CDM/JI Feasibility Study – Executive Summary

(1)Background information of the project

■Background summary of the proposed project

Conservation International (CI) is developing a reforestation CDM project in the western coastal region of Ecuador, located between two biodiversity hotspots , Tropical Andes hotspot and Tumbes-Chocó-Magdalena hotspot. This CDM project will reforeste approximately 500 hectares of degraded pastureland along Ecuador's coastal rainforest in an attempt to connect existing remaining primarily forests. The activity will offset approximately 150,000 tons of CO2 over 30 years; provide a source of employment, income and sustainable food source for the local community, and preserve the habitat for a wide variety of threatened species. In all, bringing a "triple benefit" for climate, sustainable development, and biodiversity.

This project aims at the development of Project Design Document (PDD), by collaborating with several NGOs and institutions within the host country as well as internationally. The first step is to collect the information needed to develop a PDD, including the development of new baseline and monitoring methodologies.

■Information of host country

Ecuador is an Andean country of northwest South America, neighbored by Colombia, Peru and the Pacific Ocean. The country can be divided into four main regions: the mountainous highlands, where Quito, the capital city is located, the fertile agricultural plain of the Pacific coast, the Amazon lowlands and the Galapagos Islands. Ecuador, as its name implies, straddles the equator and temperatures are relatively stable year-round, with marked seasonal differences in rainfall that vary across the different regions.

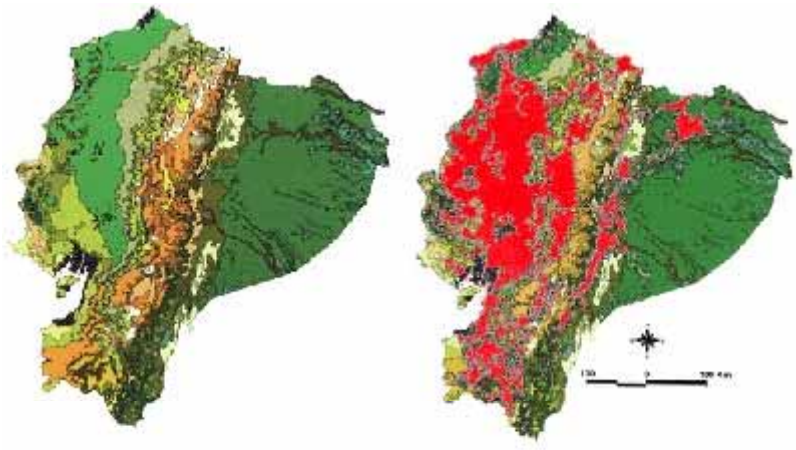
Map of Ecuador

With approximately 13 million inhabitants, the country is ethnically diverse with a number of indigenous groups, mestizos (mixed Amerindian-white) and people of African descent. There has been increasing migration to the cities in Ecuador, driven by the potential for employment. The country's population is now approximately 55% urban. Nevertheless agriculture continues to employ roughly a third of the economically active population (U.S. Department of State, 2004).

GDP per capita for 2003 was $2,118 (Banco Central del Ecuador, 2004), but 65% of the population lives below the poverty line (CIA, 2004). Although the public education system has serious deficiencies, adult literacy is around 90% (UNDP, 2004).

Ecuador is a country of extraordinary biological diversity, at the biotic crossroads of the Amazon, the Andes, the Chocó and the Tumbesian dry forest . With elevations ranging from sea level to over 6000 meters, Ecuador has an exceptional diversity of climate patterns, species and ecosystems squeezed into only 277,000 square kilometers.

National-level estimates for deforestation rates vary widely (0.5%-2.4% p.a. in a review by Sierra, 1996), but generally coincide in concluding that Ecuador has lost more than 50% of its original vegetation cover. The principal cause of forest loss is conversion to agriculture and grazing. Pressures are particularly strong in the relatively fertile lowlands of the coast. Soil degradation, erosion and changes in hydrologic functions of watersheds are direct consequences of these land-use changes affecting rural and urban populations as well as undermining long-term economic productivity.



