

## 2-2-4 Implementation Plan

The implementation plan must be prepared to achieve the principal objectives of achieving the required quality and safely completing the work within the time schedule.

### 2-2-4-1 Implementation Policy

#### i Necessary Steps Prior to Commencement of the Work

Compared to PACSA, the number of steps of which the execution by the Vietnamese side prior to the commencement of the work is necessary has increased under the Project in terms of both quantity and quality. The distribution of the planned forests to local residents (who will play a crucial role in the maintenance (protection) of the coastal protection forests) prior to the commencement of the work and the closure of the titanium mine and restoration of the original state are the most important steps which must be taken to ensure the smooth progress of the Project. If these steps are not taken as planned, changes of the planned project contents or even re-assessment of the feasibility of the Japanese assistance may be required. To avoid such a development, it is essential to monitor the progress of these steps from the time of the detailed design and to facilitate their execution.

#### ii Right Work at the Right Time

As the Project involves living trees, it is important to conduct the right work at the right time. In particular, the timing for planting and tending are restricted to the rainy season and, therefore, other types of work, such as the production of seedlings and the construction of operation roads, must be conducted earlier to prepare for planting and tending. It is essential for the sequence of the work in each process to be properly determined and followed in a systematic manner.

#### iii Implementation System on the Vietnamese Side

Under APSA, MBs will be set up at MARD which is the responsible organization for the Project at the central government level and also at DARD which is the implementation body at the provincial level. It is planned that a person holding the position of vice director class of MBFP will lead MB at MARD. Meanwhile, the assignment of a director (vice director class of DARD) and approximately two staff members to MB of each DARD is planned. Such assignment will be finalized after the signing of the E/N.

At the district level, a MB will be also set up in P'C of the district government to ensure the smooth implementation of APSA while reflecting local views and opinions through close collaboration with P'C of the commune government.

#### iv Implementation System on the Japanese Side

The Japanese consultant will undertake a range of work, including the detailed design, support

for the tender and dispatch of engineers (one full-time engineer complemented by spot dispatch as the occasion demands) to supervise the field work.

The main work will be carried out by the Japanese contractor which has won the relevant contract and the afforestation work will be carried out by Vietnamese local companies under the guidance of engineers dispatched by the contractor.

#### 2-2-4-2 Implementation Conditions

Careful attention will be paid in connection with the execution of the planned work.

##### i Appropriate Employment Planning

Planting will be mainly manually conducted and will require the employment of many local residents. It is desirable for the scale of employment to be as level as possible from the viewpoint of smoothly and economically implementing the Project. For this reason, the preparation of an employment plan which takes the busy farming season and other relevant matters into consideration is necessary.

##### ii Understanding and Cooperation of Local Residents

The planting sites under the Project will be maintained by local residents whose understanding and cooperation will be essential to prevent forest fires and feeding damage by farm animals. The access to a planting site will normally be via residential areas and/or farmland. If the access route runs through residential areas, priority should be given to the daily lives and activities of the local residents. Efforts should be made to minimize the noise, vibration and dust caused by work vehicles.

##### iii Conservation of the Local Environment

The planting sites are generally surrounded by coastal areas with white sand and/or existing forests. Careful attention must be paid to not causing any adverse impacts on the local environment by the work. Waste materials (pots, fertilizer bags, waste from construction work, etc.) in particular must be properly disposed of without leaving anything at the site.

##### iv Provision of Stock Yards

A stock yard (temporary yard to stock the seedlings transported from the nursery and fertilizer until they are divided and further transported to the actual planting areas) will be created near a turnout in those compartments where operation vehicle roads are constructed. In those compartments without operation vehicle roads, bare land should be secured along the existing road for use as a stock yard. In this case, prior notification to local residents should be made along with the careful introduction of safety measures to avoid any problems with local residents and road users.

The implementation conditions for each project component are further explained next.

### **(1) Planting**

- i Planting, which is the main work, will be concentrated in the first half of the rainy season so that it is completed by the end of November to ensure the favorable growth of the living planted trees.
- ii As a pure forest will be created at those planting sites with high level of technical difficulty, the work will be fairly simple as in the case of PACSA. In contrast, mixed planting will be conducted at sites with a low level of technical difficulty and careful attention should be paid to the correct size of the planting hole, the correct quantity of manure and organic fertilizer and other relevant matters.
- iii As *A. occidentale* and *M. azadirachta* have an aversion to being flooded after planting, these species must be planted at appropriate spots through careful examination of the local land conditions (groundwater level etc.)
- iv In the case of the planting of potted seedlings, a large quantity of vinyl pots will become waste after planting. These pots should not be disposed of at the planting sites and should be returned for appropriate disposal.

### **(2) Ancillary Planting Works**

- i A large quantity of such materials as bamboo and straw will be required. Although these can be procured locally, some are subject to seasonal production. Accordingly, high quality materials must be systematically procured in a stable manner through good preparation.
- ii Most of the ancillary planting works must be conducted in the dry season when it may be difficult to recruit many workers because of the busy farming season and hard work under the scorching sun. The desire to work on the part of the workers may also not be strong. It will, therefore, be important to shift the working hours in the dry season to the early morning or late afternoon to avoid working under the scorching sun so that the work can be efficiently and safely conducted.

### **(3) Tending**

- i The supplementary planting work and top dressing should also be concentrated in the first half of the rainy season to ensure the steady growth of the living planted trees in the second half of the rainy season which is the growing period for plants.
- ii Supplementary planting is the replacement of colonies of dead planted trees at those sites planted during the previous year. Planting using the same species and same planting method is likely to

have the same result unless proper measures to prevent tree death are applied based on identification of the specific cause of death. Accordingly, it will be necessary to conduct a study to identify the cause of death along with a study on the damage situation prior to the planning of supplementary planting and improvement measures, including a change of the planting species and the introduction of ancillary planting works, should be carefully considered.

- iii In regard to supplementary planting, careful attention must be paid to the correct size of the planting hole and the correct quantity of manure, organic fertilizer, etc. as in the case of the original planting.
- iv The use of the correct fertilizer and correct quantity is also important for top dressing.
- v At the time of supplementary planting or top dressing, it may be necessary to approach adult trees or an existing stand. Careful attention must be paid to avoiding incidents involving poisonous snakes, bees, etc. which are harmful to humans.

#### **(4) Procurement or Production of Seedlings**

- i While the seedlings will be procured from existing nurseries and the temporary nursery, a large supply in a short period of time will be required. Given the fact that there are established standards for the seedlings to be used, it will be necessary to check the supply system and supply capacity of each nursery in advance.
- ii One frequent practice observed with the production of seedlings in Vietnam involves the use of fertilizer and water in a large quantity to produce large seedlings in a short period of time. As the planting sites under the Project are characterized by a high level of environmental stress after planting, appropriate hardening must be conducted at the nursing stage. Hardening can basically be conducted in two ways, i.e. (i) the watering control method whereby watering is suspended until the seedlings almost die and (ii) the root cutting method whereby the roots which are outgrowing the pot are cut off. What is necessary is the combination of these methods to grow highly drought resistant seedlings which meet the standards without causing their death or epinasty. This point commonly applies to the purchased seedlings and self-produced seedlings.
- iii When the root cutting method is used, root cutting and re-arrangement of the pots should be simultaneously conducted so that seedlings at a similar growth stage can be placed in the same nursing bed. In this way, subsequent water control and shipment work can be efficiently conducted.

#### **(5) Operation Roads**

- i Some of the locally procurable equipment etc. is unreliable and proper attention must be paid to the capacity and safety control of such equipment.
- ii Although crusher run and other materials can be procured locally, they must be supplied in a

large quantity, making it necessary to plan the steady supply of high quality materials.

- iii The operation road construction work will be conducted in the dry season under the scorching sun. Careful planning, including the shifting of the working hours to the early morning and/or late afternoon, will be required to avoid labor accidents.
- iv The weight of the heavy machinery used for the road construction work should be 8 tons or less because of the conditions of the access roads.
- v In regard to the earth work, the moisture content of the sediment significantly affects the efficiency and level of difficulty of the work. The higher the moisture content is, the lower the efficiency is due to an increased unit weight of the sediment. Accordingly, no work will be conducted in the rainy season, especially in October and November when the rainfall level is high.
- vi As the project sites are sandy sites, subsidence or loss of the subbase of the operation roads may occur. For this reason, the road surface and subbase should be checked from time to time during the work period and also after a downpour or long lasting rain and repair work should be conducted if necessary.

#### **(6) Temporary Nursery**

- i Prior to the construction of the temporary nursery, test wells should be dug to confirm that there is a sufficient supply of water. When the available water volume is found to be insufficient, test boring should be conducted around the original site specified in "Compartment Map D-209" to find a suitable site with groundwater supply. If it is necessary to change the planned nursery site, the revised operation plan must be approved by the client and work supervisor prior to the commencement of the construction work.
- ii The schedule for the construction of the temporary nursery must be linked to the other types of work so that the smooth production of seedlings can commence after the completion of the construction work.

## 2-2-4-3 Scope of Works

The scope of works (demarcation of undertakings) between the Japanese side and the Vietnamese side for the APSA is outlined in Table 2-37.

Table 2-37 Scope of Works

Work Category	Japanese Side	Vietnamese Side
Work in General		
Permission/Approval		i Permission and approval required for the implementation of the Japanese assistance
Maintenance	i Patrolling and safeguarding of the planting sites, temporary facilities, permanent facilities, equipment and materials during the work period	i Procurement of equipment (vehicles etc.) required for maintenance ii Patrolling and safeguarding of the planting sites, temporary facilities, permanent facilities after their handing over
Titanium Mine		i Completion of the closure of the titanium mine prior to the commencement of the work (including the work to restore the original state) = removal of any obstacles to the work at the sites in question
Various Awareness Raising (Educational) Activities		i Preparation of pamphlets etc. ii Meetings to explain the Project to local residents iii Forest Day events
Work Supervision	i Work supervision by the Japanese consultant (on-site inspection, document examination, inspection for warranty against defects and monitoring)	i Issue of the Notice of Commencement ii Witnessing of the various inspections and issue of the certificates of completion of the work and the service
Afforestation Work		
Planting and Tending	i Work commencement survey and installation of concrete stakes on the boundaries of compartments ii Construction of ancillary planting works iii Planting iv Tending (supplementary planting and top dressing)	i Distribution of the planned forests to local residents ii Removal of obstacles at the sites iii Coordination of labor supply iv Measures to reduce feeding damage by cattle and other farm animals (coordination work) v Measures to combat disease and pests vi Measures to combat forest fires vii Measures to combat the theft of the planted trees viii Explanation of the Project to and request for the cooperation of local residents

Procurement of Seedlings	<ul style="list-style-type: none"> <li>i Entrustment of seedling production to existing nurseries and purchase of seedlings</li> <li>ii Production of seedlings at the temporary nursery</li> <li>iii Transportation of seedlings</li> </ul>	<ul style="list-style-type: none"> <li>i Coordination with existing nurseries and related organizations</li> </ul>
Construction of Operation Roads	<ul style="list-style-type: none"> <li>i Construction of operation vehicle roads (construction and maintenance)</li> <li>ii Construction of operation footpaths (construction and maintenance)</li> </ul>	<ul style="list-style-type: none"> <li>i Construction of access roads (construction and maintenance)  Quang Nam Province : 600 m  (two sites)  Quang Ngai Province : none  Binh Dinh Province : none</li> </ul>
Creation of Temporary Nursery	<ul style="list-style-type: none"> <li>i Construction of the temporary nursery and auxiliary facilities</li> </ul>	<ul style="list-style-type: none"> <li>i Removal of obstacles from the planned nursery site</li> <li>ii Extension of power supply to auxiliary facilities</li> </ul>
Construction of Lookout towers	<ul style="list-style-type: none"> <li>i Construction of lookout towers</li> </ul>	<ul style="list-style-type: none"> <li>i Maintenance of the towers after handing over</li> </ul>
Installation of Project Information Signboards	<ul style="list-style-type: none"> <li>i Installation of project information signboards</li> </ul>	<ul style="list-style-type: none"> <li>i Provision of land</li> <li>ii Maintenance of the signboards after handing over</li> </ul>

#### 2-2-4-4 Consultant Supervision

The Japanese consultant will conduct the work supervision for APSA in accordance with the contract (Agreement) concluded with the Government of Vietnam. This work supervision and inspection of various work will be conducted so that the planting and construction of facilities can be carried out as designed, taking the schedule control, quality control, work progress control, etc. by the contractor into consideration.

Given the unique character of the Japanese assistance as an afforestation project, it was confirmed in the M/D at the time of the field survey that the afforestation work would not carry the responsibility for warranty against defects. In view of this, risk management to replace this responsibility will be conducted by means of identifying and assessing the project effects in an appropriate manner and making the project contents reflect the assessment results. For this reason, the "survival rate", "growth situation" and "situation of damage by shifting sand, strong winds, etc." will be set as indicators for the project effects. The "survival rate" and "growth situation" will be measured by monitoring targeting the entire planting sites while the "situation of damage by shifting sand, strong winds, etc." will be determined by a questionnaire survey with local residents. If any problem or issue is found by such monitoring or survey, correction and improvement measures to be carried out during and after the implementation period of Japanese assistance will be examined to improve the project contents as required.

