

Contract Work for the Ministry of the Environment in the 2003 fiscal year

Research for the Clean Development Mechanism

CDM Feasibility Study: An NGO Participatory Forestation Project in the Philippines

Abstract of the Report

February 2004



OISCA-International

(1) Title of the Research
CDM Feasibility Study: An NGO Participatory Forestation project in the Philippines

(2) Period of the Research
April 2003 - March 2004

(3) Organization implemented the Research
OISCA-International

(4) Country of the Research
The Philippines

(5) Stage of the Research
Process 2: CDM Feasibility Study

(6) Outline of the Research
The purpose of this research is to examine the essential elements such as baseline, crediting period, leakage, and monitoring, which are required for drawing up the Project Design Document (PDD) in order to applying the NGO participatory forestation project in the Philippines as a CDM (Clean Development Mechanism) project. Moreover, we shall examine the contribution of tree planting for the increases in the absorption amounts of GHGs, and the new monitoring methodology in the case of reforestation activities by NGOs.

The research was conducted within the project called 'The Children's' Forest Program' in the Philippines which has been carried out by OISCA-International since 1991, and especially conducted at reforestation areas owned by elementary and junior high schools in the Philippines and tree planting and its maintenance have been managed by children and teachers, and local inhabitants.

In this research, we have estimated the actual net CO₂ removals by sinks and define the baseline through the field survey for understanding the growth condition of trees in the targeting areas conducted by local staff of OISCA-International, and the interviews from local schools doing the maintenance of the reforestation areas. In addition, fundamental information for examining the leakage and the monitoring methods has been collected. Furthermore, the directions of guidelines for reforestation activities and monitoring methods in the case of NGO participatory forestation projects as a CDM project have been examined based on the result of the field survey and the interviews.

(7) Organization cooperated to the research
AOI Environmental Consulting Co., Ltd.

(8) Results

Outline of the project

Tree planting projects implemented as The Children's Forest Program in the Philippines by OISCA-International. About 1,200ha would be planted between 1991 and 2009. Mahogany and Gmelina has been selected as planted trees.

Targeting GHG

CO₂

Technical field

Reforestation

CDM/JI

CDM

Period of the project

2000-2009

Baseline

Applying the baseline for a proposed afforestation or reforestation project activity under the CDM which is defined as 'reasonably represents the sum of the changes in carbon stocks in the carbon pools within the project boundary that would have occurred in the absence of the proposed project activity' by COP9, we defined as the baseline of this project as the net amounts of CO₂ removals by sinks when reforestation was not implemented. As a result of the interviews conducted to local stakeholders and Department of Environment and Natural Resources, the land offered as reforestation area in the project were considered as unused land with grass.

Therefore, it is assumed that the net amount of CO₂ removals is NIL as the baseline of this project.

The amounts of GHG emission reduction

<The baseline net GHG removals by sinks>

The amount of CO₂ removals is considered to be NIL.

<The actual net GHG removals by sinks>

The amount of CO₂ removals per hectare of main tree species in the reforestation area is estimated by the result of the field survey understanding the growth condition of trees.

Calculation of the material volume of forest in each age of forest

the material volume of forest (V_f : m³/ha)

= coefficient A (3.0) x density of standing trees (n: a tree/ha) x (average diameter of trees (d))
2 x average height of trees (H)

Calculation of the growth rate of material volume in each year

The growth rate of material volume (m³/ha) = material volume of forest in an applying year -
material volume of forest in the year before

Calculation of the weight of trunk growth

The weight of trunk growth (t/ha) = the growth rate of material volume (m³/ha) x specific gravity of all trunk (0)

Calculation of the weight of biomass growth

the weight of biomass growth (t/ha) = the weight of trunk growth (t/ha) x expansion coefficient (1.5)

Calculation of the amount of CO₂ removals per hectare of each tree species

The amount of CO₂ removals (t-C/ha) = the weight of biomass growth (t/ha) x rate of carbon stocks in the carbon pools (50%)

Unit: t- CO₂/ha

Years after reforestation	Gmelina	Mahogany
0 year	-	-
1 year	-	-
2 year	-	-
3 year	0.382	0.111
4 year	0.424	0.130
5 year	0.468	0.149
6 year	0.515	0.170
7 year	0.563	0.193
8 year	0.613	0.216
9 year	0.665	0.241
10 year	0.719	0.267
11 year	0.776	0.295

Estimation of the accumulated reforestation area between 1991 and 2009
1,198.3ha

Estimation of the amount of CO₂ removals between 1991 and 2009
3,356.5t- CO₂

Although discharge of CO₂ from growing and conveyance of young trees was assumed as the leakage, quantitative research has not been carried out in this case.

