



**CLEAN DEVELOPMENT MECHANISM  
PROJECT DESIGN DOCUMENT FORM FOR SMALL-SCALE AFFORESTATION AND  
REFORESTATION PROJECT ACTIVITIES (CDM-SSC-AR-PDD)  
(Version 04)**

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**SECTION A. General description of the proposed small-scale A/R CDM project activity:****A.1. Title of the proposed small-scale A/R CDM project activity:**

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Reforestation coastal areas of Bantul District through CDM  
Version 1  
30 January 2007

**A.2. Description of the proposed small-scale A/R CDM project activity:**

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The purpose of the proposed A/R CDM project activity is to reforest coastal line of Bantul district with 100 m width and 8,5 km length or about 85 ha. The proposed project is located in villages Parangtritis, Gadingsari, and Poncosari of Kretek, Sanden and Srandakan sub-districts respectively. These lands are mostly sandy and a few areas are covered by grass. There is interest at community levels to plant these lands with cemara laut or cemara udang (*Casuarina equisetifolia*) as these trees can function as wind break and protect their crops from damage by strong winds. Normally farmers established fences made from coconut leaves with height of about 2 m to break the strong wind. The proposed A/R CDM project activity qualifies as a *Small Scale AR CDM Project* as it is estimated to produce net green house gas (GHG) removal by sink of less than 8 kton of CO<sub>2</sub>-equivalent per year and will be implemented by low income community as defined by Host Party.

Forestry Office of Bantul District along with Kutai Timber Indonesia, a Forest Plantation Company will coordinate the community to reforest the land with (*Casuarina equisetifolia*) and treated the land as conservation zone. They see that the CDM is an appropriate mechanism to accelerate the reforestation of these coastal lands as the plantation can protect their crops from strong wind and at the same time also can generate income from selling carbon credit. As the communities have no financial capacity to establish such plantation, the local government and the company will provide financial support. The project activities will contribute significantly to sustainable development by accruing the following benefits:

- Increase incomes of participating families from carbon payments from CERs and reducing crops damage from strong winds
- Attract people to visit the area for recreation and this will create opportunities for community to have other economic activities such as selling foods and also better access for marketing their agriculture products
- Reduce the intrusion of salt water into agriculture land
- Increase air and water quality.

**A.3. Project participants:**

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Please list project participants and Party(ies) involved and provide contact information in Annex 1. Information shall be indicated using the following tabular format.



Name of Party involved (* ((host) indicates a host Party)	Private and/or public entity(ies) project participants (* (as applicable)	Indicate if the Party involved wishes to be considered as a project participant (Yes/No)
Indonesia	<ul style="list-style-type: none"> <li>• A/R CDM Farmer Association</li> <li>1. Raharjo (Gadingsari Village)</li> <li>2. Pedesari (Gadingsari Village)</li> <li>3. Mulyo (Gadingsari Village)</li> <li>4. Guyub Rukun (Gadingsari Village)</li> <li>5. Tunggulwulung (Parangtritis Village)</li> <li>6. Ngelarangsari (Parangtritis Village)</li> <li>7. Mudi Rejeki (Parangtritis Village)</li> <li>8. Lestari Mulya (Parangtritis Village)</li> <li>9. Eka Lestari (Poncosari Village)</li> <li>10. Pandan Asih (Poncosari Village)</li> </ul>	Yes
Indonesia	<ul style="list-style-type: none"> <li>• Forestry Office of Bantul District</li> </ul>	Yes
Indonesia	<ul style="list-style-type: none"> <li>• Kutai Timber Indonesia</li> </ul>	Yes
Japan	<ul style="list-style-type: none"> <li>• Sumitomo Forestry</li> </ul>	Yes
(*) At the time of making the CDM-SSC-AR-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

**A.4. Description of location and boundary of the small-scale A/R CDM project activity:**

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**A.4.1. Location of the proposed small-scale A/R CDM project activity:**
**A.4.1.1. Host Party(ies):**

&gt;&gt;

Indonesia

**A.4.1.2. Region/State/Province etc.:**

&gt;&gt;

DIY Yogyakarta

**A.4.1.3. City/Town/Community etc.:**

&gt;&gt;

Located in Bantul District at three villages, i.e. Parangtritis, Gadingsari, and Poncosari of Kretek, Sanden and Srandakan Sub-districts respectively.

**A.4.2. Detail of geographical location and project boundary, including information allowing the unique identification(s) of the proposed small-scale A/R CDM project activity:**

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The total area for the project is about 85 ha. About 72% of the area is located at Parangtritis, 13% at Poncosari, and 15% at Gadingsari. The detail of geographical location and project boundary of the proposed project is given in Table 1 and Figure 1.

Table 1. Area and location of the proposed project

Name of	Name of	Name of	Coordinate System	Area
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sub-district	Village	“Dusun”	Latitude	Longitude	(ha)
Srandakan	Poncosari	Ngentak	7,985 – 7,988 S (7°59 <sup>1</sup> - 7°59 <sup>1</sup> )	110,212 – 110,217 E (110°12 <sup>1</sup> - 7°13 <sup>1</sup> )	9.67
		Cangkring	7,992 – 7,993 S (7°59 <sup>1</sup> - 7°59 <sup>1</sup> )	110,230 – 110,234 E (110°13 <sup>1</sup> - 110°14 <sup>1</sup> )	1.93
Sanden	Gadingsari	Patehan	7,996 – 8,000 S (7°59 <sup>1</sup> - 8°)	110,242 – 110,252 E (110°14 <sup>1</sup> - 110°15 <sup>1</sup> )	1.58
		Wonoroto	8,000 – 8,005 S (8° - 8°)	110,253 – 110,264 E (110°15 <sup>1</sup> - 110°16 <sup>1</sup> )	10.90
Kretek	Parangtritis	Parangkusumo	8,012 – 8,023 S (8° - 8°1 <sup>1</sup> )	110,287 – 110,323 E (110°17 <sup>1</sup> - 110°19 <sup>1</sup> )	61.07
Total					85.15

