

**ASIAN DEVELOPMENT BANK**

**TAR:INO 36675**

**TECHNICAL ASSISTANCE**

(Financed by the Canadian Cooperation Fund for Climate Change)

**TO THE**

**REPUBLIC OF INDONESIA**

**FOR**

**CARBON SEQUESTRATION THROUGH THE**

**CLEAN DEVELOPMENT MECHANISM**

**July 2003**

## CURRENCY EQUIVALENTS

(as of 3 June 2003)

Currency Unit	–	rupiah (Rp)
Rp1.00	=	\$0.000120
\$1.00	=	Rp8,332.50

## ABBREVIATIONS

ADB	–	Asian Development Bank
BAPPENAS	–	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
CDM	–	clean development mechanism
CER	–	certified emission reduction
CIFOR	–	Center for International Forestry
COP	–	Conference of Parties
DNA	–	designated national authority
EIA	–	environmental impact assessment
ERPA	–	emission reduction purchase agreement
GHG	–	greenhouse gas
GTZ	–	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency Technical Cooperation)
ICRAF	–	International Center for Research on Agroforestry
LULUCF	–	land use, land use change, and forestry
MOE	–	Ministry of Environment
MOF	–	Ministry of Finance
MOFr	–	Ministry of Forestry
NGO	–	nongovernment organization
NSC	–	national steering committee
PDD	–	project design document
TA	–	technical assistance

## NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

This report was prepared by S. Sahajananthan, Southeast Asia Department.

## I. INTRODUCTION

1. During the 2002 country programming mission, the Government of Indonesia requested technical assistance (TA) from the Asian Development Bank (ADB) for demonstrating the application of carbon sequestration projects under the clean development mechanism<sup>1</sup> (CDM) of the Kyoto Protocol. A TA<sup>2</sup> to this effect was included in ADB's 2003 country assistance plan for Indonesia. The TA Fact-Finding Mission visited Indonesia from 24 February to 4 March 2003 and held discussions with the Ministry of Finance (MOF), National Development Planning Agency (BAPPENAS), Ministry of Environment (MOE), and Ministry of Forestry (MOFr), and reached an understanding on the proposed TA objectives, scope, and implementation arrangements. The TA framework is given in Appendix 1. The Mission also met with officials of the bilateral and multilateral agencies that are actively involved in facilitating CDM projects, Center for International Forestry (CIFOR), International Center for Research on Agroforestry (ICRAF), and nongovernment organizations (NGOs) and other stakeholders in the climate change program in Indonesia.

## II. ISSUES

2. Carbon dioxide is an important greenhouse gas (GHG)<sup>3</sup>, the emissions of which account for approximately 50% of the total global warming potential. About 20% of global GHG emissions are from land use, land use change, and forestry (LULUCF)<sup>4</sup>. The Inter Governmental Panel on Climate Change predicts that the global average temperatures are likely to increase by 1.4 to 5.8 degrees Celsius between 2001 and 2100 if no action is taken to reduce the carbon dioxide emission. The changes in global temperature will reduce the polar ice cover, raise the sea level, and cause unpredictable adverse weather patterns. The poor who normally live in marginal lands are the most vulnerable group to adverse weather such as floods, droughts, and storms.

3. During the United Nations Conference on Environment and Development (UNCED) in 1992, about 150 countries, cognizant of the need for international action to control global warming, signed the United Nations Framework Convention on Climate Change (UNFCCC).<sup>5</sup> In 1997, the Conference of Parties (COP) of the UNFCCC agreed on an implementing protocol for GHG reduction at Kyoto, commonly called the Kyoto Protocol. The Kyoto Protocol required the participating developed countries and the economies in transition, referred to as the Annex I countries, to meet agreed emission reduction targets by 2008–2012. According to the protocol, the Annex I countries could meet their commitments through any of the following: (i) domestic actions, (ii) joint implementation of GHG reduction projects, (iii) emission trading of targets, and (iv) CDM by GHG reduction projects with developing countries. The CDM allows project proponents in developing countries to earn certified emission reduction (CER) units for the reduction in GHGs upon registration with the CDM Executive Board, established under the Kyoto Protocol. The project proponent may sell, save, or barter the CERs, like a commodity, through private contracts, auction, or exchange markets. Industries and governments in Annex I countries are the potential buyers and users of the CERs. The CERs provide income to the project proponent in addition to standard project output. One of the CDM modes is carbon sequestration through reforestation and afforestation of denuded lands. The CDM procedures

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<sup>1</sup> The CDM is an innovative financing instrument for projects in developing countries that promote sustainable development and reduce emissions of greenhouse gases.