Table 2-38 Contents of Consultant Supervision

Timing	Contents of Consultant Supervision
Prior to the Commencement of the Work	<p>Checking of "the General Work Plan", "the Work Execution Plan" and "the Operation Plan" submitted by the contractor.</p> <ul style="list-style-type: none"> <li>i Schedule plan</li> <li>ii Work implementation system</li> <li>iii Work method</li> <li>iv Temporary work plan</li> <li>v Quality control plan</li> <li>vi Safety control plan</li> <li>vii Environmental conservation plan</li> </ul>
During the Work	<p>Supervision to ensure that the work is in progress as specified by the Operation Plan submitted in advance.</p> <ul style="list-style-type: none"> <li>i Checking of the progress and safety control situations</li> <li>ii Quality control in accordance with the quality control plan and work progress control (to meet the quality and standards specified in the specifications)</li> <li>iii Inspections which are required during the work</li> <li>iv Implementation of necessary measures through consultations with the implementation body and other related organizations after checking the ongoing state of the work if the original design requires alteration</li> <li>v Reporting of the progress situation and other relevant matters to the implementation body and other related organizations</li> </ul> <p>Monitoring of the following matters will be conducted to extract any problematic issues. This will be followed by the examination of improvement measures with a view to improving the project contents.</p> <ul style="list-style-type: none"> <li>i Survival rate survey</li> <li>ii Growth situation of coastal protection forests</li> <li>iii Situation of damage by shifting sand, strong winds, etc.</li> </ul>
Upon the Completion of Individual Work	<p>Completion inspection</p> <ul style="list-style-type: none"> <li>i Progress situation and safety control situation</li> <li>ii Quality and completed amount</li> </ul>
Upon Completion of the Entire Work	<p>Procedure required at the time of completion</p> <ul style="list-style-type: none"> <li>i Submission of the notice of completion</li> <li>ii Procedure for handing over</li> <li>iii Preparation of documents related to the payment procedure</li> </ul>
Inspection for Warranty against Defects	<p>Inspection to check for any defect of the work for various facilities (excluding created forests and temporary facilities) one year after the completion of the individual work.</p>



## 2-2-4-5 Quality Control Plan

The standards listed in Table 2-39 are introduced for the purpose of safety control and executed work quantity control so that the afforestation work and construction work is conducted in accordance with the respective design and plan.

Table 2-39 List of Quality Control Standards and Others

Work Category	Type of Work	Control Category	Standards	Inspection Timing
Afforestation	Work Commencement Survey	QC	i The stakes for compartments are positioned within $\pm 5$ m of the boundaries established by the perimeter survey at the Basic Design stage.	During and immediately after the survey
			ii The stakes for sub-compartments are positioned within $\pm 5$ m of the boundaries specified in the design documents.	
		QC	i The reference dimensions for the concrete stakes will be 10 x 10 x 80 cm.	Prior to installation
	QC	i The IP stakes will be positioned within a radius of 5 m from the point specified in the design documents. ii Distance stakes will be positioned at intervals of 50 m.	During and immediately after the survey	
Planting	QC	i Planting will be conducted in the area specified in the design documents (visual confirmation at all sub-compartments). ii The planted species and mixing ratio conform to the respective design (visual confirmation at all sub-compartments). iii The planting distance is within $\pm 10\%$ of the value specified in the design documents (hereinafter referred to as "design value"). (visual confirmation at all sub-compartments) iv The sub-compartment boundary boards and nameplates (ODA plates) are in place (visual confirmation at all sub-compartments). v 85% of the planted trees in a sample plot of 0.1 ha (31.62 m x 31.62 m) have survived (based on the confirmation of either green leaves or new shoots). The number of sample plots is determined by dividing each sub-compartment by square plots which have equal sides of 31.62 m to give a 95% reliability and 5% error rate. vi The ground at the base of the surviving trees in each sample plot is dug to check the depth of planting hole, the tree height, the existence of basal dressing etc. and that 99% of the trees meet the design values.	1.5 – 2 months after planting	

Afforestation	Planting	Materials	QC	<ul style="list-style-type: none"> <li>i The purchased seedlings are healthy without any signs of disease or external damage.</li> <li>ii The standards of the purchased seedlings correspond to the design values.</li> <li>iii The manure is made of cow feces and straw and its fermentation and maturation are visible.</li> <li>iv A quality certificate should be obtained from the plant producing the organic fertilizer.</li> <li>v The dressing soil should be good quality red to black soil which has been sieved to achieve a uniform grain size and the removal of impurities.</li> <li>vi The straw must be completely dry.</li> </ul>	Before and during planting
	Ancillary Planting Works	Sand Deposition Fencing	QC	<ul style="list-style-type: none"> <li>i The structural dimensions (height, distance between the posts, etc.) are within <math>\pm 5\%</math> of the design values.</li> <li>ii The position and direction are as specified in the design documents.</li> <li>iii The total length is at least 99% of the design value.</li> </ul>	During and after construction
		Sand Control Hedging	QC	<ul style="list-style-type: none"> <li>i The hedging work is conducted within <math>\pm 0.5</math> m of the boundaries (visual confirmation at all sub-compartments).</li> <li>ii The structural dimensions (height, distance between the posts, etc.) are within <math>\pm 5\%</math> of the design values.</li> <li>iii The position and direction are as specified in the design documents.</li> <li>iv The square size is within <math>\pm 1\%</math> of the design value.</li> </ul>	During and after construction
		Straw Covering Work	QC	<ul style="list-style-type: none"> <li>i The structural dimensions (distance between the holding bamboo bar etc.) are within <math>\pm 5\%</math> of the design values.</li> <li>ii The position and direction are as specified in the design documents.</li> <li>iii The total length is at least 99 % of the design value.</li> </ul>	During and after construction
		Shield Stick Work	QC	<ul style="list-style-type: none"> <li>i The shield sticks are positioned as shown in the design documents within the sample plots in which planting inspection is conducted.</li> </ul>	During and after construction
		Drainage Ditch Work	QC	<ul style="list-style-type: none"> <li>i The total length is at least 99% of the design value.</li> <li>ii The width, depth and slope gradient conform to the design documents.</li> </ul>	During and after construction

Afforestation	Ancillary Planting Works	Ridge Work	QC	<ul style="list-style-type: none"> <li>i The distance between the ridges is within <math>\pm</math> 5% of the design value.</li> <li>ii The ridge height is within <math>\pm</math> 10% of the design value.</li> <li>iii The crest width of the ridge is equal to or wider than the design value.</li> </ul>	During and after construction
		Materials	QC	<ul style="list-style-type: none"> <li>i The bamboo should be at least three years old and very firm.</li> <li>ii The diameter of the galvanized steel wire should be equal to or smaller than the design value.</li> <li>iii The straw must be completely dry.</li> </ul>	Before and during planting
	Tending	Supplementary Planting	QC	<ul style="list-style-type: none"> <li>i Supplementary planting is conducted in the area specified in the Operation Plan (visual confirmation at all sub-compartments).</li> <li>ii The species and mixing ratio are those specified in the Operation Plan (visual confirmation at all sub-compartments).</li> <li>iii The combined survival rate of the originally planted trees and supplementary planted tree in the sample plots which are set up in the same manner as that described for planting is 85% or higher.</li> <li>iv The ground at the base of the supplementary planted trees in each sample plot is dug to check the depth of planting hole, the tree height, the existence of basal dressing etc. and that 99% of the supplementary planted trees meet the design values.</li> </ul>	1.5 – 2 months after supplementary planting
		Materials (Supplementary Planting)	QC	<ul style="list-style-type: none"> <li>i The same quality standards for the materials used for planting apply.</li> </ul>	Before and during supplementary planting
		Top Dressing	QC	<ul style="list-style-type: none"> <li>i A sample plot is set up as in the case of planting and the ground at the base of the planted trees is dug to confirm top dressing at 99% or more of the planted trees.</li> </ul>	Immediately after top dressing
		Materials (Top Dressing)	QC	<ul style="list-style-type: none"> <li>i The quality standards for the manure and organic fertilizer for planting equally apply.</li> </ul>	Before and during top dressing

Afforestation	Production of Seedlings	Sowing	QC	<ul style="list-style-type: none"> <li>i Sowing is conducted in accordance with the design documents.</li> <li>ii A quantity of seeds equal to or more than the design value is secured.</li> </ul>	During the work
		Nursing of Young Seedlings	QC	<ul style="list-style-type: none"> <li>i The nursing work of young seedlings is conducted in accordance with the design documents.</li> <li>ii The number of germinated seedlings equal to or more than the design value is secured.</li> <li>iii The number of healthy young seedlings equal to or more than the design value is secured.</li> </ul>	During the work
		Pot Filling	QC	<ul style="list-style-type: none"> <li>i The pot filling work is conducted in accordance with the design documents.</li> <li>ii The number of healthy potted seedlings equal to or more than the design value is secured for both seedlings grown from seeds and seedlings grown from cuttings.</li> </ul>	After the completion of the pot filling work
		Nursing of Potted Seedlings	QC	<ul style="list-style-type: none"> <li>i The nursing work of potted seedlings is conducted in accordance with the design documents.</li> <li>ii The number of healthy potted seedlings equal to or more than the design value is secured for both seedlings grown from seeds and seedlings grown from cuttings.</li> </ul>	During the work
		Packaging and Transport (Shipping)	QC	<ul style="list-style-type: none"> <li>i More than the required quantity of seedlings of which the standards conform to the design values is secured for both seedlings grown from seeds and seedlings grown from cuttings.</li> </ul>	Before transport
		Materials	QC	<ul style="list-style-type: none"> <li>i The dressing soil should be good quality red to black soil which has been sieved to achieve a uniform grain size and the removal of impurities.</li> <li>ii The manure is made of cow feces and straw and its fermentation and maturation are visible.</li> <li>iii A quality certificate should be obtained from the plant etc. for the chemical fertilizer.</li> <li>iv The straw and husks should be completely dry.</li> <li>v A quality certificate should be obtained from the plant etc. for the insecticide and fungicide.</li> <li>vi The seeds of <i>C. equisetifolia</i> must be well preserved and high quality seeds which are accompanied by a quality certificate.</li> <li>vii The rooted cuttings of <i>C. equisetifolia</i> must be healthy and high quality cuttings with a well-developed root system.</li> <li>viii The pots must conform to the design documents.</li> </ul>	Before and during the work

Afforestation	Operation Roads	Structural Dimensions of Operation Vehicle Roads, Operation Footpaths and Turnouts	QC	<ul style="list-style-type: none"> <li>i The width of the subbase is falls within the range of – 5 cm and +20 cm of the design value.</li> <li>ii In principle, the subbase thickness is equal to or thicker than the design value.</li> <li>iii The shoulder width is equal to or wider than its design value.</li> <li>iv The slope gradient is equal to or more than the design value (1:1.80).</li> <li>v The distance stakes to be installed after the work are positioned within <math>\pm 1</math> % of the design value (50 m intervals).</li> <li>vi The total length of the operation roads is at least 99% of the design value or longer</li> </ul>	During and after the work
		Materials	QC	<ul style="list-style-type: none"> <li>i The subbase materials conform to the quality and standards specified in the design documents.</li> </ul>	Before and during the work
	Setting-Up of Temporary Nursery	Nursing Beds	QC	<ul style="list-style-type: none"> <li>i The structure, shape, area and number of beds conform to those specified in the design documents.</li> </ul>	During and after the work
		Sowing Beds	QC	<ul style="list-style-type: none"> <li>i The structure, shape, area and number of beds conform to those specified in the design documents.</li> </ul>	During and after the work
		Soil Yard and Mixing Yard	QC	<ul style="list-style-type: none"> <li>i The shape and area conform to those specified in the design documents.</li> </ul>	During and after the work
		Wells	QC	<ul style="list-style-type: none"> <li>i The flow rate of groundwater into the well conforms to at least the design value.</li> </ul>	During and after the work
		Reservoirs	QC	<ul style="list-style-type: none"> <li>i The structure, shape and water storage volume conform to those specified in the design documents.</li> </ul>	During and after the work
		Buildings on Nursery Premises	QC	<ul style="list-style-type: none"> <li>i The structure, shape and floor area conform to the Operation Plan.</li> <li>ii The total length of ground excavation is within <math>\pm 1</math> % of the value specified in the Operation Plan and the depth is within <math>\pm 5</math> cm of the value specified in the Operation Plan.</li> <li>iii The thickness of the foundations is within <math>\pm 5</math> % of the value specified in the Operation Plan.</li> <li>iv The dimensions of the assembled reinforcing bars are within <math>\pm 3</math> cm of the values specified in the Operation Plan.</li> </ul>	During and after the work
	Operation Roads inside Nursery	QC	<ul style="list-style-type: none"> <li>i The standards for operation roads equally apply.</li> </ul>	During and after the work	

Afforestation	Setting-Up of Temporary Nursery	Security Fencing	QC	i The total length of security fencing is within $\pm 1\%$ of the design value.	During and after the work
		Materials (Concrete)	QC	i The maximum size of coarse aggregates is 5 cm. ii The slump value in the slump test is within $8 \pm 2$ cm. iii The minimum compressive strength as an indicator of the strength is $18 \text{ N/mm}^2$ .	Before and during the work
		Materials (Others)	QC	i Such materials used for the construction of the nursery as bricks, ground sheets, shading nets, bamboo posts, wires, subbase materials, barbed wire, etc. conform to those specified in the design documents. ii Water collection and spraying facilities, including pumps and distribution pipes, have functions which conform to those specified in the design documents. iii Such building materials as reinforcing bars, roofing materials, window frames, window glass, doors, toilet materials, power distribution facilities, distribution pipes, etc. are those specified in the Operation Plan.	Before and during the work
	Lookout towers	Earth Work	QC	i The depth of ground excavation is within $\pm 5$ cm of the design value.	During the work
		Foundation Work	QC	i The thickness of the foundations is within $\pm 5$ cm of the design value.	During the work
		Structural Dimensions of Lookout Towers	QC	i The structural dimensions (height etc.) of lookout towers are within $\pm 2\%$ of the respective design values.	During and after the work
		Securing Fencing	QC	i The total length of security fencing is within $\pm 1\%$ of the design value.	During and after the work
		Materials (Concrete)	QC	i The maximum size of the coarse aggregates is 5 cm. ii The slump value in the slump test is within $8 \pm 2$ cm. iii The minimum compressive strength as an indicator of the strength is $18 \text{ N/mm}^2$ .	Before and during the work
	Materials (Others)	QC	i The shape, dimensions, preservation treatment, etc. of wood are those specified in the design documents. ii Those used for fixing (bolts and others) will be given anti-rust treatment.	Before and during the work	

Afforestation	Project Information Signboards	Structural Dimensions of Project Information Signboards	QC	i The structural dimensions of project information signboards are within $\pm 1\%$ of the design value.	During and after the work
		Materials (Concrete)	QC	i The maximum size of the coarse aggregates is 5 cm. ii The slump value in the slump test is within $8 \pm 2$ cm. iii The minimum compressive strength as an indicator of the strength is $18 \text{ N/mm}^2$ .	Before and during the work
		Materials (Others)	QC	i Signboards, posts and fixing items will be given anti-rust treatment.	Before and during the work

## 2-2-4-6 Procurement Plan

While most of the equipment and materials required for the Project can be procured in Vietnam (see Table 2-40), procurement must be conducted in a well-planned manner as large quantities must be procured at certain times.