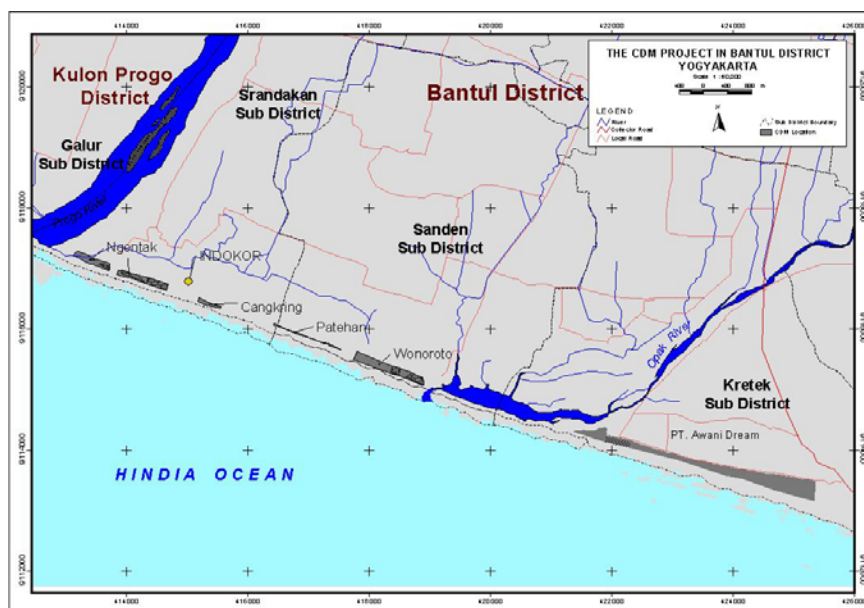
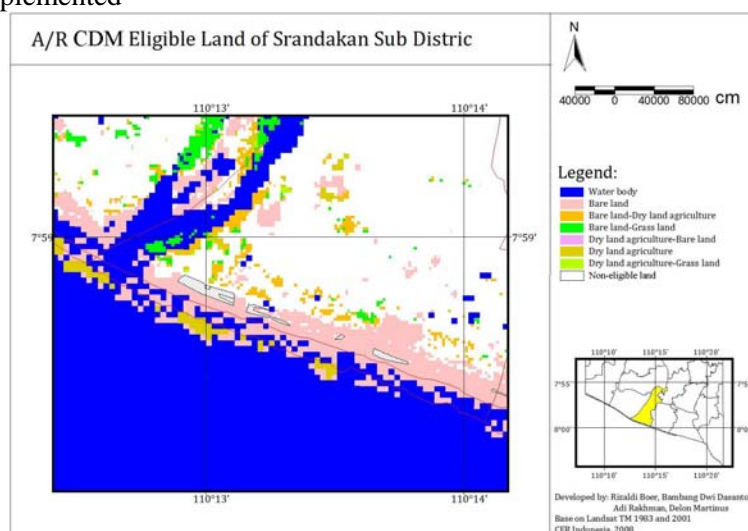


Figure 1. The geographic locations and project boundaries of the discrete areas in which project activity will be implemented



