

## **ANNEX A**

### **VALIDATION OF PHYSICAL ACCOMPLISHMENTS**

#### **1. Objectives**

The validation of physical accomplishments will be conducted by an NGO for the following objectives:

- To verify and establish the actual CSD accomplishments of the PO;
- To assess survival rates, quality of plantations and use and maintenance of infrastructure facilities;
- To recommend corrective measures to improve the PO's CSD performance.

#### **2. Scope of Study**

The physical validation component will include the following activities:

- Verification of the boundaries, monuments and block corner posts of the CSD areas;
- Seedling production inventory/analysis;
- Plantation perimeter survey and mapping;
- Survival counting with ten percent (10%) sampling intensity;
- Height and diameter measurements and assessment of overall quality/health of plantations;
- Inspection of physical infrastructure.

#### **3. Composition of the Validation Team**

The size of the Validation Team will depend on the area that will be covered by a pass. However, a Senior Forester knowledgeable

on the use of a GSP should head the team. The Senior Forester should be assisted by at least two (2) other team members.

#### **4. Methods of Validation/Measurement and Analysis**

The method/process to be used for each of the activities is described below. It is expected that before the start of these activities, the NGO will organize a meeting with the PO, AO, SUSIMO and other DENR representatives to present the objectives of the exercise and their suggested work plan. The NGO, PO and SUSIMO should agree on the schedule that will be followed and on the roles of the PO and SUSIMO.

##### **4.1 Verification of boundaries/markers**

Secure a copy of the PO's map showing the location of the markers/monuments installed along the boundary or corners of the CSD. Inspect the reported location, determine its location using a GPS, and plot the marker in the map indicating also the station number and other descriptions that are necessary. Missing or improperly located markers should be noted and be discussed with the PO. Recommendations on what to do to correct markers should be agreed upon with the PO.

In subsequent passes, return to the markers that were recommended for correction and determine if the agreed actions were implemented by the PO. Determine if further actions are still necessary. If all recommendations are followed and all markers are found in order, indicate so in the report.

##### **4.2 Seedling Production Inventory/Analysis**

This will require an examination of the nursery records of the PO, interviews with PO members managing the nurseries,

and inspection of current seedling stocks in nurseries (main, satellite, and backyard). The following should be noted:

- Source, quantity and quality of seeds procured/gathered, by species;
- Quantity and quality of seedlings produced in the nursery by species (to include cuttings, suckers, and other planting materials);
- Quantity and quality of the seedlings and other procured planting materials, by species;
- Seedlings disposed for planting and current balance of seedling stock in the PO nurseries; presence of over-aged stocks;
- Adequacy of seedling production vis-a-vis requirements;
- Mortality rate in nurseries compared with assumed seedling mortality rate in work and financial plan;
- Adequacy of current nursery recording system;
- Maintenance of nursery facilities.

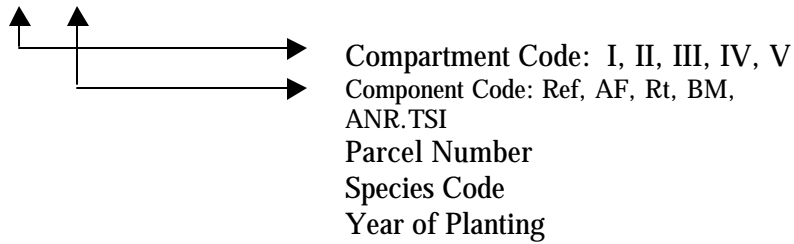
Prepare a seedling production and disposal summary using the format suggested in Table 1 (see Report Outline).