Left：Original Vegetation of Ecuador　　Right：Areas with human influence (in red) 1999

The project site is located in the Western Ecuador region located between Tropical Andes hotspot and Tumbes-Chocó-Magdalena hotspot, two out of the thirty-four biodiversity hotspots interfaces as the most significant location for the biodiversity conservation. Implementation of reforestation project in such biodiversity-rich and threatened area produces multiple benefits, not only mitigating the climate change but also expected to contribute toward the goals of Convention on Biological Diversity and for Millenium Development Goal.

Tumbes-Chocó-Magdalena hotspot

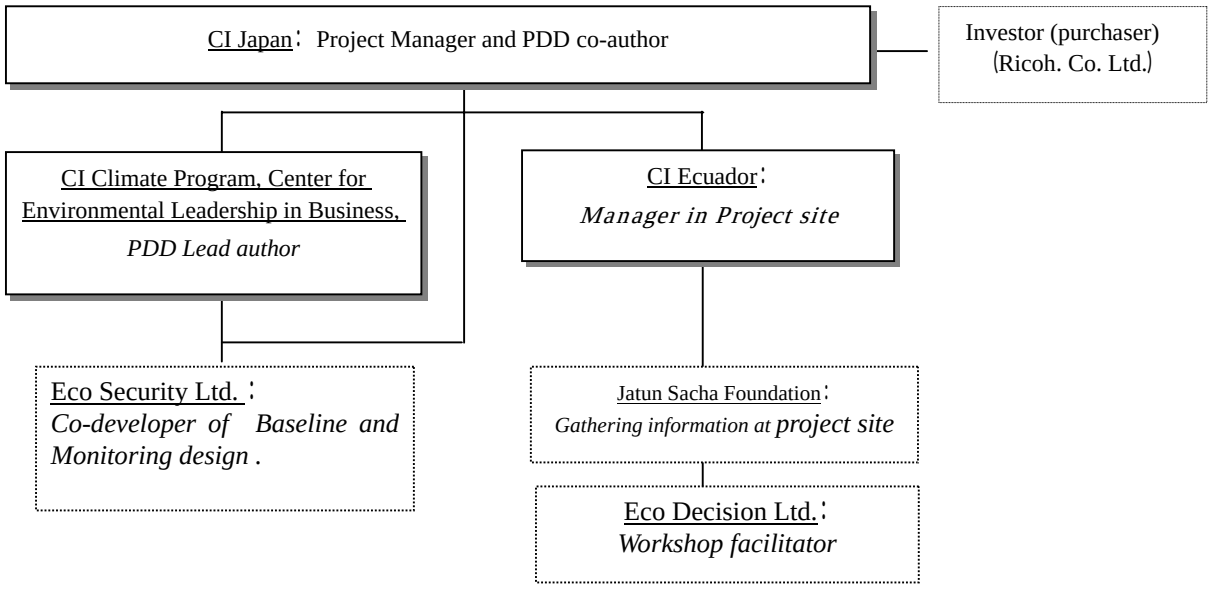
Tropical Andes hotspot

■ Criteria for CDM/JI and policy context in host country including the establishment of DNA.

Subject	Specific law applied	Content
a. Forest management law	1981 Law for Forestry and the Conservation of Natural Areas and	Few formal prerequisites for the establishment of plantations, although
b. Environmental law	1999 Law for Environmental Management	Framework environmental law for Ecuador. Establishes principles,
c. CDM related law	a. signatory to the UN Framework Convention on Climate Change (signed C. Executive Decree No. 1101, 21 July 1999	The Committee has designated two national bodies separating the functions

		of regulation and promotion.
	D. Decision No. 1 CNC//2003 of 21 April 2003	The National Climate Committee designated the Ministry of Environment as the DNA for the CDM
	E. Ministerial Resolution No. 015 of 29 April 2003.	Ministry of Environment in turn formally constituted the AN-MDL
	F. Decision No. 2 CNC/2003 of 21 April 2003, and these were in turn adopted by the Ministry of the Environment in Ministerial Agreement No. 016 of 29 April 2003.	The procedures for the approval process for CDM were established by the National Climate Committee
	G. Definition of forest, as required for participation in the CDM (FCCC/CP/2003/6/Add.2, Annex, Art. F.8).	This is still subject to process of national expert review, but indications from CORDELIM are that country will select and report to the Executive Board, upper range values for this definition, i.e. minimum crown cover of 30%, minimum land value of 1 hectare and minimum tree height of 5 meters.
d. Requirement of EIA for CDM	Not required at this stage	

