		1	2	3	4	5	6	7	8	9	10	11	12		
T Information on technology, results from other projects, manuals, valuable experiences regarding natural regeneration, soil conservation measures, forestry related policies, people's participation and upland farming in watershed area is compiled and systemized.	1.1 Collect and analyze written documents.	[Sporadic activities]												FSIV DFD Sub-DFD	25: On forestry related projects in Vietnam (documents and manuals) 50: On natural regeneration, native spp., soil conservation, upland farming, watershed mgt (National Level) 75: On Social, economics, policy, participation (National Level) 100: On advanced international researches
	1.2 Conduct field visits to advanced projects and good examples.	[Sporadic activities]												DFD FSIV Sub-DFD	25: Planning (budgets, dates, arrangements with organizations) 50: Field visits 60: Filing documents 75: Processing reports on each field trips 100: Completion of field trip reports
	1.3 Identify prominent species and methodology for the natural regeneration experiment and on-farm trials.	[Sporadic activities]												FSIV DFD Sub-DFD	25: Identification of prominent spp 50: Identification of seed sources or mother trees 75: Preliminary assessment on native spp adaptation for experimental use 100: Preliminary assessment on availability of native spp seeds
	1.4 Publish leaflets on hands-on techniques targeting local farmers based on existing information and share with other projects.	[Sporadic activities]												FSIV DFD Sub-DFD	25: On planting techniques 50: On nursery techniques 75: On tending techniques 100: Farm land management (for up-land agriculture)
	1.5 Establish web-based database for collected information.	[Sporadic activities]												FSIV DFD	25: Completion of designing platform for data base 50: Installation of equipments and software 75: Data inputs of collected information 100: Establishment of the self-sustain maintenance unit

Legends

-  Activities that must take place at a given time.
-  Sporadic activities.
-  Activities that will be continued over the given time, but in low intensity.
-  Cumulative activities (activities that will increase the intensity over time)

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Draft Plan of Operations (PO)

Outputs	Activities	Year					Responsible Organization(s)	Benchmark
		Year 1	Year 2	Year 3	Year 4	Year 5		
2 Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.	2.1 Establish a demonstration site and on-farm trial activity sites to apply and verify currently available techniques.							100
	2.1.1 Design and plan research and farmland management activities for the Hoa Binh demonstration site based on currently available techniques.						FSIV Sub-DFD	
	2.1.2 Design and plan on-farm trial activities in the selected two(2) communes based on currently available techniques and 661 program criteria.						FSIV Sub-DFD	
	2.1.3 Construct the Hoa Binh demonstration site based on 2.1.1 and 2.1.2 (continue to 2.6.1 after the 1st yr.).						FSIV Sub-DFD	
	2.1.4 Conduct on-farm trial activities in the selected two(2) communes based on 2.1.2 (continue to 2.5 after 1st yr.).						Sub-DFD FSIV	
2.1.5 Analyze and evaluate the initial findings of activities 2.1.3. and 2.1.4, and feed them into activity 2.2.4 and 2.2.5.						FSIV Sub-DFD		

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Outputs	Activities	Year						Responsible Organization(s)	Benchmark		
		Year 1		Year 2		Year 3				50	100
		1	2	1	2	1	2				
2 Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.	2.2 Design research and on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management. 2.2.1 Implement and analyze baseline survey (Village profile and current situation of people in the watershed). 2.2.2 Identify potential sites for research activities. 2.2.3 Identify potential sites for on-farm trial activities. 2.2.4 Establish research design and procedures. 2.2.5 Establish on-farm-trial designs and procedures (including the establishment of criteria for selecting target farmers and level of inputs). 2.2.6 Conduct survey on natural conditions of the potential experimental and on-farm trial sites.										
2 Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.	2.3 Conduct and analyze research on native species seedling production.										

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Draft Plan of Operations (PO)

Outputs	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Responsible Organizations	Benchmark		
		1	2	1	2	1			2	
2.4 Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.	2.4 Conduct and analyze research on silvicultural measures for natural forest rehabilitation. 2.4.1 Establish control plots to examine and analyze natural regeneration. 2.4.2 Conduct and analyze experiments for plantation of selected native spp. on bare-lands. 2.4.3 Conduct and analyze direct sowing of tree species on bare lands. 2.4.4 Conduct and analyze experiments for additional planting of selected native spp. in degraded forests. 2.4.5 Conduct and analyze experiments for assisting (accelerating) establishment of valuable regenerated native tree spp. 2.4.6 Conduct and analyze experiments on the combination of bamboo and other trees or non-timber spp. 2.4.7 Conduct and analyze the introduction of non-timber spp. in both degraded and established forests. 2.4.8 Conduct and analyze multi-strata methodology with newly introducing native spp. in currently established Accasia and Eucalyptus forests. 2.4.9 Conduct and analyze adequate thinning methodology for establishment of multi-strata forests. 2.4.10 Conduct economic analysis for application of research results. 2.4.11 Identify the cause of pest and disease and conduct experiment on the control.	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	25: Identification of control plot sites 50: Establishment of the control plots 75: Analysis of vegetation of the control plots 100: Completion of data on the control plots	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	25: Establishment of plots and implementation of experiments 50: Analysis of the first round data and completion of the mid-term report 75: Completion analysis of the experiments 100: Completion of reports and manuals
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
		Establishment	Establishment	Establishment	Establishment	Establishment	Establishment	Analysis	FSIV	
									20: Establishment of economic analysis design for on-farm trials 40: Conduct of economic analysis for on-farm trials (year 1) 60: Conduct of economic analysis for on-farm trials (year 5) 80: Evaluation of economic analysis 100: Completion of the report	
									10: Identification of pest and disease 25: Preliminary evaluation on future experiment 50: Establishment of experimental designs and plans 60: Implementation of experiments 75: Completion of analysis of the experiments 100: Completion of reports and manuals	

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Draft Plan of Operations (PO)

Outputs	Activities	Year						Responsible Organization(s)	Benchmark
		Year 1	Year 2	Year 3	Year 4	Year 5			
2	Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.								
2.5	Conduct and analyze on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management.								
2.5.1	Identify farmers for on-farm trial on natural regeneration and on farmland management.						Sub-DFD FSIV		10: Coordination with People's Committee, WMB, FE, and related authority 20: Identification of farmers with People's Committee, WMB, FE, and related authorities 30: Establishment of contracts with farmers 50: Establishment of plots and implementation of on-farm trials 60: Analysis of the first round data and compilation of mid-term report 75: Completion analysis of the on-farm trials 90: Completion of reports and manuals 100: Submission of reports to People's Committee, WMB, FE, and related authorities
2.5.2	Conduct and analyze plantation of selected native spp. on bare-land with local farmers.						Sub-DFD FSIV		
2.5.3	Conduct and analyze direct sowing of tree species on bare land.						Sub-DFD FSIV		
2.5.4	Conduct and analyze additional planting of selected native spp. in degraded forests with local farmers.						Sub-DFD FSIV		
2.5.5	Conduct and analyze experiment for assisting (accelerating) establishment of valuable regenerated native tree spp.						Sub-DFD FSIV		
2.5.6	Conduct and analyze on-farm trials of the combination of bamboo and other trees or non-lumber spp.						Sub-DFD FSIV		
2.5.7	Conduct and analyze the introduction of non-lumber spp. in both degraded and established forests.						Sub-DFD FSIV		
2.5.8	Conduct and analyze on-farm trials on farmland management.						Sub-DFD FSIV		
2.5.9	Conduct and analyze small scale seedling production.						Sub-DFD FSIV		10: Establishment of designs for small scale seedling production 20: Creation of a hands-on manual for small scale seedling production 30: Establishment of criteria for in-put level for small scale seedling production 40: Village meetings on small scale seedling production 50: One day seminar on small scale seedling production 60: Installation of small scale seedling production 70: Analysis and revision on designs, manuals, and criteria 100: Completion of manuals and reports of the results
2.5.10	Conduct economic analysis for application of on-farm trial results.						Sub-DFD Center of Breeding Plant In Hoa Binh FSIV		20: Establishment of economic analysis design for on-farm trials 40: Conduct of economic analysis for on-farm trials (year 1) 60: Conduct of economic analysis for on-farm trials (year 5) 80: Evaluation of economic analysis 100: Completion of the report