### **4.3 Survival Inventory and Mapping of Established Areas**

#### **4.3.1 Initial Mapping of Reported Established Areas**

Using the CSD progress map of the PO, take note of the PO's demarcation of the compartments, and the parcels planted every year under the different CSD components. (Make at least two (2) copies of the PO's progress map to serve as the validation team's working maps.) With the concerned PO members, identify each parcel with a code. The suggested code format is as follows:

I – Ref 1-Ma – 96 where



The following species code will be adopted:

Au	-	A. Auriculiformis
Av	-	Avocado
Ba	-	Bagras
Bn	-	Banana
De	-	E. Deglupta
Du	-	Durian
Fa	-	Falcata
Gm	-	Gmelina
Gu	-	Guyabano
In	-	Other indigenous species
Ka	-	Kakawati
Kt	-	Kawayang tinik
Kb	-	Kawayang bayog
La	-	Lanzones
Li	-	Limuran
Lk	-	Langka
Ma	-	Mahogany
Mg	-	Marang
Mn	-	Mangium
Mo	-	Mango
Na	-	Narra
Of	-	Other fast-growing species
Or	-	Other rattan species
Pa	-	Palasan
Ra	-	Rambutan

Rb - Rubber trees  
Si - Sika

#### **4.3.2 Survival Inventory**

The survival inventory in watershed subprojects will use the systematic strip sampling method while in mangrove subprojects will adopt the line sampling design, both with a sampling intensity of twenty percent (20%). The survival inventory is to cover all components of the subproject.

##### Systematic Strip Sampling Method for Upland Sub-Projects

For each plantation parcel (or component, if the parcel has more than one component), establish a baseline, preferably along the longest section of the component or parcel's polygon. Establish perpendicular strips ten meters (10m) in width along the baseline at fifty meters (50m) apart between each strip's center (see Figure 1). The first strip shall be located twenty meters (20m) from the boundary of the component or parcel. The total length of the baseline and the strips should be surveyed and recorded. This procedure will be done in all components/parcels.

Count all surviving seedlings inside the strip. The validation team can subdivide the strips into 10 x 50 blocks as they measure the distance so it can map out the condition of the plantations with respect to survival rate for each strip can be computed by dividing the total surviving seedlings counted in a particular strip by the total number of expected seedlings planted (given the component's planting spacing) multiplied by 100.

$$\% \text{ Survival Rate} = \frac{\text{Total surviving seedlings counted}}{\text{Total no. of expected seedlings}} \times 100$$

The weighted average survival rate for the parcel shall also be determined.

(Figure 1: omitted)

### Line Sampling Method for Mangrove Sub-Projects

After identifying in the map and on the ground the different mangrove development components that will be subjected to validation, establish the baseline, preferably along the longest section of the component's/parcel's polygon and traversing the planting lines (see figure 2). The total length of the baseline and the rows should be surveyed and recorded. This procedure will be done in all components/parcels: direct planting areas, areas planted with nursery-raised seedlings, enrichment planting areas, etc.

Count all surviving seedlings in every fifth planted row or line along the baseline. The validation team can subdivide the strips into 10 x 50 blocks as they measure the distance so they can map out the conditions of the plantations with respect to survival and maintenance. Compute the percentage survival rate for each row by dividing the total surviving seedlings counted in a particular row by the total number of expected seedlings planted (given the component's spacing) multiplied by 100.

$$\% \text{ Survival Rate} = \frac{\text{Total surviving seedlings counted}}{\text{Total no. of expected seedlings}} \times 100$$

The weighted average survival rate for each component/parcel shall also be determined.

The survival rates generated every pass should be compared with the results of the previous passes and with the target survival rate of eighty percent (80%). They should also be compared with survival rates generated through the monitoring done by SUSIMO and the PO. Discrepancies should be discussed and explained. Recommendations to improve survival rates should be agreed upon.

(Figure 2: omitted)

### 4.3.3 Computation and Mapping of Established Areas

In the process of survival counting, determine the end points of each sample strip or row using the GPS. These will serve as the validated plantation boundaries. Plot in the PO's progress map. Label the validated parcel using the coding suggested in the Section 4.3.1. For each validated parcel shown on the map, the area can be computed using this formula:

$$\text{Area of component/parcel} = \frac{\text{Total length of baseline}}{\text{of baseline}} \times \frac{\text{Ave. Length of all strips or rows}}{\text{or rows}}$$

$$\text{Ave. Length of all strips or rows} = \frac{\text{Total length of all strips or rows}}{\text{Rows/number of strips or rows sampled}}$$

Enter the validated area in the map. Also indicate (on the map) the survival rate arrived at for the parcel in the survival inventory.