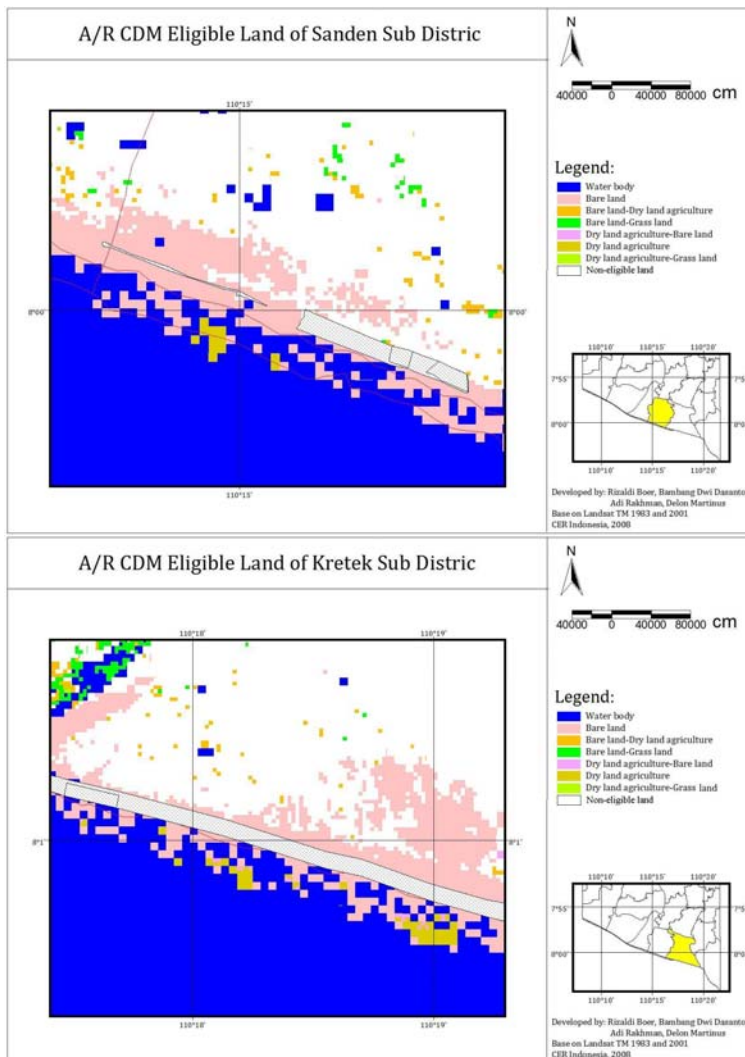


Figure 2. Eligible Land and the change of the land cover between 1983 and 2001

**A.5. Technical description of the small-scale A/R CDM project activity:**

**A.5.1. Type(s) of small-scale A/R CDM project activity:**

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The proposed project is small-scale A/R project activities implemented on grasslands

**A.5.2. A concise description of present environmental conditions of the area, which include information on climate, soils, main watershed, ecosystems, and the possible presence of rare or endangered species and their habitats:**

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The proposed project areas are passed by Progo River. In the North part of the river, the land is owned by Sultan HBX while in the South Part of the river it is owned by Paku Alam. Based on Local Government Regulation, belt with 200 m width from the highest tide is defined as conservation zone. Total area of conservation zone of coastal area of DIY is about 2983 ha which locates in 4 sub-districts and 10 villages. Most of this land is covered by sand and grass (Figure 2). Some of this land is now used by communities for agriculture activities, particularly lands with distance of more than 200 m from the maximum tide, while lands located at distance of less than 200 m from the maximum tide are not utilized.



Figure 2. Present land condition

The lands for the proposed project are situated between 30 and 130 m of the maximum tide. The use of this land for agriculture activities was started in 1962. Types of crops used by communities were mainly food crops such as maize, nuts etc. In 1984 farmers started to plant horticultural crops (chili, melon etc).

Annual rainfall of the site is about 1834 mm with number of rainy days of about 69 days. The wet season normally starts on November and ends on March (Figure 3). Daily maximum and minimum temperatures are about 32.2°C and 24.3°C respectively. Strong wind is quite common in this area and can cause damage to the crops.

Soils used for the proposed project is dominated by sands. Salinity was not a problem in this site. Wells that are not far from the coastal line (about 200-300 m) contain fresh water. According to farmers, fresh water could be found at a depth of 4-5 m from the surface. One well normally could irrigate about 1 ha per day. There are no rare or endangered species found in the proposed project sites.

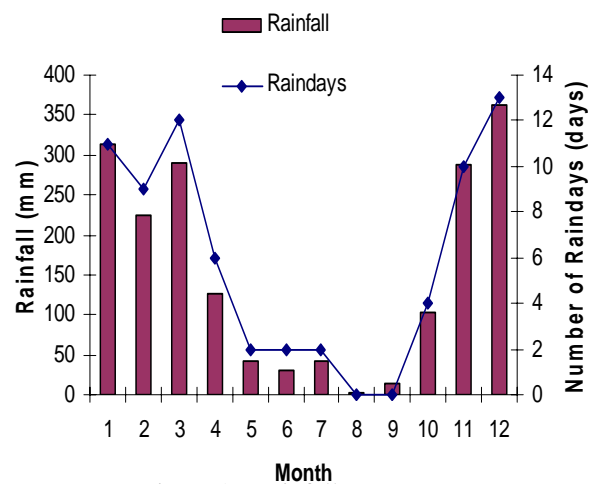


Figure 3. Rainfall pattern and raindays

#### A.5.3. Species and varieties selected:

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Based on site condition, trees species suitable for reforesting the lands are 'Cemara laut' (*Casuarina equisetivolia*).

#### A.5.4. Technology to be employed by the proposed small-scale A/R CDM project activity:

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The technology to be employed by the A/R CDM project activity is similar to practices currently used by local government under GERHAN projects, a National Movement for the Rehabilitation of Forests and Land. The areas on which the project activity is to be implemented will be mapped and divided into a number of blocks. The District Forest Office and Kutai Timber Indonesia will provide seedlings for the participating farmers. Seedling production will be initiated 4 to 6 months before the tree planting. Each farmer group will be responsible to manage one block. The *Casuarina equisetivolia* will be planted at 3x3 m spacing. At each tree planting position, the soil will be prepared to a depth and width of 25-50 cm just prior to the arrival of the rainy season (December). All tree species will be planted immediately after the first heavy rain. The amount of NPK and manure applied per tree is about 0.05 kg NPK and 7.5 kg manure respectively.



Based on previous government experience in reforesting the coastal area with *Casuarina equisetivolia*, without irrigation the survival rate is very low (less than 50%) and with irrigation the survival rate increase up to 80%. Therefore, drip irrigation system using bamboo will be applied as shown in Figure 4.

**A.5.5. Transfer of technology/know-how, if applicable:**

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There will be no transfer of technology for tree planting. However, Sumitomo Forestry in collaboration with local government and KTI will introduce technologies for farmers to improve their current agriculture practices and introduce new horticultural varieties which are more resistant to drought as part of Corporate Social Responsibility (CSR) of the companies. It is expected that productivity of horticultural crops will increase (?).

**A.5.6. Proposed measures to be implemented to minimize potential leakage as applicable:**

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As the project will be implemented on underutilized land where no significant activities currently occur, it is clear the project will not displace any people, cropland activities or animals. Thus there will be no leakage attributable to the project activity within the project boundary.