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Draft Plan of Operations (PO)

Outputs	Activities	Year						Responsible Organization(s)	Benchmark
		Year 1		Year 2		Year 3			
		1	2	1	2	1	2		
2.6 Techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field are developed through research and on-farm trials.	2.6 Share the project results with relevant organizations.								100
	2.6.1 Reflect the research results and on-farm trial findings on to the Hoa Binh Demonstration site (refer activity 2.1.3).							FSIV Sub-DFD	25: Production of a field guide leaflet of the Hoa Binh Demonstration site 75: Establishment of the Hoa Binh Demonstration site 100: Completion of reports on the Hoa Binh Demonstration site
	2.6.2 Publish the experimental results.							FSIV DFD Sub-DFD	25: Completion of analysis of the researches 50: Establishment of editing committee 75: Publication of project results in both prints and web 100: Publication of Manuals in both prints and web
	2.6.3 Publish manuals on hands-on techniques based on on-farm trial results, targeting technical officers and farmers.							FSIV Sub-DFD DFD	50: Establishment of editing committee 100: Publication of manuals in both prints and web
	2.6.4 Hold technical seminars to share the project results with the local technical officers of FE, WMB, and AFE from the 20 communes.							Sub-DFD FSIV	25: Organization of technical seminars 50: Implementation of seminars 100: Publication of proceedings of the seminars
	2.6.5 Hold technical seminars to share the experimental results with relevant organizations and donors through technical seminars.							DFD FSIV	25: Organization of technical seminars 50: Implementation of seminars 100: Publication of proceedings of the seminars
	2.6.6 Hold seminars and conduct field visits for local farmers from 20 communes to study successful on-farm trial results.							Sub-DFD FSIV	25: Organization of field visits and seminars 50: Implementation of field visits and seminars 75: Follow-up evaluation for the participants (To evaluate effectiveness of field visits and seminars) 100: Completion of analysis of the follow-up evaluation
2.6.7 Make recommendations for 661 program based on experimental results and on-farm trial results.							DFD FSIV Sub-DFD	50: Completion of analysis of the research and on-farm trial for making recommendation for 661 program 100: Submissions of recommendations	

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Draft Plan of Operations (PO)

Output	Activities	Year						Responsible Organization(s)	Benchmark
		1	2	1	2	1	2		
3 Monitoring and evaluation system for the overall project implementation and for the respective research and trial activities are established and implemented.	3.1 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.	1	2	1	2	1	2	DFD FSIV Sub-DFD	25: Assessment of the PO 50: Assessment of indicators for project purpose and outputs described in PDM (If there is no need to change them, complete this activity: 100) 75: Preparation of recommendations for refining Indicators and PO to the Project Steering Committee 100: Approval of GOV and GOJ on the refinement
	3.2 Design and conduct monitoring and evaluation systems for the overall project implementation and management, and for research and on-farm trial activities.								
	3.2.1 Design a monitoring and evaluation system for the overall project implementation and management, and for research and on-farm trial activities.	1						DFD FSIV Sub-DFD	20: Establishment of Monitoring and Evaluation System and Manual for overall project implementation and management 40: Establishment of Monitoring and Evaluation System and Manual for research and on-farm trial activities 60: Approval of the M&E System by the Project Steering Committee 100: Training on the operation of M&E system for project staff
	3.2.2 Implement the monitoring and evaluation system.						DFD FSIV Sub-DFD	30: Implementation of M&E system by project staff 60: Annual evaluation of project progress by the Project Steering Committee 100: Improvement of experimental design and on-farm trial methodologies based on M&E results	
	3.2.3 Conduct mid-term evaluation (and refine the Plan of Operations if necessary) and final evaluation.						DFD FSIV Sub-DFD	20: Mid-term evaluation 40: Assessment of progress of the project 60: Improve the Plan of Operations (if necessary) 100: Final evaluation	

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Technical Cooperation Project for the
Rehabilitation of Natural Forest in Degraded Watershed Area
in the North of Vietnam

Project Document

17 February 2003

Technical Cooperation

between

The Government of the Socialist Republic of Vietnam

and

Japan International Cooperation Agency (JICA)

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ABBREVIATIONS

5MHRP	National 5 Million Hectare Reforestation Program
ADB	Asian Development Bank
AFE	Agriculture and Forestry Extension organizations (<i>extension center at provincial level, extension station at district level, and extension workers at commune level</i>)
DFD	Department of Forestry Development
EU	European Union
FE	Forest Enterprise
FPD	Forest Protection Department
FSIV	Forest Science Institute of Vietnam
FSSP	Forest Sector Support Program and Partnership
GOJ	Government of Japan
GOV	Government of the Socialist Republic of Vietnam
GTZ	German Organization for Technical Cooperation (Gesellschaft für Technische Zusammenarbeit)
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
KfW	Development Loan Cooperation of Germany (Kreditanstalt für Wiederaufbau)
MARD	Ministry of Agriculture and Rural Development
OFTU	On-Farm Trial Unit
PC	People's Committee
PDM	Project Design Matrix
PMU	Project Management Unit
PO	Plan of Operations
PSC	Project Steering Committee
R/D	Records of Discussions
SFDP	Social Forestry Development Project (GTZ)
Sub-DFD	Sub-department of Forestry Development (at provincial level)
VND	Vietnamese Dong
WMB	Watershed Management Board