Compare the map of the PO and the map of the validated parcels then identify and record the parcels where there are discrepancies. Determine the discrepancies per CSD component and present the data using Table 3. These discrepancies and other observations should be discussed with the PO and DENR representatives to establish the reasons. Prepare recommendations and discuss these with the PO and DENR.

#### **4.4 Height and Diameter Measurements and Assessment of Plantation Quality/Health**

The sample strips/rows used for survival counting will be the same strips/rows where height and diameter measurements will be undertaken. The height and diameter will be measured on at least a 10% sample within each strip/row. For uniformity, the diameter of seedlings will be taken 30 cm from the ground while those for grown trees (at least 5 cm dbh) will be at breast height. The measurements for each parcel and eventually for each species of the same age will eventually be averaged. The suggested format for reporting height and diameter measurements is in Table 4.

The results should be analyzed by comparing them with the ideal height and diameter standards that have been set for each species. Parcels where growth is significantly below the standard should be further investigated to identify the reasons for such.



The height of planted mangrove is not a critical indicator of survival or quality of plantation. The height measurements that will be taken in mangrove areas will be used mainly to show that the plantation is growing (but it will not have any bearing on the release of the retention fee).

In the course of doing the survival counts and height and diameter measurements, observe the general health and condition of the planted seedlings within and outside the sample plots and take note of (or photograph) indications that there is lack of maintenance and protection. Note areas where there is lack of maintenance and protection. Note areas where there are tall grasses, yellowing of leaves, broken stems, insect infestations, symptoms of diseases and nutrient deficiencies, presence of stray animals, etc.

These observations should be noted down and their general location indicated in the map. These observations should be validated with the PO and courses of action agreed upon.

Also take note if there are name boards describing the parcels. Check if these name boards meet the specifications agreed upon with the PO and if the information shown is correct.

#### **4.5 Inspection of Physical Infrastructure**

All infrastructure facilities established up to the time of the M and E period will be inspected and the following should be noted:

- Compliance with standards or specifications set in the Work and Financial Plan, and with ECC/CNC conditionalities, if any;
- Current uses of the facility compared to the intended used;

- Present condition of the facility (i.e., well-maintained, needs maintenance or repair, not useable, etc); and
- Arrangements and resources available for their maintenance.

Recommendations to improve the condition and utility of the infrastructure facility will be drawn up and discussed with the PO.

In subsequent passes, infrastructure facilities, which were recommended for improvement/rehabilitation should be revisited, and their condition noted in the report.

It is best for the report on infrastructure facilities to be supported with pictures.

## **5. Documentation**

The findings of the NGO-Contractor will be recorded in maps and tables as indicated in the discussion of the methodologies. Photographs should be taken to show the condition of particular areas/facilities and to document critical activities undertaken (e.g., meetings with PO).

Discussions with the PO on findings and recommendations during the conduct of the pass and the presentation of the draft report should also be fully documented with a summary provided on the agreements reached. Points of disagreement with the DENR/PO/AO should be indicated.

The documentations that will be done, whether in narrative form or in maps, tables and pictures, should allow for the comparison of the present findings with past findings. They should therefore be properly labelled with the dates indicated.

## 6. Reports

The NGO is required to prepare a report for every pass undertaken. Prior to the finalization and submission of its final report for the current pass, the NGO is expected to present the draft of its report to the PO, DENR and LGU for comment.

The report of the NGO-Contractor will follow the suggested outline that is included in these guidelines. Five copies of the report will be submitted to the Regional Office and these will be distributed, as follows: one (1) copy to the Regional Office, one (1) copy to the SUSIMO (which will also serve as the copy of the CENRO), one (1) copy to the PO, one (1) copy to the PENRO, and one (1) copy to NFDO. If found to be in order, the Regional Office, after consultations with the SUSIMO and PO, will issue a formal acceptance of the report.