**A.6. A description of legal title to the land, current land tenure and land use and rights to tCERs / ICERs issued:**

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The land proposed for the AR CDM project is owned by Sultan HBX (Governor of Yogyakarta Province), and this land is considered as private land. The letter explaining the legal status of the land will be issued by 'Paniti Kesmo' (RT Keraton). The Paniti Kesmo will give land access to community for implementing the CDM project activities during the project period.

**A.7. Assessment of the eligibility of land:**

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Following Kyoto definition adopted by Government of Indonesia as stipulated in Ministry of Forestry Regulation Number 14/2004 and its Addendum that forests are defined as land having:

- a minimum area of 0.25 ha
- a minimum tree crown cover of 30%, and
- species that have the potential to reach a minimum height of 5 m

Using above definition, it is clear that the proposed land for the CDM project currently is not forest. Based on information from the community, such condition has been formed long before 1990, thus the proposed land is eligible for CDM projects. The testimony from community and local authority regarding the land use and land cover before 1990 will be provided later.

**A.8. Approach for addressing non-permanence:**

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Please select between:

- Issuance of tCERs
- Issuance of ICERs

**A.9. Duration of the proposed small-scale A/R CDM project activity / Crediting period:**

&gt;&gt;

20 years

**A.9.1. Starting date of the proposed small-scale A/R CDM project activity and of the (first) crediting period, including a justification:**

&gt;&gt;

November 2008

**A.9.2. Expected operational lifetime of the proposed small-scale A/R CDM project activity:**

&gt;&gt;

60 years

**A.9.3. Choice of crediting period and related information:**

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Please select one of the following:

1. Renewable crediting period
2. Fixed Crediting period

**A.9.3.1. Duration of the first crediting period (in years and months), if a renewable crediting period is selected:**

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20 years, 240 months

**A.9.3.2. Duration of the fixed crediting period (in years and months), if selected:**

&gt;&gt;

Not Applicable

**A.10. Estimated amount of net anthropogenic GHG removals by sinks over the chosen crediting period:**

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Please provide the total estimation of net anthropogenic GHG removals by sinks as well as annual estimates for the chosen crediting period. Information on the net anthropogenic GHG removals by sinks shall be indicated using the following tabular format.

Years	Annual estimation of net anthropogenic GHG removals by sinks in tonnes of CO <sub>2</sub> e
1	8.4
2	130.4
3	393.2
4	868.2
5	1,431.4





6	1,536.5
7	1,990.4
8	2,502.2
9	1,917.9
10	3,344.8
11	2,882.3
12	3,243.4
13	3,625.5
14	4,028.6
15	2,239.7
16	3,854.0
17	4,160.4
18	4,478.1
19	4,807.2
20	5,147.6
<b>Total estimated net anthropogenic GHG removals by sinks (tonnes of CO<sub>2</sub> e)</b>	<b>52,590.3</b>
<b>Total number of crediting years</b>	<b>20</b>
<b>Annual average over the crediting period of estimated net anthropogenic GHG removals by sinks (tonnes of CO<sub>2</sub>e)</b>	<b>2629.5</b>

**A.11. Public funding of the proposed small-scale A/R CDM project activity:**

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No public funding will be used to support the proposed project that results in a diversion of official development assistant or other obligations by any parties under UNFCCC regulations (FCCC/CP/2003/6/Add.2).

**A.12. Confirmation that the small-scale A/R CDM project activity is not a debundled component of a larger project activity:**

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Up to now, the proposed project is the only proposed SS AR CDM project in the district of Bantul, thus there is no other registered small-scale AR CDM project proposed by the same project participants in the previous two years. The local authority who is assigned to issue confirmation letter on 'eligibility of the land for AR CDM project' as mandated by the Forest Minister Regulation Number 14/2004 is newly established and the participants of the project are the only applicant currently recorded. Thus the project can not be a debundled component of a larger project activity.

**SECTION B. Application of a baseline and monitoring methodology :**

**B.1. Title and reference of the approved baseline and monitoring methodology applied to the proposed small-scale A/R CDM project activity:**

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AR-AMS0001 / Version 04

**B. 2. Justification of the applicability of the baseline and monitoring methodology to the proposed small-scale A/R CDM project activity:**



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The Simplified Baseline and Monitoring Methodologies, AR-AMS0001 is applicable only to grasslands or croplands that are not ploughed as part of project activity establishment and where the project activity does not displace more than 50% of the activities of local households. The proposed project area is underutilized land where no significant activities currently taken place. There will be insignificant displacement of current household activities, as sufficient grasslands remain in local areas to provide for the needs of local communities.

**B.3. Specification of the greenhouse gases (GHG) whose emissions will be part of the proposed small-scale A/R CDM project activity:**

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N<sub>2</sub>O from the use of fertilizers

**B.4. Carbon pools selected:**

Carbon pools	Selected (answer with yes or no)
Above ground	Yes
Below ground	Yes
Dead wood	No
Litter	No
Soil organic carbon	No

**B.5. Description of strata applied for ex ante estimations:**

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As the soil condition of the proposed project area is quite homogenous (flat and sandy), thus the area is divided into a number of strata based on administrative boundary of sub-villages (see Table 1), i.e. Parangkusumo, Wonoroto, Ngentak, Kuwaru, Cangkring and Patehan. The geographical boundary of each stratum is shown in Figure 4 (c.f. Figure 1).