In particular, although the required quantity of bamboo and straw to be used for the ancillary planting works does not pose a problem, these are not readily available in the market. The timing of production must, therefore, be carefully checked and good quality bamboo and straw must be steadily procured in a systematic manner. Equipment will be used for the construction of the operation roads, production and transportation of the seedlings, maintenance and protection of the planting sites, etc. However, some of the local products lack reliability and careful attention must be paid to the capacity machinery and safety control regarding its use.

Table 2-40 Procurement Sources of the Main Equipment and Materials

Equipment / Materials	Procurement Sources			Remarks
	Vietnam	Japan	Third Country	
Tools / Materials				
Seedlings (Purchased seedlings)	○			
Planting tools (hoes, carrying poles, etc.)	○			
Manure	○			
Organic fertilizer	○			
Dressing soil	○			
Straw	○			
Bamboo	○			
Galvanized steel wire	○			
Binding cord	○			
Concrete stakes	○			
Wooden stakes	○			
Seeds of <i>C. equisetifolia</i> (For the production of seedlings)	○			
Rooted cuttings of <i>C. equisetifolia</i> (For the production of seedlings)	○			
Planting pots	○			
Chemical fertilizer	○			
Fungicide	○			
Insecticide	○			
Shading nets	○			
Sickles	○			
Transplanting trowels	○			



Buckets	○			
Watering pots	○			
Sieves	○			
Vinyl chloride pipes	○			
Simple vinyl houses	○			
Bricks	○			
Cement	○			
Crusher run (for roads)	○			
Soil with gravel	○			
Sand	○			
<b>Machinery</b>				
Ordinary trucks	○			
Back hoes	○			
Bulldozers	○			
Vibration rollers	○			
Tractors with a trailer	○			
Sprinkler trucks	○			
Water pumps	○			
Motor generators	○			
Engine pumps	○			
4 WD vehicles for patrolling use	○	○		
Motorbikes for patrolling use	○			

## 2-2-4-7 Implementation Schedule

The obligations of the Japanese side and the Vietnamese side are shown in Table 2-41. Refer to Table 2-37 in "2-2-4-3 – Scope of Work" for the types of work to be undertaken by each side during the main work (work to be conducted during the period of the Japanese assistance, i.e. APSA).

Table 2-41 Obligations of the Japanese side and the Vietnamese side

Project Stage	Japanese Side	Vietnamese Side
At the detailed design stage	<ul style="list-style-type: none"> <li>i Verification of the Japanese consultant's contract (Agreement) by the Government of Japan</li> <li>ii Site evaluation survey during the rainy season</li> <li>iii Calculation of the expected bidding price</li> <li>iv Preparation of the tender documents</li> </ul>	<ul style="list-style-type: none"> <li>i Establishment of a MB in all related organizations</li> <li>ii Signing of the B/A</li> <li>iii Issue of the A/P</li> <li>iv Detailed design contract (Agreement) with the Japanese consultant based on the E/N</li> <li>v Distribution of the planned forests to local residents</li> <li>vi Approval of the tender documents</li> </ul>
Prior to the signing of the contract for the main work (Japanese assistance)	<ul style="list-style-type: none"> <li>i Verification of the Japanese consultant's contract (Agreement) by the Government of Japan</li> <li>ii Agency work for the tender by the Japanese consultant</li> <li>iii Assistance by the Japanese consultant to facilitate the work contract (Contract)</li> <li>iv Verification of the work contract (Contract) by the Government of Japan</li> </ul>	<ul style="list-style-type: none"> <li>i Signing of the B/A</li> <li>ii Issue of the A/P</li> <li>iii Work supervision contract (Agreement) with the Japanese consultant based on the E/N</li> <li>iv Implementation of the tender</li> <li>v Signing of the work contract (Contract)</li> </ul>
During the main work	See Table 2-37	See Table 2-37
After the completion of the main work	<ul style="list-style-type: none"> <li>i Inspection for warranty against defects by the Japanese consultant</li> <li>ii Evaluation study by the Government of Japan (if required)</li> </ul>	<ul style="list-style-type: none"> <li>i Maintenance (protection) of the created coastal protection forests</li> <li>ii Maintenance of the constructed facilities</li> <li>iii Maintenance of the temporary facilities (if necessary)</li> <li>iv Extension of and awareness raising activities on the techniques to create coastal protection forests</li> <li>v Witnessing of the inspection for warranty against defects and issue of the certificate of inspection completion</li> </ul>

Table 2-42 shows the implementation schedule of the work to be undertaken by the Japanese side among the various obligations listed in Table 2-41. The area shaded in yellow in Table 2-42 indicates the rainy season. For the implementation of the work in accordance with this schedule, it will be necessary to sign the E/N twice, i.e. once for the detailed design (single year Treasury obligation) and once for the main work (project resulting in Treasury obligation), to make APSA a Type A contract resulting in Treasury obligation as outlined in Design Policy 15.



## 2-3 Obligations of Recipient Country

Table 2-43 Feasibility and Relevance of the Work to be Conducted by the Vietnamese Side

Project Stage and Work Category	Work to be Conducted by the Vietnamese Side	Feasibility / Relevance
At the detailed design stage	<ul style="list-style-type: none"> <li>i Establishment of a MB in all related organizations</li> <li>ii Signing of the B/A</li> <li>iii Issue of the A/P</li> <li>iv Detailed design contract (Agreement) with the Japanese consultant based on the E/N</li> <li>v Distribution of the planned forests to local residents</li> <li>vi Approval of the tender documents</li> </ul>	<p>These represent the minimum range of work to be conducted by the recipient country at the detailed design stage. No problems are anticipated in regard to the implementation of this work by the Vietnamese side as this work was conducted under PACSA except for "v".</p> <p>Under PACSA, "v" was conducted after the completion of the Japanese assistance (which took approximately seven months to complete). As it is customary to distribute the planned forests prior to planting work under afforestation projects in Vietnam, the execution of this forest distribution does not pose any problems.</p>
Prior to the signing of the contract for the main work (Japanese assistance)	<ul style="list-style-type: none"> <li>i Signing of the B/A</li> <li>ii Issue of the A/P</li> <li>iii Work supervision contract (Agreement) with the Japanese consultant based on the E/N</li> <li>iv Implementation of the tender</li> <li>v Signing of the work contract (Contract)</li> </ul>	<p>No problems are anticipated in regard to the implementation of this work by the Vietnamese side as this work was conducted under PACSA as in the case of the above.</p>
During the main work		
Work in General		
Permission and approval	<ul style="list-style-type: none"> <li>i Permission and approval required for the implementation of the Japanese assistance</li> </ul>	<p>No problems are anticipated in regard to the implementation of this work by the Vietnamese side as this work was conducted under PACSA as in the case of the above.</p>
Maintenance	<ul style="list-style-type: none"> <li>i Procurement of equipment (vehicles etc.) required for maintenance</li> <li>ii Patrolling and safeguarding of the planting sites, temporary facilities, permanent facilities after their handing over</li> </ul>	<p>As the purchase of vehicles using Vietnamese funds is unrealistic, it is necessary to consider the diversion of existing vehicles and other measures. In the case of an emergency, the use of the contractor's or work supervisor's vehicle will be possible. A request for budgetary appropriation has been made for the protection of the facilities after their</p>

		handing over.
Titanium mine	i Completion of the closure of the titanium mine prior to the commencement of the work (including the work to restore the original state) = removal of any obstacles to the work at the sites in question	A letter promising the withdrawal of titanium developers and eternal abandonment of the redevelopment of the titanium mine after the implementation of APSA has already been obtained from MARD and P'C of Binh Dinh Province and the feasibility of this item is very strong.
Various awareness raising (educational) activities	i Preparation of pamphlets etc. ii Meetings to explain the Project to local residents iii Forest Day events	These activities were well received in PACSA and the active commitment of the Vietnamese side to these activities is expected under APSA.
Work supervision	i Issue of the Notice of Commencement ii Witnessing of the various inspections and issue of the certificates of completion of the work and the service	This work was conducted without delay under PACSA.
Afforestation Work		
Planting and tending	i Distribution of the planned forests to local residents ii Removal of obstacles at the sites iii Coordination of labor supply iv Measures to reduce feeding damage by cattle and other farm animals (coordination work) v Measures to combat disease and pests vi Measures to combat forest fires vii Measures to combat the theft of the planted trees viii Explanation of the Project to and request for the cooperation of local residents	"i" has already been described earlier. In regard to "ii", no special obstacles were found at the project sites at the time of the field survey except titanium mine. No such obstacles were found under PACSA. Minor obstacles can be moved to left-over areas. While "iii" through "viii" were attempted under PACSA, some did not function as planned at some sites. Therefore, constant reminding by the Japanese side (contractor and work supervisor) will be required for the Project. Unlike PACSA, persons in charge of maintenance (protection) will be appointed prior to planting under the Project and it is expected that the necessary responses will be quickly made.
Procurement of seedlings	i Coordination with existing nurseries and related organizations	This work was conducted under PACSA. No problems are anticipated as this work is routinely conducted by the Vietnamese side.
Construction of operation roads	i Construction of access roads (construction and maintenance) Quang Nam Province : 600 m (two sites) Quang Ngai Province : none Binh Dinh Province : none	As similar work was conducted under PACSA, no problems are anticipated. A request for budgetary appropriation to cover the necessary expenses has been made.

Creation of temporary nursery	<ul style="list-style-type: none"> <li>i Removal of obstacles from the planned nursery site</li> <li>ii Extension of power supply to auxiliary facilities</li> </ul>	<p>In regard to "i", no obstacles posing any special problems were found at the time of the field survey. No such obstacles were found under PACSA. Minor obstacles can be dealt with by means of slightly changing the planned nursery site (as it will be located inside a compartment).</p> <p>In regard to "ii", this work was conducted at some sites under PACSA and a request for budgetary appropriation to cover the expenses has been made.</p>
Construction of lookout towers	<ul style="list-style-type: none"> <li>i Maintenance of the towers after handing over</li> </ul>	<p>A request for budgetary appropriate to cover the maintenance cost after handing over has been made.</p>
Installation of project information signboards	<ul style="list-style-type: none"> <li>i Provision of land</li> <li>ii Maintenance of the signboards after handing over</li> </ul>	<p>No problems are anticipated in regard to "i" as this work was conducted under PACSA. In regard to "ii", a request for budgetary appropriation to cover the maintenance cost has been made.</p>
After the completion of the main work	<ul style="list-style-type: none"> <li>i Maintenance (protection) of the created coastal protection forests</li> <li>ii Maintenance of the constructed facilities</li> <li>iii Maintenance of the temporary facilities (if necessary)</li> <li>iv Extension of and awareness raising activities on the techniques to create coastal protection forests</li> <li>v Witnessing of the inspection for warranty against defects and issue of the certificate of inspection completion</li> </ul>	<p>Maintenance (protection) during the implementation period of Japanese assistance posed a particular problem under PACSA. Maintenance (protection) by the Vietnamese side after the completion of Japanese assistance did not produce any special problems under PACSA. Therefore, no special problems are anticipated under the Project.</p>

## 2-4 Project Operation Plan

### (1) Operation and Maintenance System

The Project will be managed by MARD which is responsible body for the implementation of the Project at the central government level and DARDs which are the implementation body for the Project at the provincial level. During the implementation period of the Japanese assistance, a MB will be set up in each of the above organizations. It is planned that APSA will be implemented through collaboration between these MBs and the Japanese side. The MBs will be dissembled after the completion of APSA and MARD and DARDs will become responsible for continued operation and maintenance for the Project. Even if MBs are dissembled, their staff members will continue to perform their duties. This means that the operation and maintenance system following the end of APSA will essentially remain the same.

### (2) Maintenance (Protection) by Local Residents

From the viewpoint of guaranteeing the proper maintenance (protection) of the coastal protection forests, forests to be created will be distributed to local residents prior to the planting by the Vietnamese side. The maintenance (protection) of the forests will, therefore, be conducted under the guidance of DARD by the local residents to which the forests have been distributed. The maintenance (protection) cost, however, will be borne by the Japanese side during the work period in each term. In the period from the handing over to the commencement of the next work, the cost will be borne by the Vietnamese side. The funding side for the maintenance (protection) work will, therefore, alternate between the Japanese side and the Vietnamese side during the implementation period of Japanese assistance, but the local residents to whom the forests have been distributed will be responsible for conducting the actual work.

After the completion of APSA, the Project will become part of the 661 Program<sup>1</sup> as in the case of PACSA and the funding for maintenance (protection) work will be guaranteed. DARD in each province will continually play a leading role and its staff members will patrol the project sites and provide strict guidance for local residents to ensure proper maintenance (protection).

The equipment (4WD wagons and motorbikes) required for smooth patrolling will be secured by the Vietnamese side and it is planned that MARD and DARDs will jointly provide the budget and manpower required for the operation and maintenance of the coastal protection forests.