Cost

The total working expenses in this project during the implementation of project
= about 1.3 million dollars (\$= ¥ 110)

Cost / the amount of GHG emission reduction
about \$390/t- CO₂ (\$= ¥ 110)

Monitoring

The items for monitoring the CO₂ removals and emission from this project are shown in the below table.

Classification of impact	Scope	Monitoring items
Direct impact	System Boundary	the amount of biomass growth on the ground and underground (the size of reforestation area, the number of trees, the age of forests, the heights of trees, a diameter of tree trunk, growth situation)
		the amount of accumulation of fallen leaves and fallen branches on the ground
		the amount of accumulation of soil organic matter in soil
		the amount of biomass losses on the ground and underground by thinning (the size of cutover within reforestation area, the number of trees, the heights of the trees, diameter of tree trunk)
		the amount of carbon discharge in soil of thinning area
	Leakage	the amount of fuel consumption accompanied by conveyance of young trees
the amount of fuel consumption accompanied by growing young trees		
Indirect impact (CO ₂ removals and emission)	System Boundary	the amount of biomass losses on the ground and underground which had lost by the forest fire or by the blight (the size of cutover within reforestation area, the number of trees, the heights of the trees, diameter of tree trunk)
		the amount of use of the thinning material at the reforestation area
	Leakage	the amount of the fuel used accompanied by thinning, conveyance, and processing
		reduction of environmental impacts as a result of increasing the environmental awareness within local inhabitants
Indirect impact (economically, socially, and environmentally involved)		promote to found the local communities
		offer the opportunities of education on the field, and the recreation places
		create the employment opportunities as the coordinator of 'the Children's Forest Program' by OISCA-International

Influences other than GHG emission reduction

The following influences can be expected.

- The children's participation for tree planting and maintenance of trees, and the practical use as educational materials
- Environmental awareness within the children in elementary and junior high schools would be increased as a result of introducing the participatory environmental educational program on the theme of reforestation, and it leads to the increases of environmental awareness not only within parents of the children but also within local inhabitants.
- The increases of environmental awareness within parents of the children and local inhabitants may activate other local activities, and may promote the foundation of local communities.
- The reforestation areas next to the school building are enable to offer the place for field educational program and for recreations as an educational surroundings of elementary and junior high schools. Moreover, it contributes to create the cool and comfortable study environment in the school where air conditional equipment is not established.
- It creates the employment opportunities as the coordinator of 'the Children's Forest Program' by OISCA-International.

Feasibility

There are no economical profits from the reforestation activities in the projects because the projects are implemented at the aim of the environmental educational program by NGO. On the other hand, the cost which is necessary to support for the reforestation activities by local NGO staff is covered with the donation and aid from the supporters of the Children's Forest Program.

Therefore, if the Certified Emission Reduction (CER) is applied to this project, it enables to distribute the CER credit to supporters who contribute to the donation and aid. In other words, it gives the incentive to support the NGO participatory forestation project, and it can be considered to increase the feasibility of the projects. Furthermore, it enables to show the definite role of voluntary participants for the projects as contributors for the CO₂ emission reduction.

Influences on other areas

As of 2002, 972 elementary and junior high schools in the Philippines are participating 'the Children's Forest Program'. Currently, 'the Children's Forest Program' by the OISCA-International is under the guidance of DENR (Department of Environment and Natural Resources), DECS (Department Education, Culture and Sports), and PNVSCA (Philippine National Volunteer Service Coordinating Agency) in the Philippines, and also is strongly required the further increases of the number of participating schools.

Therefore, through the promotion of 'the Children's Forest Program' in the Philippines by OISCA-International, it is expected to expand not only within the Philippines but also to 'the Children's Forest Program' in 23 countries and territories other than the Philippines.

Furthermore, it can be considered as showing the feasibility of NGO participatory forestation projects of those other than OISCA-International in developing countries as the CDM projects.