**B.6. Application of baseline methodology to the proposed small-scale A/R CDM project activity:**

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Under the absence of the registered small-scale A/R CDM project activity, the actual net GHG removals by sinks will not increased from the current condition. The present land use will remain as it is to the future and no significant changes in the carbon stocks within the project boundary would have occurred. Thus the existing carbon stocks prior to the implementation of the project activity are considered as the baseline and assumed to be constant throughout the crediting period.

**B.7. Description of how the actual net GHG removals by sinks are increased above those that would have occurred in the absence of the registered small-scale A/R CDM project activity:**

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Under the absence of the registered small-scale A/R CDM project activity, the actual net GHG removals by sinks will not increased from the current condition. The change of carbon stock in the absence of the



project activities is considered negligible as the grass may not be able to grow and to succeed the forest due to long dry season, and low soil water retention. Thus in the absence of the projects, the carbon stocks in the proposed project area are not likely to change, indicating that the net GHG removals by sinks are additional to the non-project scenario. To more clearly demonstrate the additionality of the proposed project activity, Attachment B of the Simplified Baseline and Monitoring Methodologies for Selected SS-A/R CDM Project Activities Categories states that the project participants shall provide an explanation to show that the project activity would not have occurred anyway due to the existence of at least one of the following seven barriers, i.e. investment barriers, institutional barriers, technological barriers, barriers related to local tradition, barrier due to prevailing practice, barriers due to local ecological conditions, and barriers due to social condition.

The main barrier that prevents local communities from implementing such project activities is investment barriers. As the project is intended for conservation areas, thus the planted trees will not be harvested. Farmers will not be interested in planting trees just for wind breaker. Even the income from selling carbon credit is higher than the investment the farmers will also not be able to borrow the money from the bank. Due to bank regulation, borrowers are required to have collateral properties to mitigate the bank's financial risk. In the project location, most farmer participants cultivate state lands which are not accepted by the banks as collateral. In addition, banks have complicated bureaucratic procedures for borrowing money, which discourages farmers from seeking loans (Sayogyo, 1981; Kolopaking, 1985; Siregar, 2001). To remove the barrier, local government along with Sumitomo forestry will provide the support funding for the investment.

Under the absence of the proposed project, the area will remain as it is. There is little chance of the area evolving into secondary forests through natural regeneration. Thus in the absence of the project activity, no significant changes in the carbon stocks within the project boundary are expected. There is a limited amount of remnant trees in the project boundary. The project participants (farmers) have signed an agreement to not cut these trees during or after establishment, hence there will be no emissions. According to paragraph 10 of the simplified methodology, under these conditions the project participants can assume that the change in carbon stock is equal to zero, and a static baseline is appropriate. The baseline carbon stocks in the carbon pools (above and below ground biomass) are constant at the level of existing carbon stock measured at the start of project activity.

**B.8. Application of monitoring methodology and monitoring plan to the small-scale A/R CDM project activity:**

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**B.8.1. Data to be monitored: Monitoring of the actual net GHG removals by sinks and leakage.**

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**B.8.1.1. Actual net GHG removals by sinks data:**

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**B.8.1.1.1. Data to be collected or used in order to monitor the verifiable changes in carbon stock in the carbon pools within the project boundary resulting from the proposed small-scale A/R CDM project activity, and how this data will be archived:**

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Data variable	Source of data	Data unit	Measured (m), calculated (c) or	Recording frequency	Proportion of data to be	How will the data be	Comment
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			estimated (e)		monitored	archived? (electronic / paper)	
Location of the areas where the project activity has been implemented	Field survey, cadastral data, or aerial photographs or satellite imagery	Lat-Long	(m)	5 years	100%	Electronic, paper, photos	GPS can be used for field survey <sup>(1)</sup> .
Ai – Size of the areas where the project activity has been implemented for each strata	Field survey, cadastral data, aerial photographs, satellite imagery or GPS	Ha	(m)	5 years	100%	Electronic, paper, photos	GPS can be used for field survey <sup>(2)</sup> .
Location of the permanent sample plots	Project maps and project design	Lat-Long	Defined	5 years	100%	Electronic, paper	Plot location is registered with a GPS and marked on the map <sup>(3)</sup> .
Diameter at breast height (1.30 m)	Permanent plot	Cm	(m)	5 years	Each tree within the plots	Electronic, paper	Measurement of DBH for each tree within the plots that meet size limits
Height	Permanent plots	M	(m)	5 years	Each tree within the plots	Electronic, paper	Measurement of H for each tree within the plots that meet size limits
Wood density	Permanent plots, literature	tons dm <sup>3</sup> per m <sup>3</sup> fresh vol.	(e)	Once	3 samples/ tree from base, middle and top of the stem of three individuals	Electronic, paper	
Total CO <sup>2</sup>	Project Activity	Mg	(c)	5 years	All project data	Electronic	Based on data collected from carbon pools in plots

Note:

- (1) Prior to planting, the exact boundaries of the project activities (site by site) will be documented. If the actual boundary of an individual site falls outside of the designated boundary, the eligibility of that land as a part of the A/R CDM project activities will be evaluated to assure the projected baseline scenario also applies to these lands. Otherwise, these lands will not be included as a part of the proposed A/R CDM project activity. The DOE will be notified of such changes in boundary and these changes will be subject to validation during the project. The project boundary will be monitored periodically through the crediting period. If the boundary is changed during the crediting period, for instance, deforestation occurs in the project area, the specific location and area of the deforested land will be identified, and the boundary will be modified and reported to DOE for subsequent verifications, the deforested area will be excluded from the project, and the CERs resulting from



that will subsequently be retired. Similarly, if the planting on certain lands within the project boundary fails, and other land uses occur, these changes will be documented.