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1. Executive Summary

Name of the Project: Rehabilitation of Natural Forest in Degraded Watershed Area in the North of Vietnam	
Country: Socialist Republic of Vietnam	Target area: 20 communes located within the watershed area of Hoa Binh Dam, Hoa Binh Province
Project duration: 1 st October 2003 – 30 September 2008 (tentative)	
<p>I. Background</p> <p>Forest cover in Vietnam has 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. Restoration of forest cover has been a high priority by the Government of the Socialist Republic of Vietnam (GOV). However, over 8.3million ha, or 25.1% of total land area, still remains as bare land.</p> <p>The long-term strategy of the forest sector in Vietnam has been set in the Forest Development Strategy 2001-2010 (FDS), with objectives of forest product export turn over reaching USD2.5billion, number of people participating in forestry reaching 6 to 8million, and forest cover reaching 43-44%. The 5 Million Hectare Reforestation Program (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.</p> <p><i>Silvicultural technique for natural forest rehabilitation</i> 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. Existing information on the techniques are scattered and have 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 have tended to have less consideration on the needs and capacities of their clients. There has also been few research activities closely integrated with the 661 Program. Consequently, silvicultural techniques on plantation, additional planting, and natural regeneration <i>applicable for the 661 Program</i> is lacking.</p> <p>There is also a concern in the economic aspects of natural forest rehabilitation. Under the 661 Program, local farmers, Watershed Management Boards (WMBs), and Forest Enterprises (FEs) are the main entities involved in the implementation. GOV provides subsidies for the operations, but there is a question as to whether the current <i>modus operandi</i> provides sufficient incentive for them to manage forests properly. Meanwhile, there is also an opinion that the level of subsidy should be reduced in view of the sustainability of the 661 Program. In this context, there is 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.</p> <p>In summary, there is a pressing need to identify <i>appropriate technology</i>, both in <i>technical and economic</i> 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 (GOJ), which was originally forwarded to GOJ in July 2000.</p>	

<p>II. Agencies involved in project implementation</p> <ul style="list-style-type: none"> • Department of Forestry Development (DFD), for overall project management. • Forest Science Institute of Vietnam (FSIV), for research activities. • Sub-DFD, Hoa Binh Province, for on-farm trial activities in the province.
<p>III. Brief description of project design</p> <p>1. Objectives</p> <p>1.1 Project purpose expected to be achieved by the end of the project: 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.</p> <p>1.2 Overall goal expected to be achieved in the long term: Sets of technology for natural forest rehabilitation developed by the Project are applied by policymakers and by end users.</p> <p>2. Outputs and activities</p> <p>2.1 Compilation, analysis, and dissemination of information.</p> <ol style="list-style-type: none"> ① Collect and analyze existing documents. ② Conduct field visits to study best practices and good examples. ③ Identify prominent species and methodology for the natural regeneration experiment and on-farm trials. ④ Publish leaflets on hands-on techniques targeting farmers based on existing information and share with other projects. ⑤ Establish web-based database for collected information. <p>2.2 Development of techniques on silvicultural measures for natural forest rehabilitation, native species seedling production, and farmland management applicable in the field, through research and on-farm trials.</p> <ol style="list-style-type: none"> ① Establish a demonstration site and on-farm trial activity sites to apply and verify currently available techniques. ② Design research and on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management. ③ Conduct and analyze research on native species seedling production. ④ Conduct and analyze research on silvicultural measures for natural forest rehabilitation. ⑤ Conduct and analyze on-farm trials on silvicultural measures for natural forest rehabilitation and farmland management. ⑥ Share the project results with relevant organizations. <p>2.3 Establishment and implementation of Monitoring and Evaluation (M&E) system for the overall project implementation and for the respective research and trial activities.</p> <ol style="list-style-type: none"> ① Refine the Plan of Operations and the indicators for project purpose and outputs described in Project Design Matrix. ② Design and conduct M&E system for the overall project implementation and for the research design and on-farm trial activities.

3. Planned inputs

3.1 Japanese inputs:

- Long term Expert: 3 (Chief Advisor / Natural Forest Rehabilitation, Silvicultural Technique Development, Participatory Forest Management / Coordinator)
- Short term Expert: In the fields of Experimental Design, Forest Soil, Socioeconomic Survey, Seedlings and Nursery Experiment, Pests and Diseases Management, Non-Timber Forest Products, Agroforestry / Farm Systems, Monitoring and Evaluation, and other technical fields if needed (No. / year to be determined).
- Training of Vietnamese Project Personnel in Japan and/or third country (No. / year to be determined).
- Machinery, Equipment and Materials (Budget level to be determined).
- Local costs: Establishment of experimental and demonstration sites.

3.2 Vietnamese inputs:

- Personnel: Project Director, Project Coordinator, Research Manager, and Research Coordinator at the national level, Provincial Manager and Provincial Coordinator in Hoa Binh Province.
- Office space, Facilities and Material: Offices in DFD, FSIV, and Sub-DFD Hoa Binh, spaces for installation and storage of equipment, electricity, telephone line, water supply, etc.
- Administration and Operational Cost.

4. Organizational Structure

The Project Management Unit (PMU) will be established, having Project Director (Vietnam), JICA Chief Advisor, and the Project Coordinator (Vietnam) as core members. The PMU will provide managerial and technical guidance, and ensure close coordination of the 2 operational units explained below.

The Research Unit, having FSIV as the core organization, will focus mainly on research, while the On-farm Trial Unit (OFTU), lead by Sub-DFD, will take the core responsibilities in conducting on-farm trial activities. Planning and implementation of activities by these 2 units will always be closely linked. At the practical level, OFTU will involve a number of organizations, such as Song Da FE, Song Da WMB, agriculture and forestry extension, and the nursery in Hoa Binh, as well as the local farmers.

The overall direction of the project implementation will be decided at the Project Steering Committee (PSC), which will be set up as the body to supervise the PMU. The PSC will be chaired by the Director General of the DFD.

IV. *Ex-ante* assessment

Overall assessment concludes that the expected impact of the Project, its relevance, and likelihood of sustainability are high.

Impact is expected to be high both at the national and local levels. At the national level, the Project is expected to contribute to improving policies and mechanisms of the 661 Program,

through which the newly developed technologies can be applied nation-wide, particularly in the watershed areas where forest rehabilitation is a priority. At the local level, the project will have impact on the natural environment, and also have potential in improving local people's lives by providing additional means of income. Local technical officers and extension workers will also benefit through technical transfer.

The project purpose is in line with GOV's policies and priorities, and the expected result of the Project will contribute significantly in addressing the constraints the GOV is currently facing in implementing forest rehabilitation under the 661 Program. Furthermore, the Project has been designed in close consultation with key stakeholders, in order to reflect local needs. Considering the above, as well as in view of JICA's Country Cooperation Plan, the Project is assessed to be highly relevant for Japanese cooperation.

Since the GOV places high priority on reforestation, it is likely that the national investment on reforestation programs will be maintained, while the financial condition of forest extension organizations may influence the level of outreach of project benefits beyond the project duration. As for the institutional capacity of the implementing agencies, capacity of FSIV is proven from JICA's past collaboration through the *Afforestation Technology Development Project on Acid Sulphate Soil in the Mekong Delta*. The capacity of provincial institutions is relatively weak, however, the Project has been designed placing high emphasis on on-farm trial activities, where provincial organizations work together with research institutes and JICA experts, through which their technical capabilities will be enhanced.

V. Risks (important assumptions) in achieving the Project Purpose

- Applicability of the technical measures developed by the project may become less, if severe natural disasters occur during the project implementation period (such as heavy rain and forest fire).
- Economic affordability of the technical measures developed by the project may need to be reexamined if inflation rate rises extremely high during the project implementation period.