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<sup>1</sup> The 661 Program (Decision No. 661/QD-TTg by the Prime Minister) in 1998 is a more detailed program of 5MHRP which was passed by the National Assembly in 1997. It lists such targets as the establishment of headwater areas, promotion of agriculture for permanent settlement, improved income for ethnic people living in mountain areas, etc. while principally aiming at the afforestation/reforestation and protection of existing forests over an area of five million hectare.



## 2-5 Project Cost Estimation

### 2-5-1 Initial Cost Estimation

The total project cost to implement the requested Japanese assistance is estimated to be ¥ 1,169 million, the breakdown of which based on the obligations of each side is explained below. This cost estimation is provisional and would be further examined by the Government of Japan for the approval of the Grant.

#### (1) Project Cost to be Borne by the Japanese Side

Table 2-44 Project Cost to be Borne by the Japanese Side

Project Cost Component	Japanese Yen
(1) Afforestation Cost	877 million
1) Direct Cost	( 533 )
2) Common Temporary Cost	( 55 )
3) On Site Expenses	( 227 )
4) Overhead	( 62 )
(2) Design and Supervision Cost	215 million
<b>Total</b>	<b>1,092 million</b>

**(2) Project Cost to be Borne by the Vietnamese Side**

Table 2-45 Project Cost to be Borne by the Vietnamese Side

Project Cost Component	Amount		Breakdown
	Local Currency	Conversion to Japanese Yen	
① Witnessing of Detailed Design	21.300 million VND	Approx. ¥ 0.16 million	① Air Travel Cost 825,000 VND/one way × 2 return trips = 3,300,000 VND ② Accommodation Cost 300,000 VND/night × 60 nights = 18,000,000 VND
② Awareness Raising	760.000 million VND	Approx. ¥ 5.54 million	① Publication Cost of Pamphlet 40,000,000 VND/issue × 7 issues = 280,000,000 VND ② Forest Day Event Cost 40,000,000 VND/event × Province × 4 events × 3 Province = 480,000,000 VND
③ Witnessing of Inspection	76.500 million VND	Approx. ¥ 0.56 million	① Air Travel Cost 825,000 VND/one way × 10 return trips = 16,500,000 VND ② Accommodation Cost 300,000 VND/night × 20 nights × 10 times = 60,000,000 VND
④ Distribution of the project site land to local residents	985.500 million VND	Approx. ¥ 7.18 million	① Quang Nam Province 400,000 VND/ha × 570.52 ha = 228,208,000 VND ② Quang Ngai Province 400,000 VND/ha × 409.61 ha = 163,844,000 VND ③ Binh Dinh Province 400,000 VND/ha × 1,483.62 ha = 593,448,000 VND
⑤ Disease and Harmful Insect Control Cost	600.000 million VND	Approx. ¥ 4.37 million	① Quang Nam Province 36,000,000 VND/year × 4 years = 144,000,000 VND ② Quang Ngai Province 24,000,000 VND/year × 4 years = 96,000,000 VND ③ Binh Dinh Province 90,000,000 VND/year × 4 years = 360,000,000 VND
⑥ Construction and Repair of Operation Roads	544.800 million VND	Approx. ¥ 3.97 million	① Quang Nam Province : Construction 600 m × 400,000 VND/m = 240,000,000 VND ② Quang Nam Province : Maintenance 600 m × 127,000 VND/m × 4 times = 304,800,000 VND ③ Quang Ngai Province 0 VND ④ Binh Dinh Province 0 VND
⑦ Extension of Power Supply to Nursery-Related Facilities	32.000 million VND	Approx. ¥ 0.23 million	① Binh Dinh Province 32,000,000 VND/work × 1 work = 32,000,000 VND
⑧ Maintenance Cost of Lookout Towers	224.000 million VND	Approx. ¥ 1.63 million	① Quang Nam Province 14,000,000 VND × 1 × 4 years = 56,000,000 VND ② Quang Ngai Province 14,000,000 VND × 1 × 4 years = 56,000,000 VND ③ Binh Dinh Province 14,000,000 VND × 2 × 4 years = 112,000,000 VND
⑨ Maintenance Cost of Project Information Signboards	185.000 million VND	Approx. ¥ 1.35 million	① Quang Nam Province 11,000,000 VND × 2 + 7,000,000 VND × 2 = 36,000,000 VND ② Quang Ngai Province 11,000,000 VND × 2 + 7,000,000 VND × 6 = 64,000,000 VND ③ Binh Dinh Province 11,000,000 VND × 2 + 7,000,000 VND × 9 = 85,000,000 VND
⑩ MB Operation Cost	6,930.000 million VND	Approx. ¥ 50.52 million	MARD 30,000,000 VND/month × 67 months = 2,010,000,000 VND Q.Nam DARD 15,000,000 VND/month × 66 months = 990,000,000 VND Q.Ngai DARD 15,000,000 VND/month × 66 months = 990,000,000 VND B.Dinh DARD 15,000,000 VND/month × 66 months = 990,000,000 VND P'C of T.Binh Dist. 7,500,000 VND/month × 65 months = 487,500,000 VND P'C of D.Pho Dist. 7,500,000 VND/month × 65 months = 487,500,000 VND P'C of P.My Dist. 7,500,000 VND/month × 65 months = 487,500,000 VND P'C of P.Cat Dist. 7,500,000 VND/month × 65 months = 487,500,000 VND
⑪ Maintenance (Protection) of the Coastal Protection Forests by Local Residents	319.127 million VND	Approx. ¥ 2.33 million	Term-1 100,000 VND/ha-yrs × 0 ha × 0 yrs = 0 VND Term-2 100,000 VND/ha-yrs × 1,044.42 ha × 0.083 yrs = 8,704,000 VND Term-3 100,000 VND/ha-yrs × 1,044.42 ha × 0.417 yrs = 43,518,000 VND Term-4 100,000 VND/ha-yrs × 2,463.75 ha × 0.083 yrs = 20,531,000 VND Term-5 100,000 VND/ha-yrs × 2,463.75 ha × 0.417 yrs = 102,656,000 VND Term-6 100,000 VND/ha-yrs × 2,463.75 ha × 0.083 yrs = 20,531,000 VND Term-7 100,000 VND/ha-yrs × 2,463.75 ha × 0.417 yrs = 102,656,000 VND
Total	10,678.227 million VND	Approx. ¥ 77.84 million	

**(3) Estimation Conditions**

- i Time of estimation February, 2007
- ii Foreign exchange rates US\$ 1 = ¥ 116.45 = VND 15,966  
VND 1 = ¥ 0.00729
- iii Work period The Japanese assistance will be implemented as a Type A project resulting in Treasury obligation. The detailed design period and work period are those shown in the project implementation schedule (see Table 2-39).
- iv Others The Japanese assistance will be implemented in accordance with the grant aid scheme of the Government of Japan.

## 2-5-2 Operation and Maintenance Cost

The operation and maintenance of the Project after the completion of the Japanese assistance will be conducted by MARD at the central government level and also by DARDs at the provincial level. The cost of such operation and maintenance is roughly estimated as shown in Table 2-46. It is expected that the forest maintenance (protection) cost will be met by the 661 Program while other costs will mainly be met by DARD budget in each province.

The subject period for this cost estimation is 20 years after the completion of the Japanese assistance as in the case of PACSA and all figures are rough estimates which do not take the rate of price inflation and others into consideration.

Table 2-46 Operation and Maintenance Cost

Project Cost Component	Amount		Breakdown
	Local Currency	Conversion to Japanese Yen	
① Disease and Harmful Insect Control Cost	3,000.000 million VND	Approx.¥ 21.87 million	① Quang Nam Province 36,000,000 VND/year × 20 years = 720,000,000 VND ② Quang Ngai Province 24,000,000 VND/year × 20 years = 480,000,000 VND ③ Binh Dinh Province 90,000,000 VND/year × 20 years = 1,800,000,000 VND
② Maintenance Cost of Lookout Towers	560.000 million VND	Approx.¥ 4.08 million	① Quang Nam Province 14,000,000 VND × 1 × 10 years = 140,000,000 VND ② Quang Ngai Province 14,000,000 VND × 1 × 10 years = 140,000,000 VND ③ Binh Dinh Province 14,000,000 VND × 2 × 10 years = 280,000,000 VND
③ Maintenance Cost of Project Information Signboards	740.000 million VND	Approx.¥ 5.39 million	① Quang Nam Province 36,000,000 VND × 4 times = 144,000,000 VND ② Quang Ngai Province 64,000,000 VND × 4 times = 256,000,000 VND ③ Binh Dinh Province 85,000,000 VND × 4 times = 340,000,000 VND
④ Maintenance (Protection) of the Coastal Protection Forests by Local Residents	4,927.500 million VND	Approx.¥ 35.92 million	① Quang Nam Province 100,000 VND/ha-yrs × 570.52 ha × 20 yrs = 1,141,040,000 VND ② Quang Ngai Province 100,000 VND/ha-yrs × 409.61 ha × 20 yrs = 819,220,000 VND ③ Binh Dinh Province 100,000 VND/ha-yrs × 1,483.62 ha × 20 yrs = 2,967,240,000 VND
Total	9,227.500 million VND	Approx.¥ 67.26 million	

## 2-6 Other Relevant Issues

The issues which could directly affect the smooth implementation of APSA are discussed below.

### (1) Important Issues Relating to the Obligations of the Recipient Country

The conclusion has already been reached that all types of the work to be conducted by the recipient country under APSA (see Table 2-43) are highly feasible as similar work was conducted under PACSA. The issues which could significantly affect the smooth implementation of APSA are pointed out again in Table 2-47.

In short, the smooth implementation of APSA will be difficult unless those issues listed below are smoothly conducted by the Vietnamese side.

Table 2-47 Important Points Relating to the Undertakings of the Recipient Country and Their Detailed Description

Project Stage and Work Category	Important Points	Detailed Description
At the detailed design stage	Distribution of the planned forests to local residents	In Vietnam, forest maintenance (protection) is generally left to local residents. This distribution means agreement prior to the commencement of the work regarding who will be responsible for the maintenance (protection) of which forests. The relevant policy varies from one province to another. It is even planned to temporarily allocate forests to organizations and not to individual residents. Either way, unless the persons (organizations) responsible for forest maintenance (protection) during the implementation period of the Japanese assistance are decided in advance, there is a risk that the work will be delayed or that Japanese assistance may even be suspended. It is, therefore, essential to check the progress situation in this regard with the Vietnamese side at the detailed design stage.
During the main work		
Maintenance	Procurement of the equipment (vehicles etc.) required for the maintenance work by the Vietnamese side	Although no vehicles will be provided under Japanese assistance, this will not alter the need for vehicles to conduct the maintenance work. The current situation is that the Vietnamese side is finding it difficult to procure new vehicles. Although the use of existing vehicles is considered, there is concern in regard to diminished opportunities for staff members of the implementation organizations to visit the project sites compared to PACSA. It is necessary for the supervisor and contractor to actively create opportunities for site visits.

Titanium mine	Completion of the closure of the titanium mine prior to the commencement of the work (including the work to restore the original state) = removal of any obstacles to the work at the sites in question	The P’C in Binh Dinh Province has promised to withdraw the titanium mining operation which is currently taking place at some of the project sites and to restore the original state of the land prior to the commencement of the main work under the Project. It has also sent a letter promising that titanium mining operation will not re-start after planting. Unless the Vietnamese side keeps these promises, the implementation of Japanese assistance will become extremely difficult. It is, therefore, necessary to constantly monitor the situation from the work implementation stage.
Planting and tending	Measures to reduce feeding damage by cattle and other farm animals (coordination work)	This is listed here in reflection of the fact that feeding damage occurred at some of the PACSA sites as there was a delay in dealing with this issue. Two measures, i.e. (i) intensified patrols by those responsible for forest maintenance (protection) and (ii) intensified coordination, including a request that cattle and other animal owners cooperate with the Project, are necessary to reduce the feeding damage caused by farm animals. As the situation regarding (i) has improved compared to the situation under PACSA because of the advance appointment of the people responsible for forest maintenance (protection) during the implementation period of the main work, the staff members of MB should be approached to conduct (ii) in an appropriate manner.
	Measures to combat disease and pests	As in the case of feeding damage, the implementation of measures to deal with disease and pest damage was somewhat slow under PACSA. The required measures are (i) the establishment of a system where the discovery of the occurrence of disease or pest damage by a person responsible for forest maintenance (protection) quickly reports such discovery and (ii) quick response to reported damage by MB. Repeated discussions with the Vietnamese side are required to ensure the implementation of these measures.
	Measures to combat forest fires	Fortunately, no large-scale forest fire occurred during the implementation period of PACSA. As there is no guarantee that no large-scale forest fire will occur during the implementation period of APSCA, the establishment of a system whereby the discovery of a forest fire by a person responsible for forest maintenance (protection) prompts the quick commencement of fire-fighting activities is essential. There are some measures which can be implemented by the Japanese side in advance, including monitoring of the progress of the work to establish the said system by the Vietnamese side and the operating situation of such system.
	Measures to combat the theft of the planted trees	This issue is also listed here because of the reflection of what occurred under PACSA. Two measures are required to minimize the theft of the planted trees: (i) intensified patrols by the persons responsible for forest maintenance (protection) and (ii) intensified requests for local residents in a wider area to cooperate with the Project. The situation regarding (i) has improved compared to the situation under PACSA because of the advance appointment of the persons responsible for forest maintenance (protection) during the implementation period of the main work. In regard to (ii), staff members of MB should be approached to appeal for the cooperation of not only the representatives of communes but also that of all residents, including children.