- (2) Monitoring the change in carbon stock within project boundaries will be conducted in a number of strata. The stratification will be done using auxiliary data where each farmer group will be treated as one stratum. This stratification process is justifiable as i) biophysical conditions will differ more greatly between farmer groups than within farmer groups (villages), and ii) the tree composition of the systems to be established may vary between farmer groups. Each stratum will be further developed into sub-strata in terms of the year to be planted. Additional sub-strata will be developed subsequently for areas affected by fires and pests. The stratification map will be developed on a GIS platform. However, as mandated by paragraph 37 of the Annex II of the FCCC/KP/CMP/2005/4/Add.1, if significant underperformance is detected within the same stratum after the project is implemented, changes in carbon stocks from such areas will be treated as a separate stratum.
- (3) Permanent sampling plots will be used to measure and monitor changes in carbon stocks of the relevant carbon pools over time. The plots will be treated in the same way as other lands within the project boundary, e.g., during site preparation, fertilization, harvesting, etc. Efforts will be taken to prevent permanent sampling plots from being deforested during the crediting period. The number of plots depends on species variation, accuracy and monitoring interval. In the proposed A/R CDM project activity total sum of samples ( $n$ ) is estimated as per a criterion of Neyman for fixed levels of accuracy, assuming no difference in costs exists between different strata or substratum, (as cited by Wenger, 1984).

$$n = \left( \frac{t}{E} \right)^2 \left[ \sum_{h=1}^L W_h * S_h * \sqrt{C_h} \right] * \left[ \sum_{h=1}^L W_h * S_h / \sqrt{C_h} \right]$$

$$W_h = N_h / N$$

$$n_h = n * \frac{W_h * S_h / \sqrt{C_h}}{\sum_{h=1}^L W_h * S_h / \sqrt{C_h}}$$

Where  $L$ =total number of strata;  $t$  =  $t$  value for a confidence level (95%);  $E$  = allowable error ( $\pm 10\%$  of the mean);  $S_h$  = standard deviation of stratum  $h$ ;  $n_h$  = number of samples per stratum that is allocated proportional to  $W_h * S_h / \sqrt{C_h}$ ;  $N$  = number of total sample units (all stratum);  $N_h$ =number of sample units for stratum  $h$ ; and  $C_h$  = cost to select a plot of the stratum  $h$ . It may be possible to modify the sample size after the first monitoring event based on the actual variation of the carbon stock changes determined from taking the  $n$  samples. To verify that plots have been installed and the measurements taken correctly, the field team (see section B4.3) will independently re-measure 10 plots for comparison. The following quality targets should be achieved for the remeasurements, when compared to the original data: (a) Missed or extra trees: no error within the plot; (b) Tree species or groups: no error; (c) DBH:  $< \pm 0.1$  cm or 1 per cent whichever is greater; (d) Height:  $< \pm 5$  per cent; (e) Circular plot radius/sides of rectangular plot:  $< \pm 1$  per cent of horizontal (angle adjusted). At the end of the field work 10–20 per cent of the plots shall be checked independently. Field data collected at this stage will be compared with the original data. Any errors found should be corrected and recorded. Any errors discovered should be expressed as a percentage of all plots that have been rechecked to provide an estimate of the measurement error.

- (4) All the data being monitored will be entered into the data analysis spreadsheets and will be crosschecked by project leader. Where necessary, internal tests are incorporated into the spreadsheets to ensure that the data are realistic. All personnel involved in measuring and analysing data should communicate to resolve any apparent anomalies before the final analysis of the monitoring data is completed. If there are any problems with the monitoring plot data that cannot be resolved, the plot will not be used in the analysis.
- (5) All raw data from the field will be kept in filing cabinet system. All data sheets will have plot number, location coordinates and name of person who collect/monitor the data. After the data being entered into the spreadsheet and the estimation of the net greenhouse gas removal by sinks have been done using the above formulas, the data and the results of analysis will be stored in compact disk and will be updated periodically or converted to a format that could be accessed by any future software application. The CD along with the hard copy of the data and result of analysis including the mentoring reports will be given to each project participant.

#### B.8.1.2. Data for monitoring of leakage (if applicable)

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**B.8.1.2.1. If applicable, please describe the data and information that will be collected in order to monitor leakage of the proposed small-scale A/R CDM project activity**

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Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic / paper)	Comment
Use of nitrogen fertilizer	Field survey (farmer record)	t/ha	M	Every year	Three farmers from each group	Electronic, paper	This will not be collected if the amount of synthetic N fertilizer used will not result in emission of more than 10% of the NAGRS

**B.8.2. Describe briefly the proposed quality control (QC) and quality assurance (QA) procedures that will be applied to monitor actual GHG removals by sinks:**

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Data	Uncertainty level of Data (High/Medium/Low)	Explain QA/QC procedure for these data, or why such procedures are not necessary
Location of plots	L	Random plot verification using GPS to ensure the consistent measuring and monitoring of the carbon stock change over time.
Size of Area	L	Random plot verification using GPS to ensure the consistent measuring and monitoring of the carbon stock change over time.
Tree species	L	Random verification over the project area to ensure the area of each tree species is correctly measured.
Age of system	L	Verification over the project area to ensure the area in terms of plantation age is correctly measured.
Number of trees	L	Random plot verification.
Diameter at breast height (DBH)	L	Random plot verification.
Merchantable Height (H)	L	Random plot verification.
Merchantable volume	M	<u>Improved allometric equation will be used whenever available.</u>
Wood Density	L	IPCC default values, or local values will be used whenever available.
Biomass Expansion Factor (BEF)	M	IPCC default values, or local values will be used whenever available.
Carbon Fraction	L	IPCC default values, or local values will be used whenever available.
Root-Shoot Ratio	M	IPCC default values, or local values will be used whenever



		available.
Direct N <sub>2</sub> O emission of N input	L	IPCC default values, or local values will be used whenever available.