VI. Plans for future evaluation

1. Indicators to be used for evaluating the achievement of the Project Purpose

- By 2008, recommendations on technical procedures are submitted to 661 program based on the results from experiments and on-farm trials.
- By 2008, a hands-on manual on the sets of natural forest rehabilitation techniques targeting local technical officers and farmers is prepared.
- X technical officers of FE, WMB, and AFE learn new techniques through technical seminars. (Note: Exact numbers to be identified at the inception of the project)

2. Evaluation Schedule

- Mid-term Evaluation (2nd half of the 3rd year).
- Final Evaluation (2nd half of the 5th year).

2. Introduction

This Project has been designed based on the request by the Government of the Socialist Republic of Vietnam (GOV) to the Government of Japan (GOJ) for technical cooperation on Natural Regeneration Technology Development in the North of Vietnam, which was originally forwarded to GOJ in July 2000. JICA dispatched 3 study teams between November 2001 and December 2002. Situation was assessed closely by these missions, and priority needs for the technology development was confirmed. More specifically, needs were considered to be high for developing technologies on natural forest rehabilitation, which are technically appropriate and economically affordable, for practitioners who are directly involved in forest management, including local farmers and organizations such as Forest Enterprises (FIEs) and Watershed Management Boards (WMBs).

This Project Document has been prepared by Japan International Cooperation Agency (JICA), building on consultation with the key stakeholders during the 3 missions. Workshops were held both at central and provincial levels, village surveys were conducted, as well as interviews of local authorities. Information was also compiled through interviews of bilateral and multilateral organizations and NGOs involved in projects in related fields, as well as through field visits of their projects. Consultations with the key government departments, including Department of Forestry Development (DFD), Forest Science Institute of Vietnam (FSIV), and Sub-DFD were also conducted with the valuable support of JICA Technical Advisor attached to DFD.

This project document consists of following sections: Section 1 - Executive Summary provides an *overall picture* of the Project in brief. This section, and Section 3 - Background of the Project, explain the *historical context* under which the Project was formulated, the *natural and policy environment of the forest sector*, and the *types and scale of assistance* provided to the forest sector. Section 4 - Project Justification and the Problems to be Addressed and Section 5 - Project Strategy explain *why* and *how* this Project should be implemented. In Section 6 - Project Design and Section 7 - Project Management and Coordination, the *project's location, target beneficiaries*, and the *detailed design* of the Project are presented, as well as the *organizational set up* of project implementation. Section 8 - Ex-Ante Assessment summarizes the *preliminary assessment* based on the information available at present, examining the value of the Project and its relevance for JICA assistance. At the end of the main text, Section 9 lists the reference documents, and Section 10 lists the Annexes.

3. Background of the Project

3.1 Forest Sector in Vietnam¹

Situation of the Forest: National forest cover in Vietnam has 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. Restoration of forest cover has been considered as a high priority by the GOV, and with the extensive national effort, forest cover is gradually recovering since late 1990s (Table 1). However, over 8.3million ha, or 25.1% of total land area, still remains as bare land.

According to the year 1999 figures, total forest area was 10.92million hectare, out of which 9.44million was natural forest and 1.47million was plantation forest. Regionally, forest cover is highest in the Central Highlands (53.2%), followed by Northern Central (41.6%) and Eastern South (35.5%). Forest cover of the Northwest Sub-region, in which Hoa Binh Province is located, is 27.0% (Table 2). According to the *Forest Development Strategy 2001-2010* (FDS), the total national timber volume is 751.5million m³ and 8.4 billion bamboo stems, out of which 4.1% and 1.1% are from plantation forests respectively.

Table 1 Development in Nationwide Forest Area and Forest Cover (Unit : 1000ha)

	1943	1976	1980	1985	1990	1995	1999
Natural Forest	14,000	11,077	10,486	9,308	8,430	8,252	9,444
Plantation Forest	0	92	422	584	745	1,050	1,471
TOTAL	14,000	11,169	10,608	9,892	9,175	9,302	10,915
Forest Cover (%)	43.0	33.8	32.1	30.0	27.2	28.1	33.2

Source: JICA, 2002. *Draft Fact Finding Study Report*, Table 2-1.
(Cited from MARD, *Forest Development Strategy 2001-2010*, Table 1C.)

¹ Contents of this section are based on JICA, 2002. *Draft Fact Finding Study Report on Forest Sector Cooperation*.

Table 2 Forest Area and Forest Cover by Region (Inventory figures of 1999, Unit:1000ha)

Regions/ Sub-region	Total Natural Area	Forest Area			Ratio Against Total (%)
		Total	Natural Forest	Plantation Forest	
Nationwide	32,894.4	10,915.6	9,444.2	1,471.4	33.2
Northern Mountainous Midland	10,318.7	3,332.4	2,775.0	557.4	32.3
Northwest Sub-region	3,572.4	963.4	884.4	79.0	27.0
Northeast Sub-region	6,746.3	2,369.0	1,890.6	478.4	35.1
Red River Delta	1,266.3	83.6	45.3	38.3	6.6
Northern Central	5,130.7	2,135.6	1,835.6	300.0	41.6
Central Coast	3,301.6	1,139.3	969.3	170.0	34.5
Central Highland	4,464.5	2,373.1	2,339.2	33.9	53.2
Eastern South	4,447.6	1,581.0	1,416.6	164.4	35.5
Mekong River Delta	3,965.3	270.5	63.1	207.4	6.8
Ratio against Total Natural Area (%)			28.7	4.5	

Source: JICA, 2002. *Draft Fact Finding Study Report*, Table 2-2.
(Based on MARD, *Forest Development Strategy 2001-2010*, Tables 1A and 1G.)

Forests in Vietnam are classified into 3 types, namely the Special Used Forest, Protection Forest, and Production Forest, based on their main functions. According to the 2002 statistics, their respective ratios against total forest area are 13.2%, 45.8%, and 41.0% (Table 3). Comparisons with the 1995 statistics indicate the increasing trend in Special Use Forest (from 8.9%) and Protection Forest (from 35.3%), and decreasing trend in Production Forest (from 55.7%). Part of forestland is not forested in reality, as the current classification of forestland includes land intended for reforestation.

Table 3 Forest Areas and Ratio by Classification (2002)

	Total	Forest	Soil	Special Use	Protection	Production
Area (1000ha)	16,487.1	10,745.4	5,741.7	2,168.3	7,556.9	6,761.9
Ratio (%)	100	65.2	34.8	13.2	45.8	41.0
Ratio against Total land area (%)		32.7	17.5	6.6	23.0	20.1

Source: Internet (<http://www.kiemlam.org.vn/English.htm>)

Forest Development Strategy and FSSP: The long-term strategy of the forest sector in Vietnam has been set in the *Forest Development Strategy 2001-2010 (FDS)*. In line with the broader national development strategy, FDS has economic, social, and environmental objectives.

More specifically, the numerical target figures set in the FDS for 2010 is as follows:

- Economic objective: Forest product export turn over reaches USD2.5billion.
- Social objective: About 6 to 8million people participate in forestry.
- Environmental objective: Forest cover reaches 43-44%.