■Implementation scheme for the study



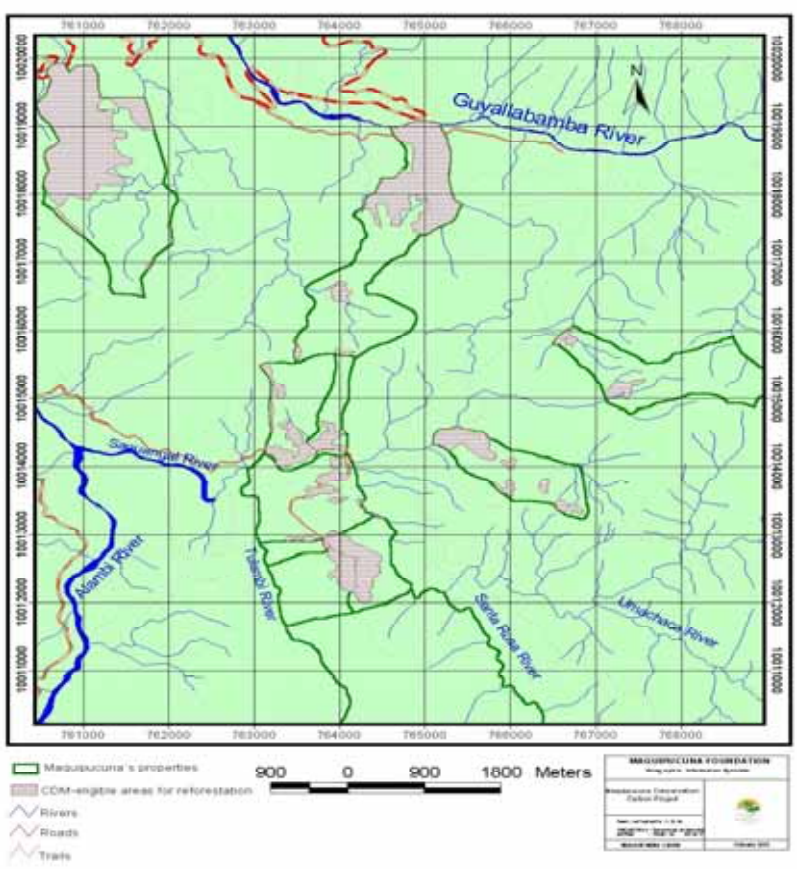
(2) Project development

■Contents of the Project

The project aims to produce multiple benefits by mitigating climate change (generating CERs), conserving biodiversity and finally supporting sustainable development of local community. The project is located at the western foothills of the Ecuadorian Andes, in areas between 1000 and 1500m above sea level

Reforestation will take place on unproductive and abandoned pasture lands purchased by the Maquipucuna Foundation fifteen years ago to expand their private conservation areas. Terrain ranges from flat to steeply sloped, with some slopes approaching 50-60%. All areas to be reforested are within 2 kilometers of paved roads.

The reforestation project will establish mixed-species forest adjacent to the Maquipucuna Reserve. The Maquipucuna Reserve encompasses cloud forest ranging from 1000 to over 2800 meters. All areas to be reforested area adjacent to existing primary or secondary forest (see map). Over the long term, the project will serve to the conservation of biodiversity at the surrounding area.



Map of the Project Site

■Establishing project boundary, baseline methodology and additionality

The project aims to propose a new baseline methodology developed for this AR/CDM project. Though the methodology was developed to be applied to this project,.it was designed to be a generic methodology applicable to other reforestation projects, CI plans to further apply the baseline to triple-benefit type AR/CDM projects under development of planning in other regions and countries in order to promote high quality, multiple benefit projects To Japanese corporations.

The new baseline methodology to be applied and is titled 'Baseline methodology for afforestation or reforestation project activities that are additional due to financial barriers to their implementation'. The concept for this baseline methodology is explained below:

Step 1. Stratify the project area into biophysically and socio-economically homogeneous areas

Step 2. Identify for each stratum the baseline land use alternatives, including the proposed project activity(ies). Where possible this should be supported with quantitative information.