**B.8.3. Please describe briefly the operational and management structure(s) that the project operator will implement in order to monitor actual GHG removals by sinks by the proposed small-scale A/R CDM project activity:**

>>

Kutai Timber Indonesia in collaboration with Bantul Forestry Office will conduct field monitoring of the actual GHG removals by sinks. Leakage will not be monitored as it is negligible and can be assumed to be zero, but the amount of nitrogen fertilizer application will be monitored.

Management structure is implemented in order to monitor actual GHG removals by sinks. The KTI will ensure that all participating families and government bodies conduct regular meetings to ensure full participation and management of the project. The management structure has the following elements:

**Producers** of the “net GHG removals by sinks”: The producers are the participating farmers. Each farmer will have a unique identification code. About 30-50 farmers will form one Farmer Group who will be responsible for managing the trees planted along the coastal area with 1.0-1.5 km length. The group should ensure 90% survival of trees in order to meet the target net GHG removals by sinks. The participating farmer groups will get payment on regular basis if they can maintain the survival rate above 90% until the end of crediting period (?).

**Selecting Producers:** Producers will be selected based on their willingness and capability to manage the plantation systems on the lands allocated for the project. To facilitate and strengthen this process, the producers will be organized into a farmers’ cooperative (under the project).

**Technical support staff:** The staffs of KTI and Bantul Forest Office are natural resource management professionals. They will assist the producers to design, establish and manage the trees plantation. The KTI will be accountable to the producers. At the same time they will be an independent third party, separate from the direct project participants, providing the investor a degree of confidence in project management. The Bantul Forest Office will officially appoint its staff to be responsible for doing the monitoring. The appointed staff will be equipped with SOPs to estimate measurement errors and all names of monitoring team will be recorded. When replacement of the monitoring team member is required, the new member should be adequately trained. The leader of the monitoring team would be a person that have background on forestry and received training on monitoring methodology.

**B.9. Date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline and the monitoring methodology:**

>>

Date: ?

Name of Person/Entity Determining the Baseline:

CER Indonesia

Contact Person:

Dr. Rizaldi Boer ([rizaldiboer@gmail.com](mailto:rizaldiboer@gmail.com))

Sri Rahayu ([lmgc-ipb@indo.net.id](mailto:lmgc-ipb@indo.net.id))

**SECTION C. Estimation of ex ante net anthropogenic GHG removals by sinks:**

**C. 1. Estimated baseline net GHG removals by sinks:**

&gt;&gt;

0 ton CO<sub>2</sub>

As the soil condition of proposed project area consists of grassland and sand, grassland will be the only strata which taken into account. Total area of grassland covered around 50% (about 42.5 hectares) of total proposed project area. Based on field measurement data, average carbon stock on grassland strata is 4.93 t C/ha. Thus, total baseline carbon stock will be 209.327 t C or 767.532 tCO<sub>2</sub>e in a year. This amount will not significantly change anytime at baseline scenario (remain constant), thus baseline net GHG removal by sinks will be set as zero.

**C. 2. Estimate of the actual net GHG removals by sinks:**

&gt;&gt;

52,590.3 ton CO<sub>2</sub> (?)**C. 3. Estimated leakage:**

&gt;&gt;

0 ton CO<sub>2</sub> (?)**C. 4. The sum of C. 2. minus C.1. minus C.3. representing the net anthropogenic GHG removals by sinks of the proposed small-scale A/R CDM project activity:**

&gt;&gt;

52,590.3 ton CO<sub>2</sub> (?)





**C. 5. Table providing values obtained when applying equations from the approved methodology:**

The result of the application of equations from approved methodology above shall be indicated using the following tabular format:

Year	Estimation of baseline net GHG removals by sinks (tonnes of CO <sub>2</sub> e)	Estimation of actual net GHG removals by sinks (tonnes of CO <sub>2</sub> e)	Estimation of leakage (tonnes of CO <sub>2</sub> e)	Estimation of net anthropogenic GHG removals by sinks (tonnes of CO <sub>2</sub> e)
1	0	8.4	0	8.4
2	0	130.4	0	130.4
3	0	393.2	0	393.2
4	0	868.2	0	868.2
5	0	1,431.4	0	1,431.4
6	0	1,536.5	0	1,536.5
7	0	1,990.4	0	1,990.4
8	0	2,502.2	0	2,502.2
9	0	1,917.9	0	1,917.9
10	0	3,344.8	0	3,344.8
11	0	2,882.3	0	2,882.3
12	0	3,243.4	0	3,243.4
13	0	3,625.5	0	3,625.5
14	0	4,028.6	0	4,028.6
15	0	2,239.7	0	2,239.7
16	0	3,854.0	0	3,854.0
17	0	4,160.4	0	4,160.4
18	0	4,478.1	0	4,478.1
19	0	4,807.2	0	4,807.2
20	0	5,147.6	0	5,147.6
<b>Total</b> (tonnes of CO <sub>2</sub> e)	0	52,590.3	0	52,590.3

**SECTION D. Environmental impacts of the proposed small-scale A/R CDM project activity:**

**D.1. Provide analysis of the environmental impacts, including transboundary impacts (if any):**

>>

Minister of Environment Decree No.3 Year 2000 states that all large-scale timber plantations must conduct an environmental impact assessment (EIA). This condition does not apply to the proposed project activity. Minister of the Environment Decree No.17 Year 2001 states that EIAs are required if the following conditions exist: i) a landuse permit is not yet issued for the site; ii) the site is over 8000 ha; or iii) the possibility of negative environment or socioeconomic impacts has been identified. An EIA is not required for the proposed project activity as: i) the size of the project activity is only 85 ha; and ii) the reforestation of abandoned state lands, currently covered with unproductive grass, will result in positive environmental and enhanced income/livelihoods for the participating farm families.