Planting and tending	Explanation of the Project to and request for the cooperation of local residents	In addition to the important points listed above, it is extremely important to explain the contents of the Project and to request the cooperation of local residents around the project sites to facilitate their favorable understanding of the Project. As in the case of the above important points, staff members of MB should be approach to facilitate the understanding and cooperation for the Project among local residents.
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## **(2) Continual Long-Term Maintenance System**

### **1) Maintenance System**

Following the completion of APSA, the Project will be incorporated in the 661 Program as in the case of PACSA. By these means, it is planned that MARD and DARD will jointly secure the budget and manpower required for long-term forest maintenance and protection. It is envisaged that DARD will provide continuous guidance for local residents through patrols and other activities to ensure appropriate forest maintenance and protection by local residents in each province.

After the handing over of the forests to the Vietnamese side, the forests will start to experience crown closure in 5 – 10 years time, making adequate improvement cutting and thinning necessary to ensure the continual healthy growth of the forests in subsequent years. As these coastal protection forests are classified as protection forests which can be used to obtain thinned wood, forest products and non-wood products (Decision No. 661/QD-TTg by the Prime Minister), the formulation of a long-term rational forest management plan is essential.

For continual appropriate maintenance and protection for a long period of time, the clear establishment of where the responsibility for forest maintenance and protection lies is also important at not only the provincial level but also at the district as well as commune levels to firmly establish the practice of resident-led forest maintenance (protection) as the newly created coastal protection forests will be distributed over a wide area.

### **2) Survey Records**

The continuation of the surveying conducted during the period of the Japanese assistance after the completion of APSA is essential to record and analyze the situation of tree growth over a long period of time so that the protection forest creation techniques in Vietnam can be improved. In regard to casuarina in particular, continual survey records will prove vital for healthy growth as such records covering a long period of time are scarce throughout the world. The importance of these records is also evident because of the absence of concrete technical standards for improvement cutting and thinning at coastal forests.

## **Chapter 3 Project Evaluation and Recommendations**

## Chapter 3 Project Evaluation and Recommendations

### 3-1 Project Effect

The implementation of the Project can be expected to have the various effects listed in Table 3-1.

Table 3-1 Project Effects

Present Situation and Problems	Improvement Measures under Japanese Assistance	Direct Effects and Degree of Improvement	Indirect Effects and Degree of Improvement
Due to the lack of coastal protection forests, damage by shifting sand, strong winds, sand movement, etc. occurs, disrupting the lives of local residents who live near coastal sandy sites.	Creation of coastal protection forests	<ul style="list-style-type: none"> <li>i Creation of coastal protection forests with an average tree height of 1 m or more over 2,000 ha (some 80% of the total area of the project sites) in coastal sandy area which are experiencing the severe sand movement.</li> <li>ii Reduction of the damage caused by shifting sand, strong winds, sand movement, etc. to agricultural as well as fishing villages (decrease of the ratios of local households which have experienced damage by strong winds and shifting sand from 86.5% and 68.8% respectively).</li> </ul>	<ul style="list-style-type: none"> <li>i The new forests will provide minor sources for the absorption of CO<sub>2</sub> in the air, contributing to the prevention of global warming.</li> <li>ii The new forests will contribute to the conservation of the natural environment and the enhancement of biodiversity in coastal areas.</li> <li>iii The continual forest maintenance work will increase the employment opportunities for local residents.</li> <li>iv Firewood and organic matters will be supplied through the continual forest maintenance work.</li> <li>v The productivity of farmland and fisheries facilities near the coastal protection forests will improve.</li> <li>vi New housing land, farmland and fisheries facilities will be created near the coastal protection forests.</li> <li>vii The coastal protection forests will function as tide control forests, alleviating the damage caused by high tide and tsunami.</li> </ul>

Along with the effects identified in the table above, various indicators for the achievements of the Project will also be used as shown in the table below.

<b>Objectively Verifiable Indicators for the Outputs</b>	More than 2,000 ha (approximately 80% of the total project area and 0 ha under the present situation) of coastal protection forests with a mean tree height of 1 m or more will have been created one year after (in the first rainy season) the completion of the Japanese assistance.
<b>Objectively Verifiable Indicators for the Project Purpose</b>	<ul style="list-style-type: none"> <li>i The number (ratio) of local households damaged by strong winds will be found to have decreased in a questionnaire survey to be conducted at least five years after the completion of the Japanese assistance (at the time of the Basic Design Study, 86.5% or 386 households out of 446 households were damaged by strong wind every year).</li> </ul>



- ii The number (ratio) of local households damaged by shifting sand will be found to have decreased in a questionnaire survey to be conducted at least five years after the completion of the Japanese assistance (at the time of the Basic Design Study, 68.8% or 307 households out of 446 households were damaged by shifting sand every year).

### **(1) Objectively Verifiable Indicators for the Outputs**

A target indicator value of 80% is adopted on the grounds that the fact-finding survey on the forest conditions conducted at the time of the Inspection of Warranty against Defects (which took place toward the end of the first rainy season after the completion of the Japanese assistance) for PACSA found that the general survival rate for the newly created coastal protection forests was 81%. Compared to PACSA, the growth conditions under the present Project are inferior because of the fact that the Project will be implemented in technically more difficult areas. At the same time, however, it is judged that a survival rate similar to that of PACSA can be achieved through a review of the soil improvement agents and fertilizers and lengthening of the tending period in view of the problems encountered by PACSA.

In regard to the tree height, the average tree height of newly planted trees is assumed to be at least 1 m even in severe moving sand areas based on the relationship between the height of the sand control hedging above the ground (1.7 m) and the range of the wind protection effect (20 – 25 times the said height).

The selection of the end of the rainy season for the timing for evaluation is based on the fact that the defoliation of the planted trees in the dry season will make it difficult to judge whether the trees are alive or dead.

### **(2) Objectively Verifiable Indicators for the Project Purpose**

As described in "1-3-3 – Environmental and Social Considerations", of the 446 questionnaire respondents who live near the project sites, 386 respondents or 86.5% experience damage by strong winds almost every year while 307 or 68.8% experience damage by shifting sand almost every year. The use of the damage ratios as indicators allows the measurement of how much the damage to households by strong winds and shifting sand has been reduced.

While the effect of a coastal protection forest to prevent damage by shifting sand can be realized relatively soon after planting, the effect of protection against strong winds cannot be readily felt unless the planted trees grow to a certain height. Given the total project period of 25 years, it is unrealistic to evaluate the Project after its completion as in the case of other ordinary projects. For this reason, the timing for evaluation is set at the fifth year or later from the completion of the Japanese grant aid cooperation as local residents will still be able to remember the Inputs, i.e. the said cooperation. This

timing is also preferable as it can be assumed that the effects of the protection against strong winds and shifting sand will commence around that time.

The questionnaire survey conducted as part of the Study found that damage by strong winds and shifting sand to local residents was greater than initially believed. However, because of the lack of a detailed survey on the exact nature and frequency of the damage, it is not possible to state what types of damage can be reduced and by how much in a concrete manner. It is, therefore, necessary to conduct a detailed baseline survey at the detailed design stage to further elaborate these indicators.

## 3-2 Recommendations

### 3-2-1 Pending Tasks to be Tackled by the Recipient Country and Recommendations

The Vietnamese side must deal with the following tasks which are necessary to achieve and sustain the project effects.

#### **(1) Forest Maintenance**

The implementation of forest maintenance and protection by the Vietnamese side is the key to the continued achievement of the project effects. Based on reflections on PACSA, it has been decided to appoint those responsible for forest maintenance and protection (mainly local residents), prior to the commencement of the work. As a result, the forest maintenance system during the implementation period of the Japanese assistance will be strengthened.

The forest maintenance work by the Vietnamese side after the completion of the Japanese assistance received certain positive appraisal in PACSA. However, the forests will experience crown closure 5 – 10 years after the implementation of the Japanese assistance and improvement cutting and thinning will be required to ensure the healthy growth of the trees in the subsequent years. As the coastal protection forests created under the Project are classified as protection forests which can be used to obtain thinned wood, forest products and non-wood products, the formulation of a long-term and rational forest management plan is necessary.

The South Central Coast Region where the project sites are located is currently experiencing waves of development in various sectors. Intensive discussions on appropriate forest maintenance and utilization methods will be necessary with the organizations concerned so that the newly created protection forests under the Project will continually perform their protection forest function at a high level for as long as possible. These discussions should include the procedure to permit the conversion of land use from forest in certain cases in connection with other development activities.

## **(2) Extension of Coastal Protection Forest Creation Techniques**

The higher program for the Project is 5MHRP which includes an aim at the creation of 100,000 ha of coastal protection forests nationwide. As the total area of the coastal protection forest compartments created by PACSA and the Project will be only slightly more than 6,000 ha, the continuous implementation of projects similar to the present Project throughout Vietnam using the techniques adopted under the Project as well as those which have been modified and improved to reflect the local conditions is necessary to achieve the target of 5MHRP.

The inclusion of a soft component program in APSA has been abandoned due to the perceived difficulty of effectively implementing a soft component program and, therefore, the Vietnamese side will be entirely responsible for education and extension activities. Accordingly, sufficient capacity on the Vietnamese side to effectively conduct extension activities and to formulate plans is required to make the best use of the Project as a model for future projects.

### **3-2-2 Technical Cooperation and Collaboration with Other Donors**

In the course of the Study as well as the implementation of PACSA, the feasibility of providing various types of technical cooperation, including the dispatch of short-term experts, long-term experts and/or JOCV members and project-type technical cooperation, has been continually examined and the application of any of these schemes has not been realized for the following reason; In the case of a large-scale simultaneous afforestation project like the present Project, the main activities include forest management as well as disease and pest control after the planting work but these activities alone are not sufficient to qualify for technical cooperation by Japan. As the Vietnamese side conducted certain forest maintenance activities under PACSA, what it wants from Japan is financial assistance for measures to improve forests of poor growth, disease and pest control, etc. There has been no request by the Vietnamese side for technical assistance.

What remains possible at present is technical cooperation for rural development around the project sites. This technical cooperation could be conducted to examine how to utilize the coastal protection forests created under the Project from the viewpoint of integrated regional development which incorporates not only issues related to forestry but also issues related to agriculture, fisheries, irrigation, health care, poverty reduction, industrial development and gender. In any case, it is necessary to narrow the possible targets for further Japanese cooperation through continuous discussions with the Government of Vietnam in the course of project implementation in the coming years.

Meanwhile, various recommendations can be made in regard to collaboration with other donors. In Vietnam, donors have agreed with a policy of creating forests in mountain areas with funding by the WB, KFW, JBIC, etc. and of creating coastal forests with Japanese grant aid. However, as one of the

original purposes of Japanese grant aid is to provide a model for self-reliant extension afterward, it will not be easy to add a second or third phase to APSA. Given the prospect that many pending issues relating to the effectiveness of a coastal afforestation project and technical matters are to be solved with the implementation of the Project, it will not be impossible to proceed with the further creation of coastal protection forests based on ODA loans linked to small-scale AR-CDM projects and/or small-scale AR-CDM projects by private (afforestation) companies.

There is a definite need for continuous examination of how to realize the bridging role of the Project from the viewpoints described above to facilitate the implementation of similar projects so that the creation of coastal protection forests will become widespread in Vietnam.

## **Appendices**

- 1. Member List of the Study Team**
- 2. Study Schedule**
- 3. List of Parties Concerned in the Recipient Country**
- 4. Minutes of Discussions**
- 5. Other Relevant Data**
- 6. References**

## 1. Member List of the Study Team

## (1) Field Survey

Name	Job Title	Occupation
Mr. Yasuhiro TOJO	Leader	Deputy Resident Representative, JICA Vietnam Office, JICA
Mr. Shunji SHIMIZU	Technical Advisor	Assistant Director, International Forestry Cooperation Office, Forestry Agency
Mr. Hiroshi NAKAMURA	Coordinator	Rural Development Team, Project Management Group III, Grant Aid Management Dept., JICA
Mr. Takao ISOBE	Chief Consultant (Project Manager) / Forest Management Planner	Director, Japan Forest Engineering Consultants (JFEC)
Mr. Takeshi YAMASE	Afforestation Planner 1 / Nursing Planner	Japan Forest Engineering Consultants (JFEC)
Mr. Masayoshi SHINAGAWA	Afforestation Planner 2 / Natural Condition Survey	Japan Forest Engineering Consultants (JFEC)
Mr. Masayuki TOJO	Construction Planner / Cost Estimation	Japan Forest Engineering Consultants (JFEC)
Mr. Hirofumi YAMAGUCHI	Support for the Study Team	Japan Forest Engineering Consultants (JFEC) (Self funded Consultant Member)
Ms. Yoshiko FUSE	Support for the Study Team (Interpreter)	Japan Forest Engineering Consultants (JFEC) (Self funded Consultant Member)

## (2) Explanation of Draft Final Report

Name	Job Title	Occupation
Mr. Yasuhiro TOJO	Leader	Deputy Resident Representative, JICA Vietnam Office, JICA
Mr. Takao ISOBE	Chief Consultant (Project Manager) / Forest Management Planner	Director, Japan Forest Engineering Consultants (JFEC)
Mr. Masayoshi SHINAGAWA	Afforestation Planner 2 / Natural Condition Survey	Japan Forest Engineering Consultants (JFEC)
Mr. Takeshi YAMASE	Afforestation Planner 1 / Nursing Planner Support for the Study Team	Japan Forest Engineering Consultants (JFEC) (Self funded Consultant Member)
Ms. Yoshiko FUSE	Support for the Study Team (Interpreter)	Japan Forest Engineering Consultants (JFEC) (Self funded Consultant Member)