Step 3. Conduct the five steps of the A/R Additionality Tool, the tool revised from A/R additionality tool developed by CDM EB to be specifically applied for A/R project, to determine whether the proposed project activity is additional.

Step 4. From the baseline land use alternatives identified in Step 2, determine the economically most attractive land use alternative, taking into account barriers to investment.

Step 5. Quantify the sum of changes in carbon stocks in the carbon pools that would occur in the baseline land use.

Based on the baseline scenario derived from the above steps, the following is applied to calculate the baseline net GHG removals by sinks for the proposed AR/CDM project activity

Step 1: Select the pools to be included in the calculation of the baseline net greenhouse gas removals by sinks.

Step 2: Stratify each area with a different defined baseline land use within the project boundary into strata where different behaviour of changes in carbon stocks is expected.

Step 3: For each stratum, calculate the initial carbon stocks per hectare contained in all pools selected, and the subsequent yearly changes in these carbon stocks for each year in the project's crediting period.

Step 4: Add up for each year in the project's crediting period the carbon stocks per hectare in the carbon pools selected.

Step 5: Multiply for each stratum the total carbon content of pools per hectare in each year in the project's crediting period by the number of hectares of the stratum.

Step 6: Add up for each year in the project's crediting period the totals of all strata within the project boundary.

Step 7 & 8: Convert the total obtained in Step 6 from metric tonnes of C to metric tonnes of CO2 by multiplying by 3.67(rounded up from 44/12).

The proposed baseline methodology is the most appropriate to define baseline and additionality of types of project activities that are usually prevented to occur due to financial barriers. Over the

30-year crediting period, due to the project's reforestation activity, the total carbon stocks in the pools will increase in comparison with the pools as they are now, which are assumed to be maintained in the baseline scenario. The increased emissions by sources as a result of the implementation of the project are not expected to change this overall outcome significantly.

The proposed project scenario is clearly regarded additional as; 1) it is different from baseline scenario 2) outstanding biodiversity value of the project site is the key factor to be the candidate of the project site 3) the project activity will not generate any financial or economic benefits other than CDM related income because of financial infeasibility 4)the total carbon stocks in the pools will increase in comparison with the pools as they are now, which are assumed to be maintained in the baseline scenario.

■Net anthropogenic GHG removals by the project and the assessment of leakage

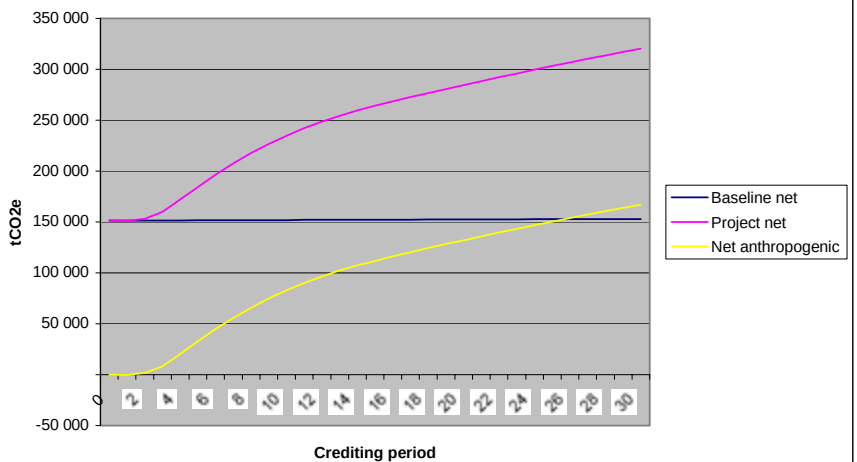
Based on the baseline methodology and the project scenario, the estimation of the project's actual net GHG removals by sinks are shown below:

NAR = ANR –BNR – L

= 320,117 tCO2 – 153,011 tCO_2 – 0 tCO_2

= <u>167,106 tCO_2</u>

Fig. 1. Actual net, baseline net and net anthropogenic GHG removals



Where:

NAR = Net Anthropogenic GHG Removals by Sinks

ANR = Actual Net GHG Removals by Sinks

BNR = Baseline Net GHG Removals by Sinks

L = Leakage (from Section E.6)

For reforestation, the main type of leakage is activity shifting by farmers who depend on the developed land. As these are abandoned pasturelands with no prior use, the project is not taking away needed resources from the local community. For to this reason, we do not expect leakage on the site. As a risk mitigation strategy, the project will address the potential shift with the following mitigation measures: education for and benefit sharing with the local communities, and enforcement of laws and patoroling.