Forest sector is also one of the most active sector in building donor-government partnership, with the Memorandum of Agreement (MOA) of Forest Sector Support Program and Partnership (FSSP) signed in November 2001 by 19 signatories including Ministry of Agriculture and Rural Development (MARD), bilateral and multilateral organizations, and NGOs. FSSP supports the implementation of the FDS. It has also been taking the central role in donor coordination through the Secretariat, and have been putting extensive effort in enhancing information sharing among the organizations involved in forest sector development, for example, by drafting the Matrix of Tentative International Institutional Affiliations, by initiating the process of developing the Forest Sector Manual, and by providing a common channel for new project proposals among the MOA signatories².

5 Million Hectare Reforestation Program (5MHRP): The 5MHRP, also known as the 661 Program, is one of the six priority program areas identified under the FDS, and is the largest and most active national program in the forest sector. Its numerical target is to reforest 5million hectare by 2010, consisting of 3million ha of Production Forest and 2million ha of Special Use and Protection Forests. Out of the 2 million ha, 1million each will be reforested through plantation and natural regeneration. The budget for the 5MHRP from 1998 to 2001 has been at the level between 470 and 670 billion Vietnamese Dong (VND) per year, of which around 63% is the state budget. The 5MHRP and its predecessor 327 Program (Greening of the Barren Hills Program) has contributed to recovering the national forest cover, although past studies have also pointed out several shortcomings, such as the forest quality, limited use of indigenous species, low yield, etc.

3.2 Institutional Framework

The institutional framework of the national organizations involved in the forest sector is summarized in Diagram 1. In terms of *state management organizations*, the key organizations include the Department of Forestry Development (DFD) and Forest Protection Department (FPD) at the central level. At the provincial level, there is the Sub-Department of Forestry

² For details, refer JICA, 2002. *Draft Fact Finding Study Report on Forest Sector Cooperation*, and the documents collected by the Fact Finding Mission.

Development (Sub-DFD) under the Department of Agriculture Rural Development (DARD), which administratively reports to the Provincial People's Committee (PC), and the Sub-Department of Forest Protection, which reports directly to the Provincial PC³. At the district level, there is a Section on Agriculture and Rural Development under the District PC, and the Forest Protection Stations. At the Commune level, there is normally one officer in the Commune PC who is responsible for agriculture, forestry, irrigation and rural development.

There is another line of organizations responsible for forestry extension. At the central level, the Extension Division is established under the DFD, which is separate from the Department of Agriculture Extension. At local levels, however, agriculture and forestry extension is operated under a common organizational structure. Agriculture and Forestry Extension Center (AFE Center) is established at the provincial level, and AFE Stations operate at the district level. Recently GOV has begun to assign extension workers at the commune level, although the system has not reached all communes yet. In terms of research, Forest Science Institute of Vietnam (FSIV) is the key organization. FSIV has 7 research divisions (silvicultural techniques, forest plant resources, forest plant protection, forest engineering, forest products, forest products preservation, and forest economics), 3 research centers (forest tree improvement, NTFPs, and forest ecology and environment), and 12 other units including sub-institutes, regional centers, and production and service units.

In terms of practical forest management in the field, Watershed Management Boards (WMBs) play a key role in managing Special Use Forests and Protection Forests, and Forest Enterprises (FEs) mainly on Production Forests. In most cases these organizations falls under the supervision of provincial Sub-DFDs. In recent years, there has been an increasing trend to allocate forestland to households and individuals for their management, mainly for Production Forests, but also for other categories of forests under certain conditions. In addition to such *forest allocation*, under which rights are guaranteed for a period of 50 years, WMBs and FEs often *contract* local households for forest protection, in which case contractors receive fee for their service.

³ This structure is established in 43 provinces. There are exceptional cases in which the Sub-Department of Forest Protection is established under DARD (in 15 provinces). There are also 3 provinces where there is no Sub-Departments of Forest Protection, where the responsibilities related to forest protection are covered by DARD.

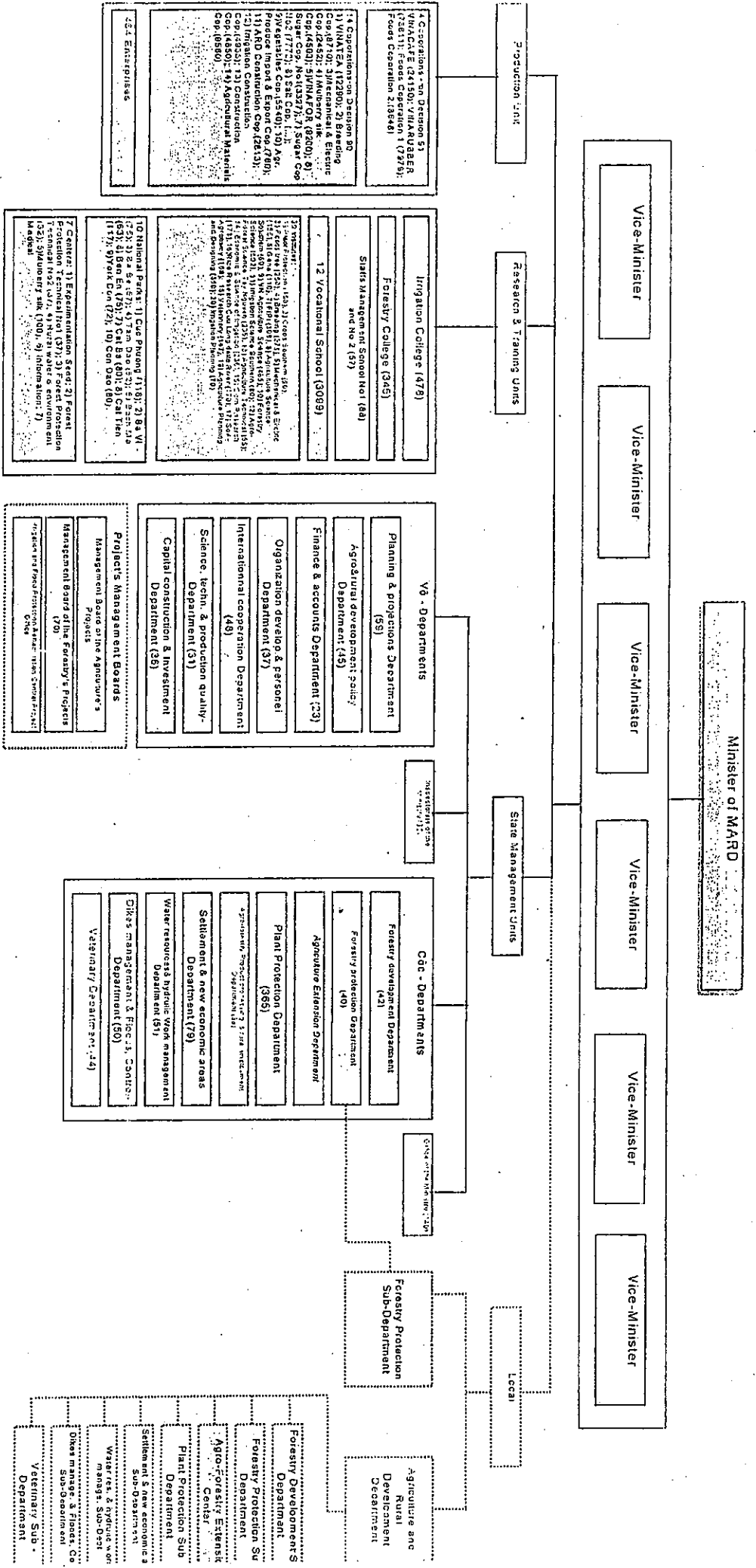


Diagram 1 Organizational structure of MARD and Forestry Related Organizations at Central and Local Levels