The following report outline is suggested:

### Report Outline

#### Table of Contents

**Summary of Important Findings and Recommendations.** (Select the important findings of the validation and the corresponding recommendations, including the responsibility centers. Present in matrix form. It is expected that these recommendations have already been discussed with the PO as required under the guidelines.)

**I. Introduction.** (This section will provide information on the period covered by the validation pass, the inclusive dates of the validation activity itself, the area covered and highlights of the activity, including any limitations encountered in the conduct of the validation. There is no need to discuss the methodologies

unless the NGO deviated from the methods suggested in these guidelines. The deviations should then be explained briefly.)

**II. Findings and Recommendations** (Describe findings in each of the sub-activities and the recommendations that correspond to the issues and problems that are presented. This should provide more details than the Summary of Important Findings and Recommendations above. The presentation of findings may follow the outline below. Summary tables may be provided in each section to present the findings. References should be made to the tables and maps that are to be included in the Annex.)

- a. Validation of boundary/corner markers
- b. Seedling production inventory/analysis
- c. Survival inventory and mapping of established areas
- d. Height and diameter measurements and assessment of plantation quality/health
- e. Inspection of physical infrastructure

**III Overall Conclusion.** (Provide an overall assessment of the CSD performance of the PO in comparison with the previous passes. Highlight positive trends/developments and notable strengths and identify critical factors that would improve overall performance in subsequent passes.)

#### **Annexes**

- A Map showing the location of verified boundaries/corner markers compared to the PO boundary map (omitted)
- B Table 1: Seedling Production and Dispersal Report (for the period covered by the validation period)

- C Map showing the validated boundaries of plantations compared with the PO progress map. The survival rates and the area of the parcels validated during the pass should be indicated in this map.
- D Table 2: Survival Rate by Component and Species, and Overall Weighted Average Survival Rate
- E Table 3: List of Parcels Validated during the Pass and Area Planted, by Component and Species
- F Table 4: Average Height and Diameter, by Species and by Age of Plantation
- G Photo-Documentation
- H Documentation of meetings

**Table 1: Seedling Production and Dispersal Report**

**Period Covered:** \_\_\_\_\_

Species	Plantable Seedlings Available			Total Dispersed (5)	Total Requirements (6)	Plantable Seedlings as % of Requirements (7)	Dispersed as % of Requirements (8)	Actual Mortality Rate in Nurseries (9)	Remarks (10)
	Raised To Date (2)	Procured to Date (3)	Total (4)						
(1)									
Source of Data	Nursery records register	Nursery records and plantation			Computed from total area planted	Col 4/Col 6 x 100	Col 5/Col 6 x 100	Nursery records of key informant interviews	

**Table 2: Survival Rate by Component and Species, and Overall**

CSD Component	Species	Compartment No.	Parcel Code	Survival Rate	Weighted Ave. Survival Rate By Species
Reforestation					
	<b>AWSR for Reforestation</b>				
Agroforestry					
	<b>AWSR for Agroforestry</b>				
Rattan					
	<b>AWSR for Rattan</b>				
Bamboo					
	<b>AWSR for Bamboo</b>				
<b>Overall WASR</b>					

**Remarks: (If survival rate is below 80% indicate the major reasons for the low survival rate, as derived from the data and observations on dead seedlings).**

**Table 3: Total Area Planted (Reported and Validated), by Components, Species and Parcels**

CSD Component	Species	Compartment No.	Parcel Code	Area Planted		Difference
				Reported by PO and SUSIMO	Validated by M and E Team	
Reforestation						
Agroforestry						
Rattan						
Bamboo						
<b>Total</b>						



**Table 4: Average Height and Diameter, by Species and by Age of Plantation**

CSD Component	Species	Compartment No.	Parcel Code	Age of Plantation (no. of years)	Ave. Height (meter)	Ave. Diameter* (cm)	Analysis (Above/ below standards)
Reforestation							
Agro-forestry							
Rattan							
Bamboo							

\* For seedlings, the diameter will be taken at 30 cm from the ground while the diameter for grown trees will be measured at breast height.