## 2. Study Schedule

## (1) Field Survey

		Tentative Itinerary of Basic Design Study on the Afforestation Project on Sandy Area (1/3)		Mr.Masayoshi SHINAGAWA (Consultant members)
				Mr.Masayuki TOJO, Mr.Hirofumi YAMAGUCHI (Consultant members)
1	7/30 Sun	Mr. Yasuhiro TOJO, Mr. Shunji SHIMIZU, Mr. Hiroshi NAKAMURA (JICA members) Mr. Takao ISOBE, Mr. Takeshi YAMASE, Ms. Yoshiko FUSE (Consultant members)	Arrival at Hanoi 14:30 (JL5135/VN955)	Arrival at Hanoi 14:30 (VN955)
2	7/31 Mon	am: Meeting at JICA and Embassy of Japan pm: Courtesy call to MPI Courtesy call and Meeting at MARD (Explanation of Inception Report)	am: Preparation for Field Study pm: Courtesy call and Meeting at MARD (Explanation of Inception Report)	
3	8/1 Tue	(Except Mr. TOJO) am: Move to Project Sites (Hanoi > Da Nang > Tam Ky) pm: Meeting with DARDs of 4 Provinces in Quang Nam Province (Explanation of Inception Report)	Move to Project Sites Visit to Quang Nam and Quang Ngai Province for the contract on Perimeter Survey (Mr. TOJO)	
4	8/2 Wed	(Except Mr. TOJO) am: Meeting at JFEC Tam Ky Office pm: Move to Hanoi (Tam Ky > Da Nang > Hanoi)	Visit to Khanh Hoa and Binh Dinh Province for the contract on Perimeter Survey (Mr. YAMAGUCHI)	
5	8/3 Thu	am: Meeting on M/D at JICA pm: Meeting on M/D at MBFP		
6	8/4 Fri	am: Internal Meeting pm: Meeting with MARD and Signing of M/D		
7	8/5 Sat	Internal Meeting		Arrival at Hanoi 14:30 (VN955)
8	8/6 Sun			
9	8/7 Mon	am: Meeting at MBFP pm: Meeting at MBFP Report to JICA and Embassy of Japan (Mr. SHIMIZU and Mr. NAKAMURA only) Departure for Narita 23:50 (JL5136)		am: Preparation for Field Study pm: Meeting at MBFP Report to JICA and Embassy of Japan

## Tentative Itinerary of Basic Design Study on the Afforestation Project on Sandy Area (2/3)

		Mr. Takao ISOBE, Mr. Hirofumi YAMAGUCHI, Ms. Yoshiko FUSE (Consultant members)	Mr. Takeshi YAMASE, Mr. Masayoshi SHINAGAWA, Mr. Masayuki TOJO (Consultant members)	
10	8/8	(Mr. ISOBE and Ms. FUSE) Move to Project Sites (Hanoi > Da Nang > Tam Ky) (Mr. YAMAGUCHI)	(Mr. YAMASE and Mr. SHINAGAWA) Move to Project Sites (Hanoi > Nha Trang) (Mr. TOJO) Move from Quang Ngai to Nha Trang	
11	8/9	Field Study in Quang Nam Province	Field Study in Khanh Hoa Province	
12	8/10	Field Study in Quang Ngai Province		
13	8/11	Field Study in Binh Dinh Province	Field Study in Binh Dinh Province	
14	8/12	Field Study in Phu Yen Province		
15	8/13	Field Study in Khanh Hoa Province	Field Study in Phu Yen Province	
16	8/14			
17	8/15			
18	8/16			
19	8/17			
20	8/18			
21	8/19			
22	8/20			
23	8/21			
24	8/22			
25	8/23			
26	8/24	(Mr. ISOBE and Ms. FUSE) Move to Hanoi (Nha Trang > Hanoi) (Mr. YAMAGUCHI) Move to Quang Ngai	(3 Persons with Mr. YAMAGUCHI) Field Study in Quang Ngai Province	
27	8/25	(Mr. ISOBE and Ms. FUSE) Report to JICA Classification of Materials		
28	8/26	(Mr. ISOBE and Ms. FUSE) Classification of Materials		
29	8/27			
30	8/28	(Mr. ISOBE and Ms. FUSE) Meeting at MBFP Departure for Narita 23:50 (VN954)	(3 Persons with Mr. YAMAGUCHI) am: Meeting with Quang Ngai DARD pm: Meeting with Quang Nam DARD	



Tentative Itinerary of Basic Design Study on the Afforestation Project on Sandy Area (3/3)

		Mr. Takeshi YAMASE (Consultant members)	Mr. Masayuki TOJO (Consultant members)	Mr. Masayoshi SHINAGAWA, Mr. Hirofumi YAMAGUCHI (Consultant members)
31	8/29	Tue	Field Study in Quang Nam Province	Field Study in Quang Nam Province
32	8/30	Wed		
33	8/31	Thu	Field Study in Quang Ngai Province	Field Study in Quang Ngai Province
34	9/1	Fri		
35	9/2	Sat	Classification of Materials due to a National Holiday	Classification of Materials due to a National Holiday
36	9/3	Sun	Move from Quang Ngai to Nha Trang	Move from Quang Ngai to Tam Ky
37	9/4	Mon	Classification of Materials due to a Monday Make-up Holiday	Classification of Materials due to a Monday Make-up Holiday
38	9/5	Tue	Inspection of Perimeter Survey in Khanh Hoa Province Witnessing of Meeting with MARD, DARD and P/C	Inspection of Perimeter Survey in Quang Nam Province and Quang Ngai Province
39	9/6	Wed		Gathering Materials in Quang Nam Province and Quang Ngai Province
40	9/7	Thu	Inspection of Perimeter Survey in Binh Dinh Province	
41	9/8	Fri	Witnessing of Meeting with MARD, DARD and P/C	
42	9/9	Sat	Gathering Materials in Binh Dinh Province	
43	9/10	Sun		Move to Hanoi (Tam Ky > Da Nang > Hanoi)
44	9/11	Mon		Report to MARD Departure for Narita 23:50 (VN954)
45	9/12	Tue	Move from Quy Nhon to Da Nang	
46	9/13	Wed	Move to Hanoi (Da Nang > Hanoi)	
47	9/14	Thu	Report to MARD Gathering Materials in Hanoi	
48	9/15	Fri	am: Report to JICA pm: Report to Embassy of Japan Departure for Narita 23:50 (VN954)	

## (2) Explanation of Draft Final Report

1	1/28	Sun	Mr. Yasuhiro TOJO (Leader, JICA Member) Ms. Eiko KOJIMA (JICA Vietnam Office)	Mr. Takao ISOBE, Mr. Masayoshi SHINAGAWA, Ms. Yoshiko FUSE, Mr. Takeshi YAMASE (Consultant Members)
				Arrival at Hanoi 15:10 (JL5135)
2	1/29	Mon	10:00 Meeting at JICA 13:30 Courtesy call to MPI 14:30 Courtesy call and Meeting at MARD (Explanation of Draft Basic Design Study Report)	
3	1/30	Tue	am: Classification of Materials 17:00 Move to Project Sites (Hanoi > Da Nang > Tam Ky) (Except Ms.KOJIMA)	
4	1/31	Wed	(Except Ms.KOJIMA) 08:30 Meeting with Quang Nam P'C (Mr.TOJO only) 14:20 Move to Hanoi (Tam Ky > Da Nang > Hanoi)	14:00 Meeting with Quang Nam DARD Move from Tam Ky to Quang Ngai
5	2/1	Thu	(Ms. KOJIMA only) 11:45 Move to Project Sites (Hanoi > Da Nang > Quang Ngai > Quy Nhon)	08:30 Meeting with Quang Ngai DARD Move from Quang Ngai to Quy Nhon
6	2/2	Fri	(Except Mr.TOJO) 08:30 Meeting with Binh Dinh DARD	
7	2/3	Sat	(Except Mr.TOJO) Site Observation of P-3 and N13 Move from Quy Nhon to Da Nang	
8	2/4	Sun	(Except Mr.TOJO) 08:50 Move to Hanoi (Da Nang > Hanoi)	
9	2/5	Mon	10:00 Meeting at JICA 11:30 Meeting at Embassy of Japan 14:20 Meeting with MARD on M/D	
10	2/6	Tue	10:00 Meeting with MARD and Signing of M/D pm: Classification of Materials	
11	2/7	Wed	am: Classification of Materials 16:00 Report to Embassy of Japan	
12	2/8	Thu		Departure for Narita 00:10 (JL5136) Arrival at Narita 06:40 (JL5136)

## 3. List of Parties Concerned in the Recipient Country

## (1) Field Survey

- Hanoi ( Note: Titles of Respect are Omitted. )
- Ministry of Agriculture and Rural Development, MARD
- Forestry Department
- JICA Expert KENSEI ODA
- International Cooperation Department, ICD
- Deputy Director General HOANG THI DZUNG
- Senior Expert NGUYEN ANH MINH  
PHAN TRONG HIEN
- Management Board for Forestry Project, MBFP
- Deputy Director PHAN THANH NGO
- Officer TRAN CONG HUNG
- Ministry of Planning and Investment, MPI
- Agriculture Economic Department
- Vice Director DINH NGOC MINH  
DOAN THIEN DUNG
- Embassy of Japan in Vietnam
- Second Secretary RINYA YUTANI
- JICA Vietnam Office
- Resident Representative FUMIO KIKUCHI
- Senior Deputy Resident Representative YASUHIRO TOJO
- Senior Project Formulation Advisor KOJI NISHIMIYA
- Quang Nam Province
- Department of Agriculture and Rural Development, DARD
- Vice Director PHAN VAN HAU  
LE MINH HUNG  
NGUYEN VAN A
- Forestry Division
- Director PHAN SI HUNG
- Specialist TRAN THANH BINH
- Specialist NGUYEN ANH QUOC
- People's Committee of Thang Binh District
- Vice Chairman NGUYEN VAN NGU  
NGUYEN VAN HUONG
- Quang Ngai Province
- Department of Agriculture and Rural Development, DARD
- Vice Director BUI MINH SON
- Specialist TRAN KIM NGOC
- Binh Dinh Province
- People's Committee of Binh Dinh Province
- Standing Vice Chairman NGUYEN VAN THIEN
- Vice Director of Nhon Hoi Economic Zone  
Administration NGUYEN NGOC TOAN

## Department of Agriculture and Rural Development, DARD

Vice Director VO XUAN HIEN

## Forestry Development Division

Director NGUYEN THE DUNG

Specialist TRAN AN

## ○ Phu Yen Province

## Department of Agriculture and Rural Development

Vice Director HUYNH VAN TUYEN

## Forestry Division

Specialist MAI TAN LEN

Specialist HUYNH XUAN QUANG

## ○ Khanh Hoa Province

## People's Committee of Khanh Hoa Province

Vice Chairman NGUYEN TRONG HOA

## Vice Director of Management Board of Van

Phong Economic Zone THAI HUY DUC

## Department of Agriculture and Rural Development, DARD

Vice Director TRAN CHI THU

## Forestry Division

Director LA CAT HANG

Specialist NGUYEN VAN CHUAN

## (2) Explanation of Draft Final Report

## ○ Hanoi

( Note: Titles of Respect are Omitted. )

## Ministry of Agriculture and Rural Development, MARD

## Forestry Department

JICA Expert KENSEI ODA

## International Cooperation Department, ICD

Deputy Director General HOANG THI DZUNG

PHAN TRONG HIEN

## Management Board for Forestry Project, MBFP

Deputy Director PHAN THANH NGO

Officer TRAN CONG HUNG

## Ministry of Planning and Investment, MPI

## Foreign Economic Relations Department

Head of Japan and Northeast Asia

Division PHAN HOANG MAI

## Agriculture Economic Department

DOAN THIEN DUNG

## Embassy of Japan in Vietnam

Second Secretary RINYA YUTANI

## JICA Vietnam Office

Senior Deputy Resident Representative YASUHIRO TOJO

Project Formulation Advisor EIKO KOJIMA

## ○ Quang Nam Province

## People's Committee of Quang Nam Province

Vice Chairman	LE MINH ANH
Vice Director of Natural Resources and Environment Department	NGUYEN VIEN
Deputy Chief of Foreign Affairs Department	NGUYEN TANG THUONG

## Department of Agriculture and Rural Development, DARD

Vice Director	PHAN VAN HAU LE MINH HUNG
Forestry Division Specialist	NGUYEN ANH QUOC

## People's Committee of Tam Ky City

Chief of Economic Section	HO HUY HUYNH
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## ○ Quang Ngai Province

## Department of Agriculture and Rural Development, DARD

Vice Director	BUI MINH SON
Specialist	TRAN KIM NGOC
Forestry Division Director	TRAN DUNG

## People's Committee of Duc Pho District

Expert of Agriculture, Forestry and Fisheries Section	TRAN THANH HOA
----------------------------------------------------------	----------------

## ○ Binh Dinh Province

## Department of Agriculture and Rural Development, DARD

Vice Director	VO XUAN HIEN
Forestry Development Division Director	NGUYEN THE DUNG
Specialist	TRAN AN

## 4. Minutes of Discussions (M/D)

## (1) Field Survey

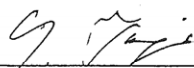
MINUTES OF DISCUSSION  
ON  
BASIC DESIGN STUDY  
ON THE AFFORESTATION PROJECT ON SANDY AREA  
IN THE SOCIALIST REPUBLIC OF VIETNAM

Based on the result of the Preparatory Study, the Government of Japan decided to conduct a Basic Design Study on the Afforestation Project on Sandy Area (hereinafter referred to as "APSA") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent the Basic Design Study Team (hereinafter referred to as "the Team"), to the Social Republic of Vietnam (hereinafter referred to as the "Vietnam"), which is headed by Mr. Yasuhiro Tojo, Senior Deputy Resident Representative JICA Vietnam Office, from 30 July 2006 to 12 September 2006.

The Team held discussions with the officials concerned of the Government of Vietnam. During the course of the discussions, both sides have confirmed the main items described in the attached documents. The Team will proceed to further study and prepare the Basic Design Study Report.