Source: *Draft IICA Fact Finding Study Report, 2002*. Diagram 2-1, Annex 2-A. (Original diagram cited from REFAS, 2000)

3.3 The Provincial Context

Hoa Binh Province, where the Project will be implemented, is located in the Northwest sub-region of the country (Annex 11-1). Administratively, there are total 9 districts and 1 township, including 197 communes, 6 wards, and 11 towns. Sixty communes fall under the national category of Zone III, or the communes with special difficulties. Seven ethnic groups reside in the Province, of which majority is Muong (60%), followed by Kinh (31%). The basic socioeconomic indicators of the Province are presented in Table 4.

Table 4 Basic socioeconomic indicators of Hoa Binh Province (2000)

Items	Unit	Hoa Binh	National average
Demography			
Population	1,000 person	772.40	77,912.00
Natural increase rate	%	1.52	1.53
Trained laborer rate	%	8	18-20
Economic Indicators			
GDP at current price	VND billion	1,751	440,000
GDP growth rate (1996 – 2000)	%	6.7 (5.8*)	6.7
GDP structure:	- Agriculture and forestry	%	47.0
	- Industry and construction	%	19.0
	- Services	%	34.0
GDP/person (1994 price)	USD	178	317
Social Indicators			
Proportion of poor and hunger HH	%	14.5	10 -11.0
Proportion of HH in rural area that can access living water	%	30.5 - 35.0	60.0
Proportion of under five malnourished children	%	40	35 - 36

Source: People's Committee of Hoa Binh, 2000. *Summarized Report on Master Plan for the Socio-Economic Development of Hoa Binh Province Period 2001 – 2010.*

(* GDP growth rate in parenthesis indicates the growth rate of the Northwest Sub-region.)

The total natural area of Hoa Binh Province is approximately 4,663km²(466,252ha), out of which 42% is forestland, 14% is agricultural land, 6% is specially used land, and 1% is homestead land. The remaining 37% include unused land, streams, and rocky mountains (Table 5). Out of the forestland, approximately 75% is natural forest, and the remaining 25% is plantation forest. Under the category 'other,' there is approximately 135,000ha of unused mountainous land that can be converted to forestland.

According to the *Master Plan for the Socio-economic Development of Hoa Binh Province 2001-2010*, the goal of reforestation at the provincial level is to increase the forest area up to 233,000 – 256,000 ha, or 50 – 55% of the total natural area, by 2010. This target is to be achieved through conversion of unused land that has potential for forestry development,

including land under the category 1c (through regeneration), and 1b and 1c (through afforestation, and plantation of fruit trees and long term industrial trees)⁴.

Table 5 Structure of Land Use in Hoa Binh Province (Unit: %, 2000)

Category	Hoa Binh Province	Northwest Sub-region	Whole Country
Forest Land (Covered by trees)	41.7	29.1	35.2
Agriculture Land	14.3	11.4	28.4
Specially Used Land	5.9	1.6	4.7
Homestead Land	1.2	0.4	1.3
Other	36.9	57.5	30.4

Source: General Statistics Office, 2002. *Statistical Yearbook 2001*.
(Based on Table 4 – Structure of used land in 2000 by province).

Government places high priority on the reforestation of the watershed area of Hoa Binh Dam. Hoa Binh Dam, which was constructed in 1988, is the largest hydropower plant in Vietnam, with the capacity of 1,920 MW and the total water volume of 9.45 billion m³. It has important roles in flood control, hydropower generation, irrigation, and in improvement of water transport. Rehabilitation of forest cover, which will prevent soil erosion, is critical for ensuring the services of the Dam. The GOV's priority in protecting the watershed area is implied in the investment plan of the 661 Program. Out of the total provincial budget of the 661 Program, which is 9,530 million VND, 3,989 million VND or approximately 42% is allocated to Song Da Protection Forest and Song Da FE Protection Forest, which covers the watershed area (Annex 13). The GOV also places high considerations in supporting livelihoods of local people, who had to resettle from the valley to the upland at the time of dam construction. This can be explained by the GOV's investment through 747 Program, which was specially formulated in 1994 for regional development and livelihoods support for the resettled population. Following the completion of the 1st phase, GOV plans to allocate around 250 billion Vietnamese Dong (VND) over 4 years for the 2nd phase, from 2002 to 2006.

3.4 Prior to On-going National and International Efforts

According to the analysis by FSSP, there are over 60 on-going projects supported by international organizations in the field of natural resources management and forestry, with the

⁴ 1b is the category used to indicate land with bush and grass, and 1c indicates land with less than 300 trees per hectare (Refer Annex 12).

total budget of over 614million USD⁵. Generally, donors provide support to forest sector within their broader country cooperation framework, which have overall goals such as poverty alleviation, human resources development, integrated rural development, etc. As such, donors' support in the forest sector has tendencies to focus on regions where poverty is severe and where minority ethnic population is concentrated, with the exception of projects on large scale afforestation, for which the project location is normally decided based on natural conditions and needs to increase forest cover.

Having many bilateral and multilateral organizations involved in the forest sector, there has been support in a wide range of subjects, from support to state administration system, training and education, extension, participatory land use planning and forestland allocation, investment for large scale afforestation, and support in managing protected areas, to name a few⁶. On-going projects related to afforestation and reforestation include capacity building support to national tree seed sector (DANIDA), breeding and propagation of forest tree species (Sweden), support for large scale afforestation (ADB, KfW, JBIC, JICA, World Bank), and many social forestry projects supported by bilateral and multilateral organizations such as EU, GTZ, Finland, and Switzerland.

GTZ is one of the organizations that have been active in conducting silvicultural technique development. The Social Forestry Development Project (SFDP) Song Da, implemented in Son La Province, has been involved in silvicultural technique development since 1996. They have established over 50 experimental and demonstration plots. Based on their assessment, natural regeneration without additional planting have been highly successful. Useful results have been yielded concerning growth dynamics, economic issues, and the interests of farmers. Enrichment planting, on the other hand, has showed limited success. For example, enrichment planting using Teak has showed low quality and limited survival rates. SFDP has also conducted species trial for 16 native species with mixed results⁷.

FSIV is the main organizations conducting forest research, while other organizations such as Forestry University, Universities of Agriculture and Forestry⁸, and Forest Inventory and Planning Institute (FIP) also have some research activities. The main research subjects of FSIV in the fields of forest rehabilitation, native species, and on sustainable use of sloping land.

⁵ JICA, 2002. *Draft JICA Fact Finding Study Report*. Figure 2-8. (Based on information compiled by FSSP in June 2002).

⁶ For the list of projects in the forest sector and their brief description, refer Annex 18.