<sup>2</sup> The TA first appeared in *ADB Business Opportunities* (Internet edition) on 18 February 2003.

<sup>3</sup> Major GHGs of Indonesia are carbon dioxide, methane, and nitrous oxide.

<sup>4</sup> Forestry includes harvesting practices that release GHGs.

<sup>5</sup> Currently 186 parties are members of the convention (185 countries and the European Economic Community).

for sequestration have been delayed because of difficulty in developing methodologies to validate, monitor, and verify the GHG reductions. The outstanding issues and details of CDM sequestration projects will be discussed at the ninth COP (COP9), scheduled in December 2003.

4. Indonesia has 108 million hectares of forestland, or 45% of the forest in Southeast Asia. Of this forestland, 12% is presently idle and unproductive and are potential areas for carbon sequestration through forestation under the CDM. These lands could absorb 45–300 tons of carbon dioxide per hectare per year. CDM projects promote sustainable protection of forests, consistent with ADB's forest policy, as continued preservation yields additional revenue through the sale of CERs. However, a number of technical issues need to be resolved in LULUCF projects that could be considered under the CDM. Some of the issues are associated with definitions, such as baselines, non-permanence, leakage, and socioeconomic and environmental impacts. The TA will address many of these issues and apply methodologies acceptable under the Kyoto Protocol for carbon sequestration projects in Indonesia.

5. Due to the significance of the denuded and degraded forestlands in Indonesia a number of bilateral and multilateral organizations have provided TA for aspects of sequestration.<sup>6</sup> Much research has also been done on the dynamics of carbon sequestration. The studies are mostly small-scale and are aimed at estimating carbon sequestration or developing strategies to promote carbon sequestration. This TA will complement these studies by applying their findings and developing CDM-carbon sequestration projects and demonstrating how they can be implemented.

6. Since 1991, ADB has been assisting its developing member countries with climate change issues through TAs.<sup>7</sup> ADB is establishing a CDM facility to help bridge the gap between buyers and sellers of CERs and ensure a fair return to developing member countries for their GHG abatement initiatives. This TA will be the first ADB TA on carbon sequestration, and will be financed through the Canadian Cooperation Fund for Climate Change administered by ADB.

### III. THE TECHNICAL ASSISTANCE

#### A. Purpose and Output

7. The long-term goal is to assist the Government to (i) earn CER units for the reduction of GHG emissions through the CDM, and (ii) promote sustainable forest development. The immediate purpose is to develop the capacity of the Government for pilot testing a carbon sequestration project under the CDM to help Indonesian stakeholders better understand the

<sup>6</sup> National Strategy Study on CDM in Indonesia, financed by the Government of Germany and the World Bank (2001); National CDM strategy for LULUCF, financed by the Australian Agency for International Development (AusAID) and World Bank (2002); Institutional Capacity Building for Clean Development Mechanism in Indonesia, financed by the German Agency for Technical Cooperation (GTZ). (2002).

<sup>7</sup> ADB. 1991. *Technical Assistance to Thailand for Preparing a National Strategy on Global Climate Change*. Manila; ADB. 1991. *Regional Technical Assistance for International Conference on Coal Technologies to Reduce Greenhouse Gas Emission*. Manila; ADB. 1991. *Regional Technical Assistance for a Seminar on Energy Conservation in the Electricity Sector*. Manila; ADB. 1992. *Technical Assistance for Regional Study on Solar Power*. Manila; ADB. 1992. *Technical Assistance to People's Republic of China for National Response for Global Climate Change*. Manila; ADB. 1994. *Regional Technical Assistance for a Study of a Least-Cost Greenhouse Gas Abatement Strategy for Asia*. Manila; ADB. 1995. *Regional Technical Assistance for a Workshop on Demand Side Management in the Power Subsector*. Manila; ADB. 1999. *Regional Technical Assistance for Capacity Building for the Implementation of the Kyoto Protocol and the Clean Development Mechanism*. Manila; ADB. 2002. *Technical Assistance to People's Republic of China for Opportunities for the Clean Development Mechanism in the Energy Sector*. Manila.