**D.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken an environmental impact assessment,**



**in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:**

>>

No negative environmental impacts are envisaged

**D.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section D.2. above:**

>>

Not applicable

**SECTION E. Socio-economic impacts of the proposed small-scale A/R CDM project activity:**

**E.1. Provide analysis of the socio-economic impacts, including transboundary impacts (if any):**

>>

The project will give positive socio-economic impact. The establishment of the plantation in this coastal zone may attract more people to visit the area for recreation. Increasing number of people coming to the area will open new economic activity opportunities for the farmers and also open wider access for farmers to market their agriculture product.

**E.2. If any negative impact is considered significant by the project participants or the host Party, a statement that project participants have undertaken a socio-economic impact assessment, in accordance with the procedures required by the host Party, including conclusions and all references to support documentation:**

>>

No negative socio-economic impacts are envisaged

**E.3. Description of planned monitoring and remedial measures to address significant impacts referred to in section E.2. above:**

>>

Not applicable

**SECTION F. Stakeholders' comments:**

**F. 1. Brief description of how comments by local stakeholders have been invited and compiled:**

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The stakeholder process was intended to building stakeholders understanding of and commitment to the design and implementation of an AR CDM project activity. The stakeholder process was conducted in three stages. The first stage was aimed to raise stakeholder's awareness about the AR-CDM (*What is a CDM project?, What are the advantages of a CDM project?, How to conduct a CDM project?, Where and when to conduct a CDM project?, and Who can undertake a CDM project?*). The first stakeholder process was conducted through a series of roving workshops with the communities interested in the AR CDM project and local governments, including:

1. Forestry Agency of Yogyakarta Province.



2. Forestry Agency of Bantul Distict.
3. National Land Affair Agency (Badan Pertanahan Nasional)
4. Regional Planning Development Agency of Yogyakarta Province (Badan Perencana Pembangunan Daerah)
5. Household affair of Sultan Hamengku Buwono (Paniti kesmo)
6. Field Counseling Officer of Forestry (Petugas Penyuluh Lapangan Kehutanan) of Kretek, Sanden and Srandakan Sub-district.
7. Village chief of Parangtritis, Srigading, Poncosari and Gadingsari village.
8. Hamlet chief (Dukuh) of each village.
9. Leader of Farmer's Group.
10. Communities around project location.

The second stage will be carried through targeted Focus Group Discussions (FGDs) at the community and district level to identify stakeholders' understanding, needs, priorities, interests and commitments related to implementing an AR-CDM project activity. The second stage incorporated a broader forum of district stakeholder and bigger events, including media coverage. The third stage of the stakeholder process will be organized and conducted by the Designated National Authority (DNA), housed in the MOE, if additional consultation is deemed necessary before approval is given.

#### **F. 2. Summary of the comments received:**

>>

Farmers welcome the idea of reforestation the coastal area through the CDM project activity for the following reasons: (i) farmers have already had awareness on how important land rehabilitation and conservation, thus they will support any government's commitment and activity which aim to improve the environment, (ii) *casuarina* forest was expected by farmers will be functioned as wind breaker of their horticulture and livestock animals, (iii) the project will attract more people to visit the sites for recreation when the plantation get established and this will increase opportunity of local community to create alternative economic activities such as selling food and others and also better access for marketing their agriculture products, (iv) the project will increase their income security as they will receive payment on regular basis as long as they can maintain the survival of the trees above 90% during the lifetime of the projects (?). The participating communities also expect that local government will provide and create additional agriculture and rural development programs.

#### **F. 3. Report on how due account was taken of any comments received:**

>>

This project has been designed in direct response to the interests and urgent needs of the participating farmer's group, and local government and other stakeholders. Thus there is no comments need to be reported.

Annex 1CONTACT INFORMATION ON PARTICIPANTS IN THE PROPOSED SMALL-SCALE A/R CDM PROJECT ACTIVITY

Organization:	Agency of Forest and Plantation, Province of Daerah Istimewa Yogyakarta
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### Annex 2

#### INFORMATION REGARDING PUBLIC FUNDING

The project is not used ODA funding

### Annex 3

#### DECLARATION ON LOW-INCOME COMMUNITIES

Community participating in this proposed project activities is low income community. The declaration of the low income community will be issued by District Social Security Office (Dinas Kesejahteraan Sosial Kabupaten)

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#### History of the document

Version	Date	Nature of revision
02	EB35, Annex 22 19 October 2007	<ul style="list-style-type: none"> <li>• Sections A and B were restructured;</li> <li>• Requirement to repeat equations has been removed from section C;</li> <li>• Sections D and E have been aligned with the requirements of the Modalities and Procedures.</li> </ul>
01	EB 23, Annex 16(a) and 16(b) 24 February 2006	Initial adoption