⁷ SFDP, 2001. *Experiment and Demonstration Plots - Results and Silvicultural Guidelines*.

⁸ There are 4 Universities of Agriculture and Forestry in Vietnam.

can be referred to in Annex 19⁹. FSIV has an annual research budget of approximately 4.5 billion VND (2001), and have been conducting research in a wide range of subjects. However, the application of their research results in national programs such as 661 Program has been limited.

4. Project Justification and the Problems to be Addressed

4.1 Project Justification

From the outset, as requested by the GOV, this Project was tasked to contribute to the goal of the 661 Program, which is to increase the national forest cover by 5 million hectare. There are many approaches that can be taken to contribute to the 661 Program, including silvicultural technique development for natural forest rehabilitation, reduction of human pressure on forest resources and forestland, strengthening of institutional capacity of forest management institutions, improvement of reforestation planning, etc. The project will focus on '*silvicultural technique development for natural forest rehabilitation*' based on the following reasons.

Priority need within the Forest Sector: Findings from the forest sector analysis, conducted as part of the JICA Fact Finding Study on Forest Conservation Cooperation in July/August 2002, indicate 3 key areas where *donor assistance is relatively limited despite high national priority*. These areas are: (1) reforestation; (2) sustainable forest management; and (3) improvement of forest industry and income generation through forest sector. In terms of reforestation, support for improving forest quality, developing methods and technology for natural forest rehabilitation, and wider application of indigenous species for afforestation and natural forest rehabilitation, were among the subjects that need to be paid attention. Assessments by other organizations have also reached similar conclusion, in that research on *technologies for restoring degraded forest has been paid limited attention despite its importance*¹⁰. This implies that the lack of adequate technology for natural forest rehabilitation is one of the key factors that have caused limited success in the national 661 Program.

⁹ Detailed characteristics of 30 native species have been compiled in 'FSIV, 2002. *Use of Indigenous Species in Reforestation in Vietnam*.'

¹⁰ For example, TROPENBOS International, an international NGO, states in its Project Document on *Research and Development Programme in support of the Conservation and Wise Utilization of Tropical Forest*, that '.... None of the partners (of FSSP), however, has identified this area as area of research interest.'

Priority areas of assistance by Japanese ODA: In consultation with the GOV, GOJ confirmed in 2001 to maintain the 5 priority areas for the overall Japanese official assistance to Vietnam. These 5 areas include: (1) Human resources and institutional building, with a special emphasis on support for the transition to a market economy; (2) Electric power and transportation infrastructures; (3) Agriculture and rural development; (4) Education, health and medical services; and (5) Environment. Within this framework, and under the priority area of Environment, JICA identified the following 3 program areas: (1) *Afforestation technology improvement and forest establishment*; (2) Water resources development and management; and (3) Urban environment improvement¹¹. Support to develop silvicultural technique for natural forest rehabilitation falls under the scope of the first program listed above.

Comparative Advantage for JICA: JICA has experience and expertise on research-oriented projects linked with field application in Vietnam, which has gained through the *Afforestation Technology Development Project on Acid Sulphate Soil in the Mekong Delta*. The suggested approach for the new project has an advantage, as it can be built on the lessons learned from the above project. The potential benefit that would result from project investment (i.e., nation-wide application of the newly developed technology through national 661 Program), will also be high, which further justifies this approach.

4.2 Problems to be addressed

The problem that needs to be addressed under the Project can be explained in 3 aspects: (1) limited knowledge on silvicultural techniques applicable for the 661 Program; (2) ineffective use of available information; and (3) inadequate research orientation.

Limited knowledge on silvicultural techniques applicable for the 661 Program: The 661 Program has 4 main modes of operation: (a) Plantation; (2) Additional Planting; (3) Natural Regeneration; and (4) Protection. There are technical issues under each of these categories that need to be addressed. *Plantation* is most extensively implemented among the 4 modes of operation. The main challenge for plantation is the use of native species. Fast growing exotic species, such as *Eucalyptus* and *Acacia*, are the main species currently used for plantation. Lack of information on suitable native species, as well as the lack of techniques on seeding production methods, are hindering the application of native species.

¹¹ JICA, 2002. *Draft JICA Fact Finding Study Report*.

Additional Planting (enrichment planting) under the 661 Program is conducted under the assumption that local people would have higher incentive to protect the forests if the economic value of the forests is improved. *Natural Regeneration*, on the other hand, places its purpose on increasing forest's value for watershed protection, through establishment of multi strata forests. Economic value of the forest can also be improved by accelerating (assisting) the growth of valuable species within the natural forest. Both *Additional Planting* and *Natural Regeneration* have not been implemented as extensively as *Plantation* under the 661 Program, as the appropriate techniques needed for the operations explained above are not well established.

Protection under the 661 Program does not involve any silvicultural techniques. The forestland managers or the contractors' responsibilities are mainly to patrol the area, and to ensure that no illegal activities are conducted. While there is presently government subsidy in forms of cash payment for protection (50,000VND/ha/year), there is an opinion that the subsidy should be reduced in view of the sustainability of 661 Program, replacing it by benefit-sharing from forest products¹². If the 661 Program is to pursue this direction, identification of suitable species and technical procedures for enrichment planting, development of techniques to accelerate natural regeneration of valuable tree species, or any other mechanisms to increase forest managers' incentive for that matter, would be critical.

Ineffective use of available information: Researches and projects have been conducted in Vietnam, both by national and international organizations, in the areas related to natural forest rehabilitation. However, the information does not seem to have been compiled and analyzed, neither has been disseminated effectively, in forms that can be easily referred to and applied by forest management practitioners at local levels. There is a critical need to establish a system to collect and disseminate information effectively and efficiently. Any future research should be designed building on the existing knowledge and lessons learned from past research and field activities.

Inadequate research orientation: It is important to design research that is intended for producing results to be applied in the 661 Program. However, past and on-going research activities related to forestry have not been integrated close enough with the 661 Program. The link between research and extension has also been weak in the forest sector. As expressed in

¹² Government subsidies are also paid under other modes of operation. The budget is determined on per hectare basis as follows: *Plantation* – 2.5million VND, *Additional Planting* – 1million VND, *Natural Regeneration* – 50,000VND. For details refer Annex 12.

past studies, there has been little consideration for the needs and capacities of their clients, particularly concerning socio-economic dimensions. Fragmentation of research, extension, training and education has limited the effectiveness of service delivery at the field level, where integration of appropriate methods or techniques (research), learning about various methods and techniques (training), and disseminating information, methods and techniques (extension) is critical¹³. Hence, the need is high to show examples of practical collaboration and coordination at the field level, as to how research institutes and extension organizations can work together to improve the value of their services.

5. Project Strategy

The Project's framework is summarized in Diagram 2. Under the approach on '*Silvicultural Technique Development for Natural Forest Rehabilitation*,' following are the key strategies adopted by the Project.

A. Strategies to develop sets of silvicultural techniques for natural forest rehabilitation and methods for native species seedling production that are *practical*, and which can be applied *nation wide* under 661 Program.