processes, implications, and potential applications of the CDM. The TA outputs will include (i) a review of previous studies and a synthesis of lessons learned on carbon sequestration as applicable under the CDM; (ii) a position paper on CDM-carbon sequestration projects for Indonesia for discussion at COP9; (iii) evaluation and simulation of LULUCF, with and without CDM participation, in at least two pilot areas; (iv) demonstration of the processes involved in earning CERs through carbon sequestration; (v) documentation and dissemination of the processes for earning CERs; and (vi) preparation of sustainable forest development strategies for at least two pilot districts.

## **B. Methodology and Key Activities**

8. **Review of Policies and Reports.** The TA will review and analyze (i) all national policies, procedures, and institutional arrangements proposed for earning CERs from carbon sequestration; (ii) draft regulations relating to CDM-LULUCF projects; (iii) other related project activities implemented (past and present) in Indonesia; and (iv) progress of the negotiation process on LULUCF at COP. The results of these analyses will be incorporated in the position paper to be discussed with the international community at the COP9 meeting in December 2003. Following the COP9 meeting, the TA will incorporate decisions of COP9 in implementable procedures for carbon sequestration projects. The TA will also (i) assess the global market for carbon credits and the potential share of Indonesia in this market; and (ii) suggest processes for the development of baseline data, registration procedures, and monitoring and verification procedures for sequestration projects.

9. **Modeling of LULUCF in Pilot Areas.** At least two districts that could earn CER credits will be identified under the TA for pilot studies. The criteria for selecting will include the (i) availability of "Kyoto-lands" (lands that meet the criteria for earning CERs through afforestation and reforestation) for smallholder and corporate investments for earning CERs; (ii) presence of agriculture and forest dependent local communities; (iii) presence of areas with at least three types of forestland uses; (iv) availability of land use plans and programs for forestry development; (v) willingness to support the TA by fully participating in all TA activities; and (vi) willingness to provide suitable office space and staff.

10. The TA will develop strategies for sustainable forest development in the selected pilot districts through a simulation modeling. The activities will include (i) undertaking an inventory of land use in the districts; (ii) identifying boundaries and preparing a base line with regard to sources and sinks of carbon through LULUCF; (iii) determining the ownership patterns of forested areas and potential Kyoto-lands; (iv) examining land use patterns and livelihood opportunities in the project areas, with particular emphasis on income and employment; (v) simulating agroforestry and reforestation models in potential Kyoto-lands in the districts and estimating their technical and socioeconomic feasibility and environmental sustainability; (vi) developing and analyzing scenarios of trends for the pilot Kyoto-lands with and without CDM projects, using geographic information systems; and (vii) assessing the transaction costs involved in obtaining CERs for various project types including small scale CDM forestry, taking into consideration property rights covered by tenurial arrangements and the approval process involving local government, national designated authority, operational entities, and the CDM Board. The TA will apply methodologies and techniques developed in Indonesia by research organizations and institutions, as well as suitable methodologies and techniques developed in other countries. The modeling exercise will also consider forest models like home gardens that will provide benefits from carbon sequestration and from commercial exploitation while maintaining environmental sustainability. The TA will raise awareness among stakeholders on the potential of CERs in their economy.

11. **Demonstration of Processes on Obtaining CER Approval.** The TA will demonstrate the preparation of project design documents (PDD) for at least 2 pilot Kyoto-lands within the pilot districts, and the processes involved in obtaining CER units. It will validate and strengthen institutional arrangements proposed by the national strategy study on CDM in forestry and will complement the study by MOE and the German Agency for Technical Cooperation (GTZ), on institutionalizing the designated national authority (DNA). The TA outputs from pilot areas will meet the needs of the DNA. The TA will develop procedures and design the forms required for the approval process.