■Monitoring Plan

A new monitoring methodology was developed for this project to be proposed to the CDM-EB. It was aimed to be generic and generally applicable to broad range of afforestation or reforestation projects. It recommends that projects should adhere to the relevant guidance in Section 4.3.3 of the IPCC Good Practice Guidance for LULUCF (2003).

For the monitoring of the actual net GHG removals by sinks, carbon pools are measured in representative sample plots within each identified stratum within the project boundary. The results from the sample plots are then extrapolated to the entire area of the stratum.

For the monitoring of increased GHG emissions by the sources within the project boundary resulting from fossil fuel combustion, fuel consumption shall be recorded as and when it occurs or fuel expenses shall be recorded as and when the project or contractors incur them, and the corresponding fuel consumption shall be calculated using the fuel price at the time.

The monitoring process will be done for the first time after a period to be determined by the project proponents and thereafter in 5-yearly intervals. Sampling plots representative for the entire project area will be examined and will be established to measure carbon stocks in the pools in accordance with standard sampling procedures by considering biophysical aspect, climate, tree species and schedule for reforestation activity.

■Environmental and socio/economic impact analysis

The project developers have opted to work with the “Community, Conservation and Biodiversity Project Design Standards(CCB)” (Climate, Community and Biodiversity Alliance, 2005) to conduct a preliminary review of the project’s environmental and social impacts during this project design phase. The CCB standards are being developed under the auspices of the Climate, Community and Biodiversity Alliance (CCBA), a corporate/non-governmental organization partnership including Conservation International, the Nature Conservancy, the Hamburg Institute of International Economics, Pelangi, as well as British Petroleum and Intel. These standards are the product of an ongoing peer-reviewed process to develop standards for identifying projects with clear, verifiable triple benefits for climate, local communities and biodiversity conservation. For this exercise, the 2.1 Draft (10 January 2005) was applied and the project was qualified to be a "silver” project.

■Stakeholder comments

A stakeholder workshop was held with community leaders and representatives. Community leaders were identified and invited based on Maquipucuna's longstanding (15+ years) relationships and presence in the project area. The participants included the community leaders and the representative from Ministry of Environment.

The meeting served to provide basic information regarding climate change and the CDM, present details of the proposed project and its impacts, and to have an extensive discussion regarding the project's design.

Based on the active questions and discussion between participants, the suggestion to the project was integrated to examine at the project design and implementation phase.

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(3)Project implementation

■Implementation scheme for project implementation

The project implementation will be lead by CI Japan, with close collaboration with CI Ecuador and CELB, as well as in partnership with local stakeholders/partners including Maquipucuna Foundation and Jatun Sacha Foundation .

■Financial analysis

The project has completed an initial financial analysis for the project and expect to incorporate new information including investor for the successful execution of the project. The financial analysis was conducted with the project partners for over thirty years of the project period..

Upon successful validation of the project by the CDM Executive Board, Ricoh Company Ltd. agreed to purchase a long-term CERs generated by the project.

■Cost analysis

Based on the initial financial analysis, the invest amount was calculated for the investor to purchase lCERs over thirty years of the project period. As a next step, the Purchase Agreement should be signed after conducting full cost analysis for the investment. Since this project includes the benefits for biodiversity and community that are not easily quantified as a milestone, the quantitative research for cost benefit is assumed to be difficult at this stage.

■Expected barriers/difficulties

Though the initial risk analysis for the generation of lCERs have been completed, the actual compensation plan is needed as an agreement between investor.

(4)Validation (If conducted)

(Validation was not planned within the scope of this study)