- ① Identify existing silvicultural techniques for natural forest rehabilitation, methods for native species seedling production, and other experiences that can be applied under 661 Program.
- ② Conduct research *based on the needs of forest management practitioners* (including WMB, FE and local farmers), and *aiming at application in the 661 Program*.
- ③ Verify the techniques identified (ref. ①) or developed (ref. ②), through *on-farm trial activities with farmers*.
- ④ By means of demonstration, seminars and publications, feed in the project results to the policymakers and other organizations related to forest management, to facilitate the integration of newly developed technology in to 661 Program procedures.
- ⑤ Include *economic affordability* of introducing the technology, as well as the *economic return*, as key criteria for assessing the appropriateness of the technology.

¹³ MARD, 2001. *Five Million Hectare Reforestation Program Partnership Synthesis Report*.

B. Strategies to *reduce the risk of human pressure* on rehabilitated forestland caused by slash and burn shifting cultivation.

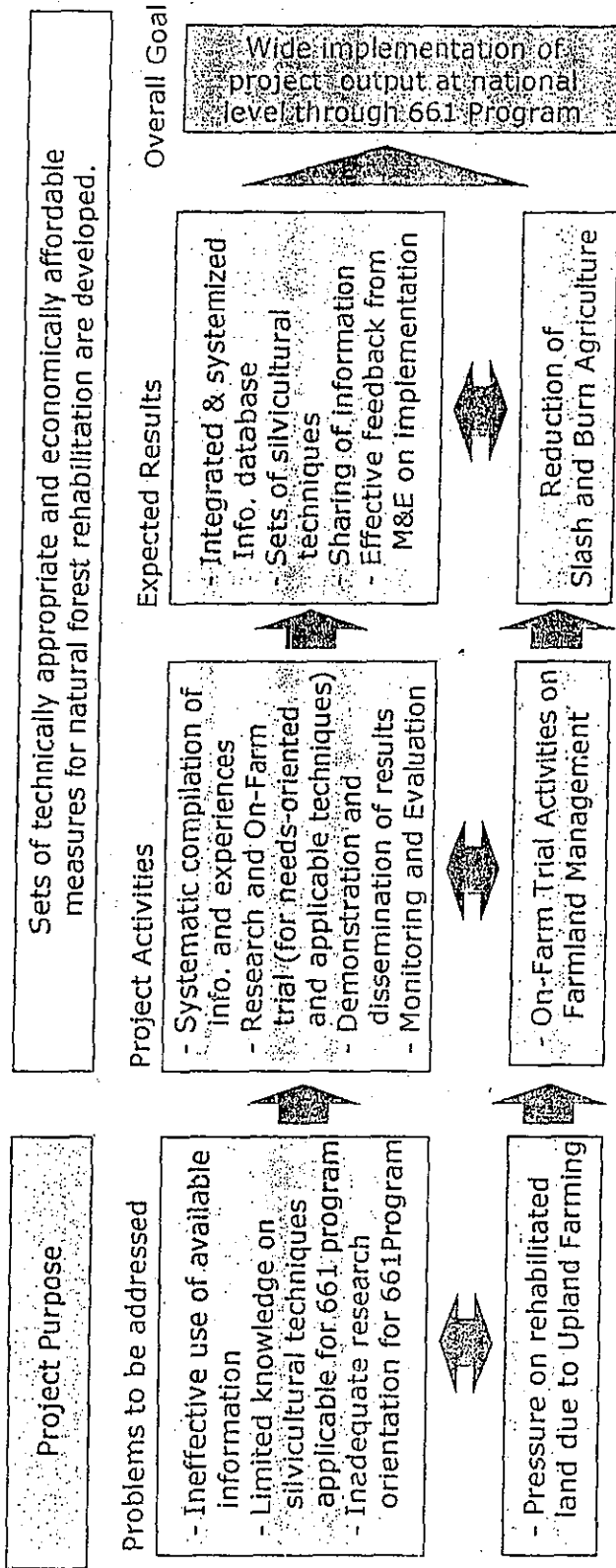
- ① Identify existing techniques and experiences on farmland management that could contribute to reducing slash-and-burn shifting cultivation practices.
- ② Incorporate *farmland management* as one subject of on-farm trial activities.

The Project is designed emphasizing the importance of developing technologies that can be used by the local farmers, technical officers of WMB and FE, and extension workers of AFE, who are the 'end users' of the technologies. Strategy A addresses this aspect, by orienting research activities to develop *practical* and *affordable* technology.

The Project also acknowledges that the impact of silvicultural technique development will be limited if it is conducted in isolation. Hence, the Project has incorporated into its framework activities related to *farmland management*, which would contribute to reducing pressure on rehabilitated forestland and other 'unused land' which has potential for converting into forestland (Strategy B).

In order to pursue the above strategies, there are 3 main organizations and institutes that will play a key role. The role of DFD will be critical in order to ensure that technologies developed by the Project will be reviewed by relevant authorities of GOV in a timely manner, so that useful techniques will be incorporated into the procedures of the 661 Program. FSIV will play a key role in research activities, to enable the Project to come up with recommendations to the 661 Program that have strong scientific basis. Sub-DFD in Hoa Binh Province will take the lead role in implementing the on-farm trial activities, through which applicability of the technologies will be assessed under the real settings.

Strategy and Concept Diagram



Basis for building the Strategies

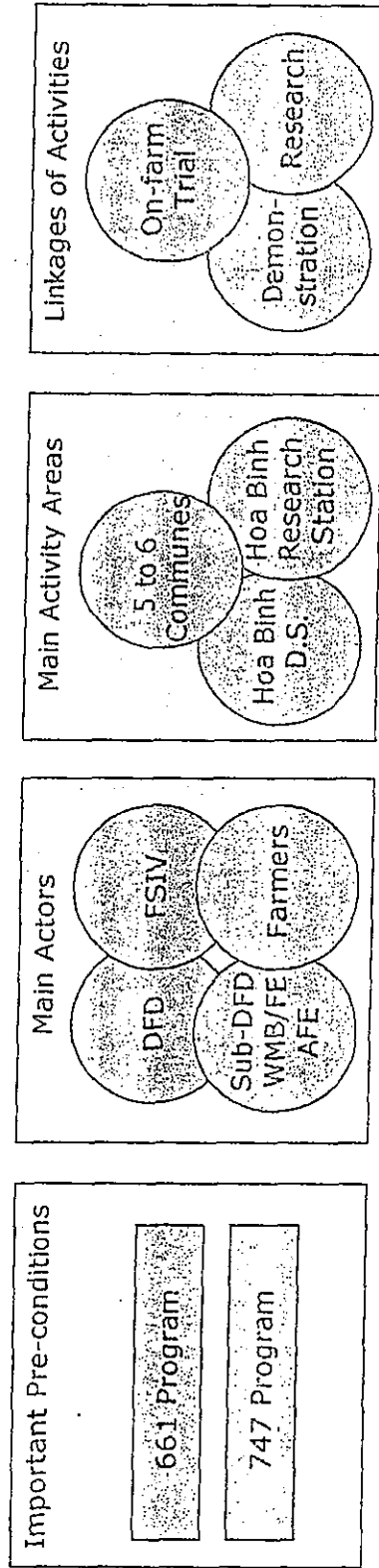


Diagram 2 Project Concept Diagram