Hanoi, 4 August 2006



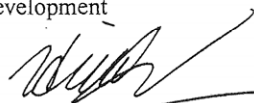
YASUHIRO TOJO

Leader  
Basic Design Study Team  
Japan International Cooperation Agency



HOANG THI DZUNG

Deputy Director General  
International Co-operation Department  
Ministry of Agriculture and Rural  
Development



HO QUANG MINH

Director General  
Foreign Economic Relations  
Department  
Ministry of Planning and Investment

## ATTACHMENT

## 1. Objective of the Project

The objective of the Project is to establish coastal protection forests in the Project Site in order to protect farmland, residential zone and industrial facilities near the Project Site and also to alleviate damages to infrastructures such as the National Road, local roads, and national railway line.

## 2. Planting areas

The planting areas are located in coastal districts in four provinces, shown below and in Annex-1.

Quang Nam Province:	Thang Binh District
Quang Ngai Province:	Binh Son and Duc Pho Districts
Binh Dinh Province:	Phu My and Phu Cat Districts
Khanh Hoa Province:	Van Ninh District

## 3. Responsible and Implementing Agency

3-1. The Responsible Agency is the Ministry of Agriculture and Rural Development (MARD), which is responsible for management and coordination of the whole Project among four above-mentioned Provinces.

The organization chart is shown in Annex-2.

3-2. The Implementing Agency is the Department of Agriculture and Rural Development (DARD) in each Province.

The organization charts are shown in Annex-3.

3-3. To manage and operate APSA, Management Boards will be set up in MARD, DARD of each province and People's Committee of each concerned district immediately after APSA commences.

## 4. Components Requested by the Vietnamese side

After the discussions both sides have confirmed the following items.

4-1. The planting areas will be finalized through the procedure shown in Annex-4 based on the potential target areas which were prioritized as category A (approximately 3,600ha) in the Preparatory Study as shown in Annex-5. The Planting areas will be less than 3,600ha after excluding left-over areas (rocky areas, small rivers, graves and so on) from the potential target areas.

26 7. 09

4-2. Because it is difficult for Japanese side to provide the vehicles in APSA, the Team emphasized that the Vietnamese side has responsibilities to provide them for monitoring and maintenance activities.

However the Vietnamese side strongly requested to provide vehicles in APSA due to the fact that the project sites are remotely and dispersedly located and difficult transport conditions in the areas. It is also very difficult for the Vietnamese side to do it by themselves.

#### 5. Japan's Grant Aid Scheme

5-1. The Vietnamese side understands the Japan's Grant Aid Scheme explained by the Team, as described in Annex-6.

5-2. The Vietnamese side will take the necessary measures, as described in Annex-7, for the smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

#### 6. Other relevant issues

6-1. Establishment of maintenance system by the Vietnamese side

6-1-1. Both sides agreed that the Vietnamese side has the responsibility for protection of the forests established under APSA except for the planting and tending period in each term. Both sides agreed that the Vietnamese side has the responsibility for maintenance and protection after the completion of APSA.

6-1-2. Both sides agreed that the allocation of the planting areas to the residents will be completed before planting in each term in order to maintain the forests established in good conditions.

6-1-3. The role-sharing plan for maintenance between the Japanese side and the Vietnamese side is shown in Annex-8.

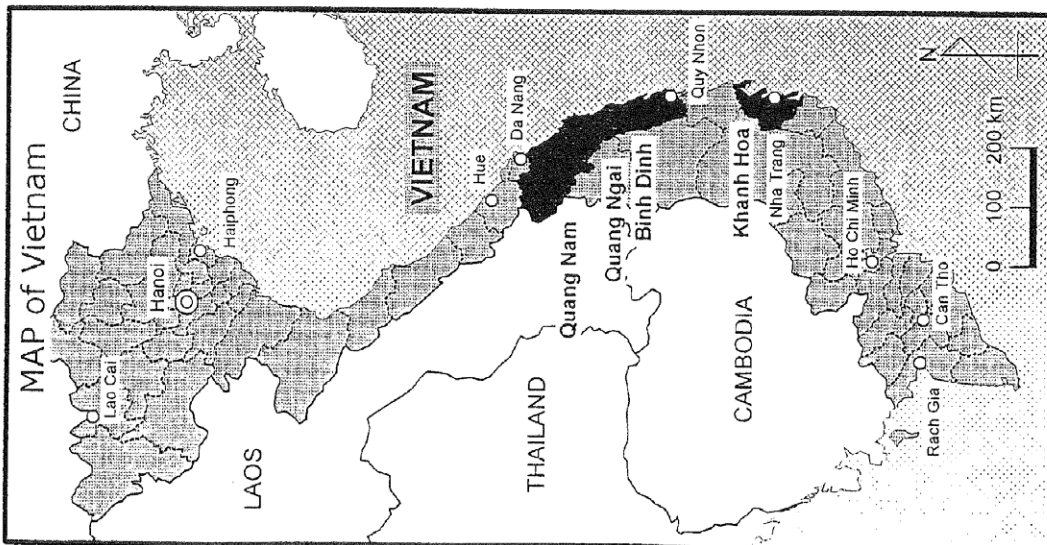
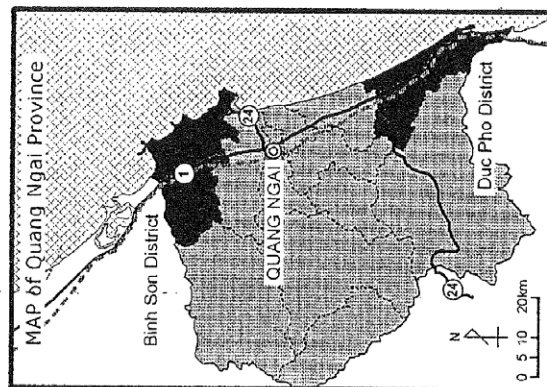
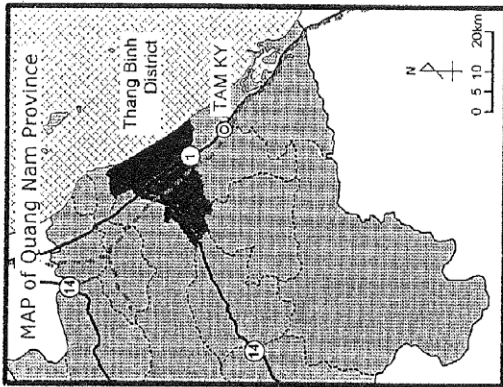
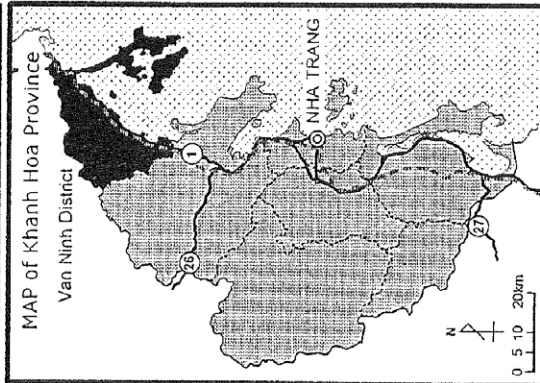
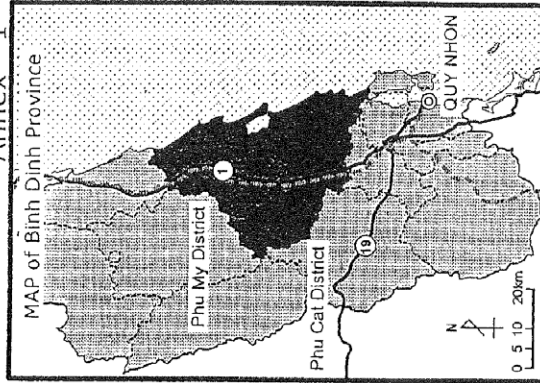
6-2. The Vietnamese side requested to complete the planting works as much as possible by the third year. Both sides agreed it is necessary to study further to find it's feasibility.

6-3. The Vietnamese side requested technical training by the Soft Component Program in order to improve the planting techniques to be applied for APSA as well as other areas. Japanese side mentioned it will assess the necessity and feasibility of the request.

6-4. Since the qualities of afforestation works rely largely on natural conditions, it is difficult to identify whether the damage has been caused by the contractor's defect or not. Therefore the contractor shall not have any responsibility for the damage which might occur on the forests after handed over to the Vietnamese side.

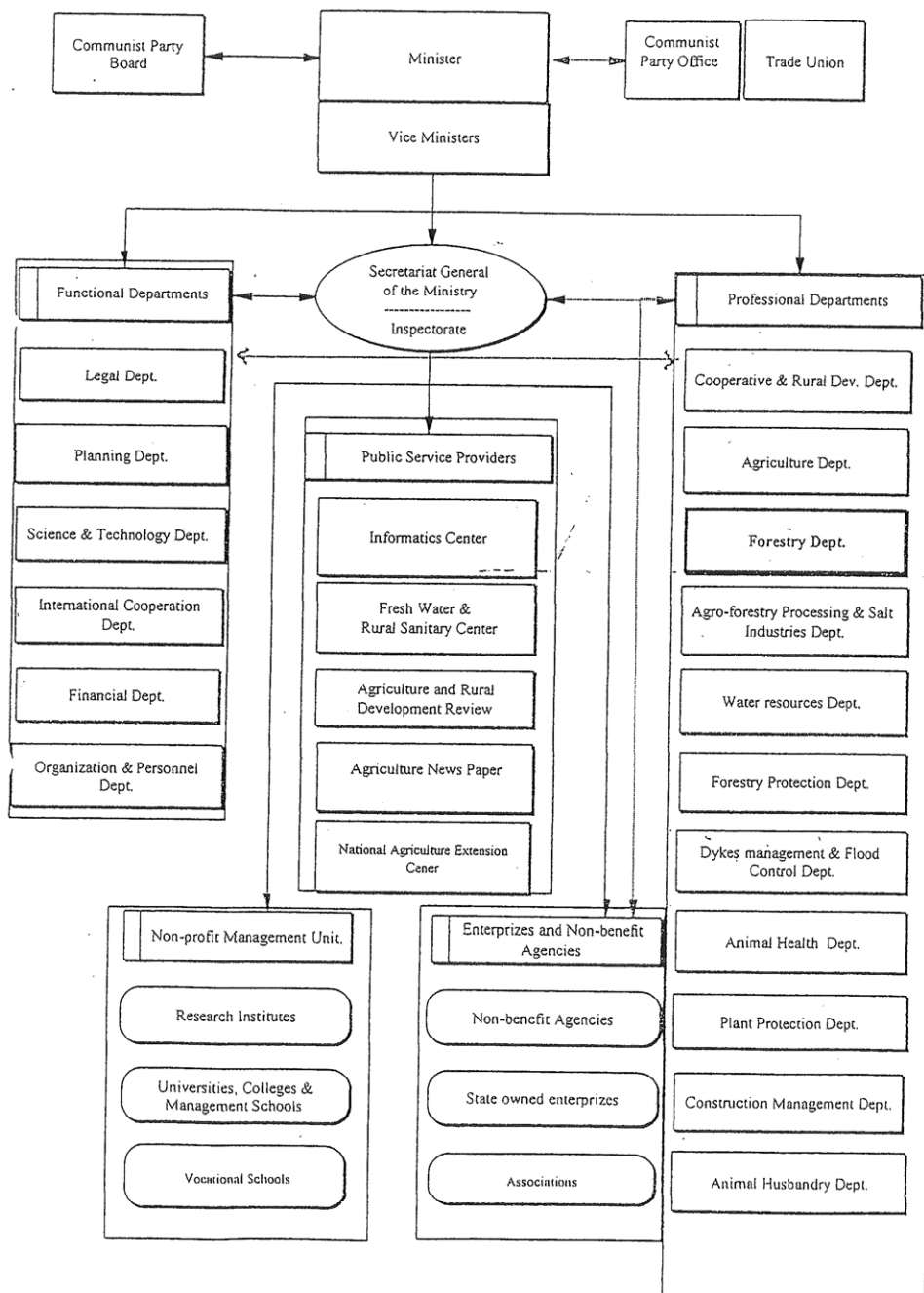


Annex - 1



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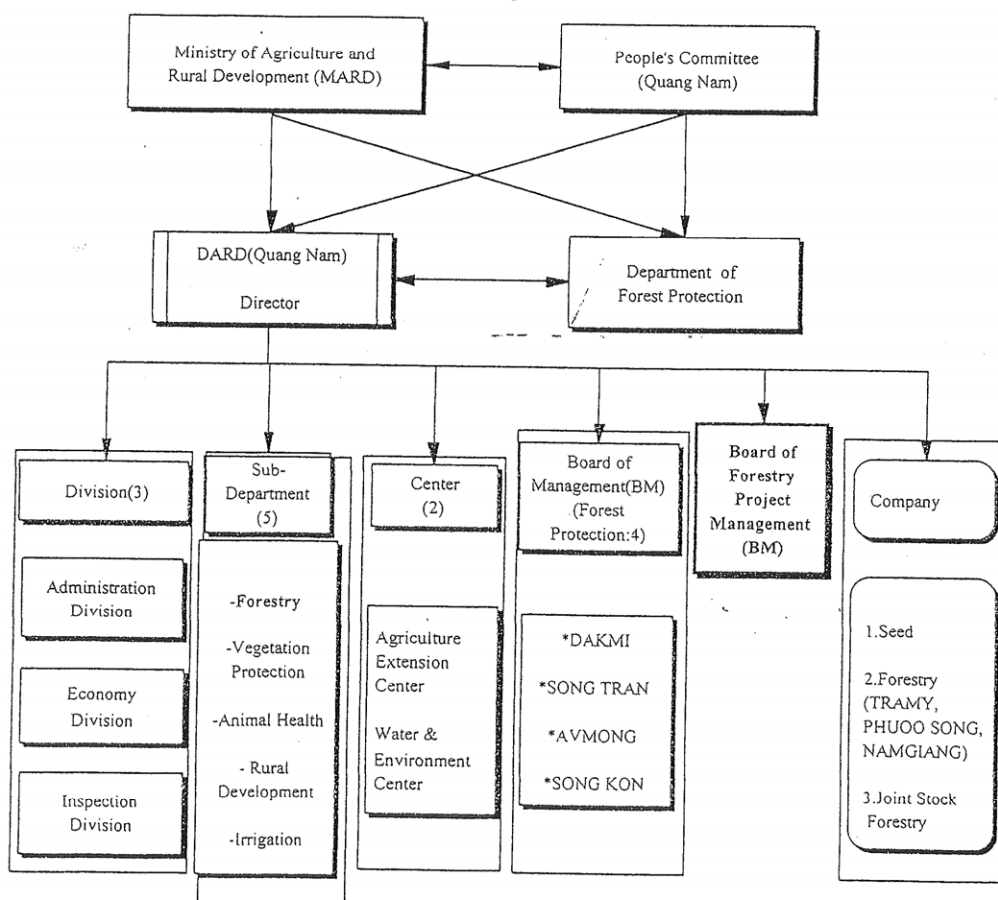
Organization chart of the Ministry of Agriculture and Rural Development (MARD)



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ANNEX 3-1

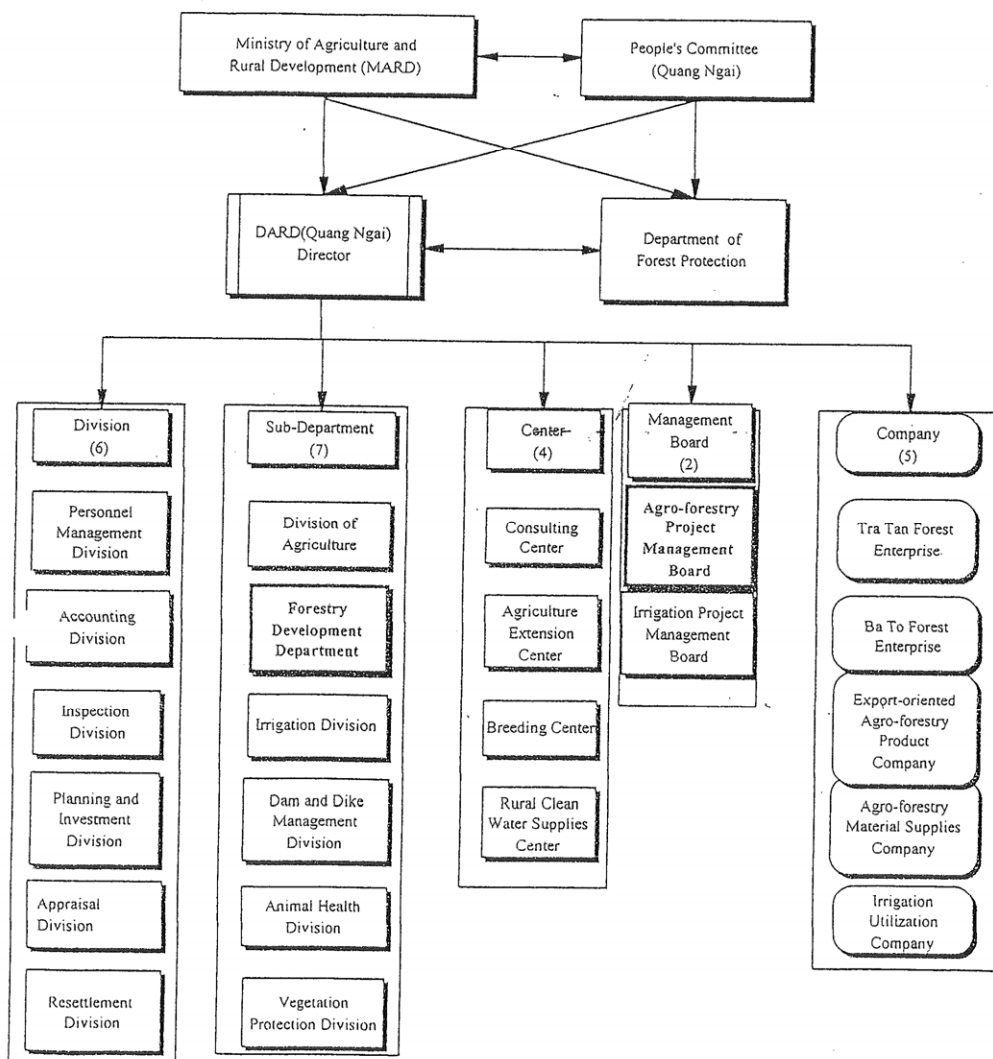
Organization Chart of the Department of Agriculture and Rural development(DARD)  
(Quang Nam Province)



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ANNEX 3-2

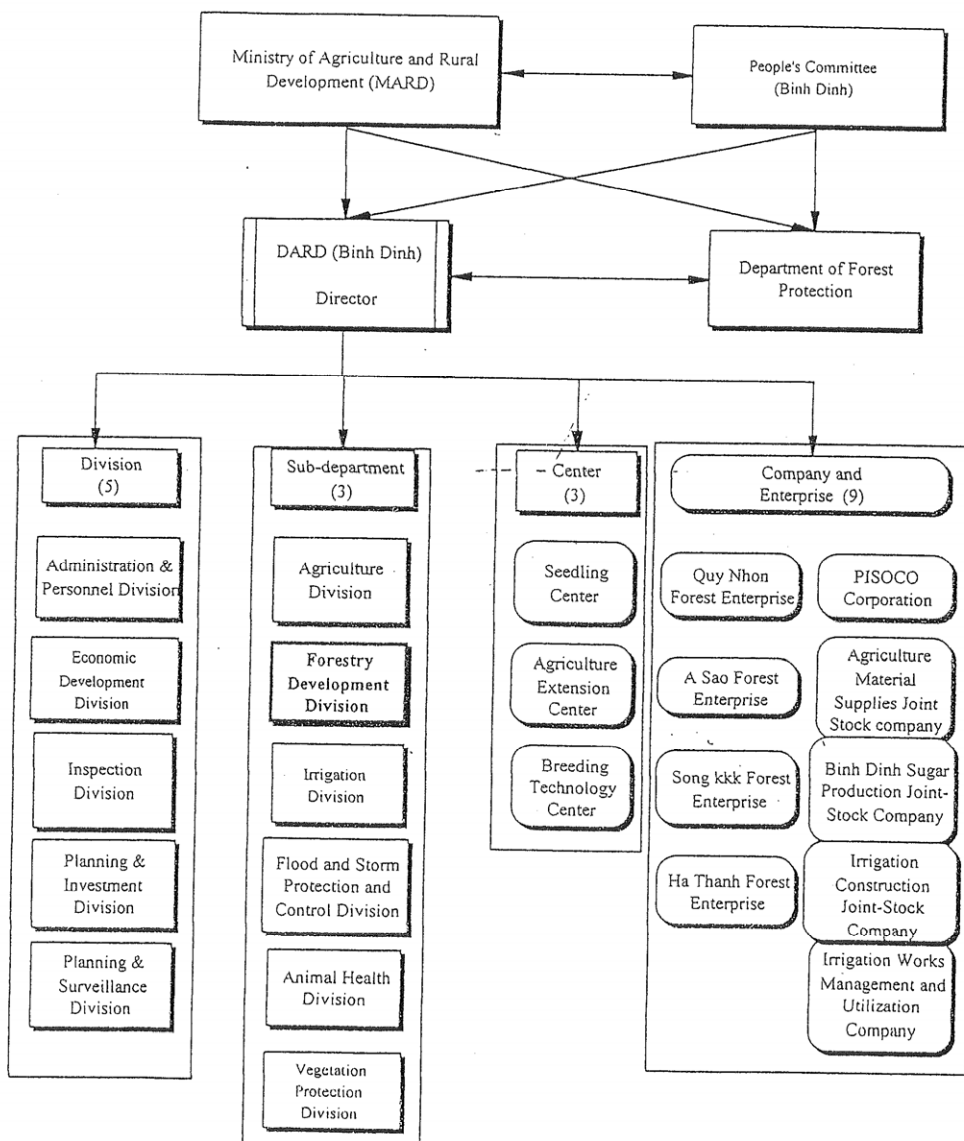
Organization Chart of the Department of Agriculture and Rural development(DARD)  
(Quang Ngai Province)



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ANNEX 3-3

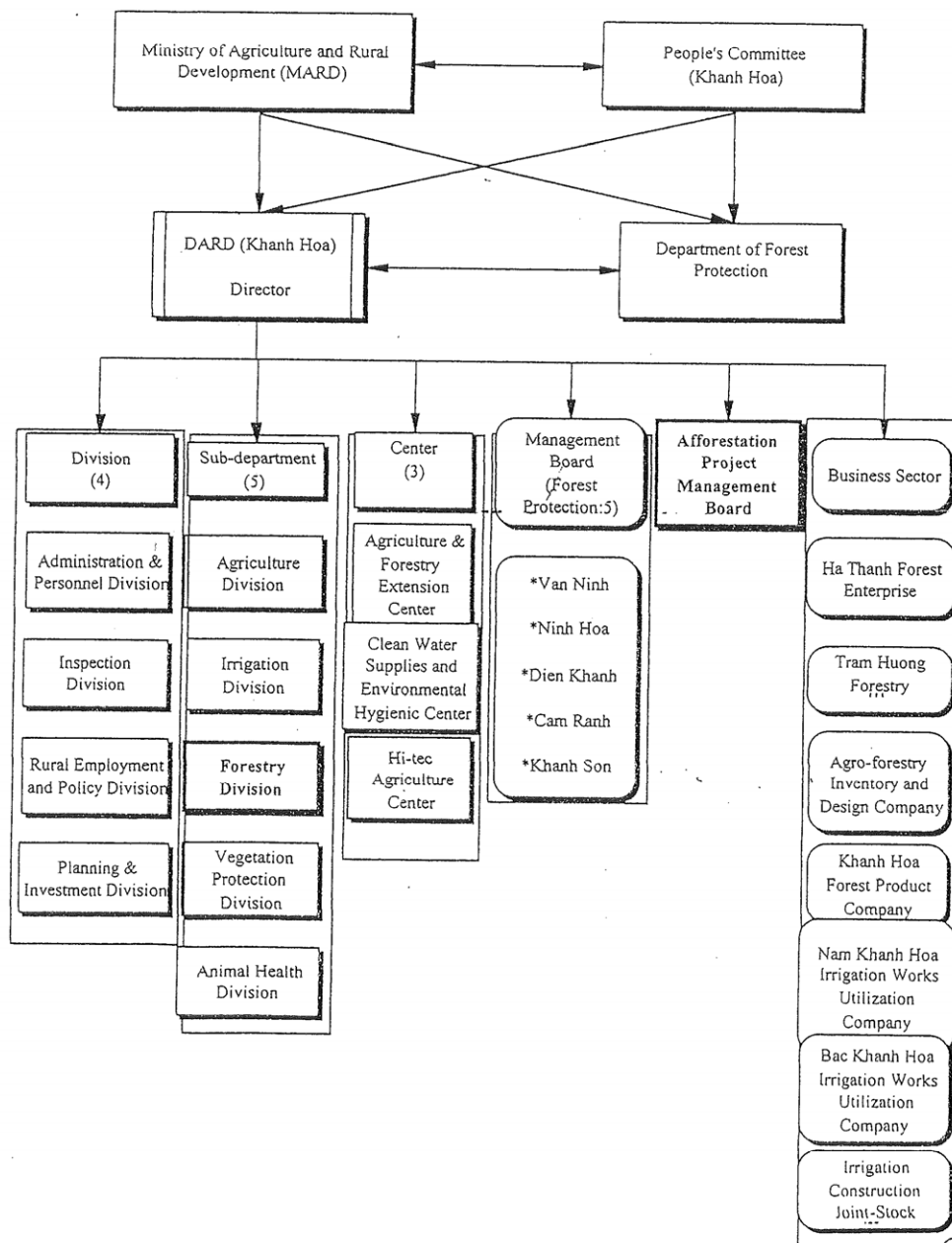
Organization Chart of the Department of Agriculture and Rural development(DARD)  
(Binh Dinh Province)



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ANNEX 3-4

Organization Chart of the Department of Agriculture and Rural development(DARD)  
(Khanh Hoa Province)



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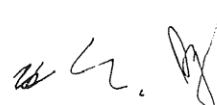
## ANNEX-4

Planting areas will be finalized by the procedures below.

- i) The perimeter survey shall be carried out.
- ii) The Team shall implement site-selection survey and natural condition survey in accordance with “the criteria for site-selection” agreed between preparatory study team and the Vietnamese side.
- iii) Based on the result of above i) and ii), area and boundary of potential target areas can be finalized.
- iv) Based on the result of field survey, the Team shall design the project upon coming back to Japan. The locations and area of target areas, those of planting areas, project scale, and the contents of the project can then be designed by the Japanese side.
- v) The Vietnamese side shall be informed on the locations and area of target areas, those of planting areas, and the contents of the project.
- vi) Upon the approval by the Vietnamese side, the Basic Design Study Team (Explanation on Draft Final Report) shall visit Vietnam to explain the draft final report included the project details and the project cost.

The decision of the locations and area of target areas and planting areas by the Japanese side must be based on the following priorities.

- i) Consideration must be given for regional extent of target areas in order to secure the extension of the planting techniques of this project to non-project target areas.
- ii) Target areas and planting areas with large benefit for residents must be prioritized. However consideration must be given for the terms and cost to be demanded for the establishment of coastal protection forests.
- iii) Target areas must not be expanded into new areas in this study.



## ANNEX-5

Potential target areas which were prioritized as category A

Province	District	Figures for each category A (ha)
Quang Nam	Thang Binh	570
Quang Ngai	Binh Son	160
	Duc Pho	430
	Subtotal	590
Binh Dinh	Phu My	1,053
	Phu Cat	182
	Subtotal	1,235
Khanh Hoa	Van Ninh	1,200
Grand Total		3,595