12. **Capacity Building.** The TA will help remove policy and institutional barriers to carbon sequestration identified by the LULUCF national strategy study. It will provide for capacity building at all stages of the approval process and in streamlining the processes and reducing transaction costs. The TA activities are limited to capacity development and will not involve generating credits. The activities will involve (i) creating awareness among smallholders, community forest developers, and private large-scale investors on CDM potential; and (ii) training all potential stakeholders, including staff of local government authorities, BAPPENAS, DNA, Ministry of Agriculture, MOE, MOF, and MOFr. The TA will support a number of local workshops and seminars, and at least two national workshops.

### **C. Cost and Financing**

13. The total cost of the TA is estimated at \$875,000 equivalent, including \$400,000 in foreign exchange and \$ 475,000 equivalent in local currency. The Government has requested ADB to finance \$700,000, covering the entire foreign exchange cost and \$300,000 equivalent of the local currency cost. The TA will be financed on a grant basis from the Canadian Cooperation Fund for Climate Change. The Government of Indonesia will finance the balance of the local currency cost, equivalent to \$175,000, through the provision for office accommodation, transport, and remuneration and per diem for its staff. Detailed cost estimates and financing arrangements are presented in Appendix 2.

### **D. Implementation Arrangements**

14. MOE, the focal ministry for climate change in Indonesia, will be the Executing Agency, with overall responsibility for supervising the TA, and implementing all activities that are national in scope. MOE will be responsible for establishing the approval process for all CDM-related activities, capacity building at the national level, stakeholder workshops, and liaison with other ministries and local governments. The local governments of the two pilot districts will support the MOE in implementing the TA at the district level. They will be responsible for land use inventory, LULUCF modeling, stakeholder analysis, and the preparation of project design document. MOFr will be responsible for ensuring that all TA activities and the documents designed are in line with national forest policies and regulation. MOFr will provide assistance in land use inventory and in the preparation of PDDs by providing equipment and technical expertise as appropriate. MOFr will also ensure high technical quality of all TA activities under its mandate and will work closely with MOE at the national level to ensure that the processes developed and demonstrated under the TA are acceptable to all concerned agencies. MOE will provide suitable office space in its headquarters in Jakarta and appoint a senior officer as a full-time project director. The project director will be assisted by one deputy director nominated by MOFr and three support staff. MOE will arrange with the pilot districts for the provision of office space and appointment of a district project manager and three technical support staff.

15. To facilitate interagency coordination, a national steering committee (NSC) will be established. It will be chaired by the BAPPENAS deputy for natural resources and environment. The NSC will comprise senior representatives from Ministry of Home Affairs and local government, MOE, MOF, MOFr, NGOs, and private stakeholders, and a specialist on CDM processes from the Government or the private sector. The NSC will meet quarterly and as necessary. In addition to taking guidance from the NSC, the project director will consult with the national committee on climate change. MOE will facilitate the establishment of district steering committees in the pilot districts, chaired by the district heads. The committees will comprise representatives from MOFr, Ministry of Agriculture, local government, environment, district forest office, NGOs, and two other stakeholders from the community. The national and district steering committees will meet quarterly and as often as required.

16. A total of 52 person-months of consulting services comprising 10 person-months of international and 42 person-months of domestic consultants will be engaged through an international consulting firm. The team leader, an international consultant, will also be the CDM-LULUCF specialist. The domestic LULUCF specialist will be the deputy team leader for the consultant team. International expertise will be limited to CDM policies, regulations and institutions, and the preparation for approval of PDDs by designated operational entities. The domestic expertise will include CDM, land use planning, institutional development, social development, legal, and environment aspects. CIFOR and ICRAF<sup>8</sup> will be directly selected under a separate contractual agreement for undertaking the land use inventory and LULUCF modeling. Indicative schedule of activities and the outline terms of reference of the consultants are given in Appendixes 3 and 4. The consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* using the quality- and cost-based selection method, and other arrangements satisfactory to ADB for the engagement of domestic consultants. Considering the innovative nature of the TA, the consultant will submit a full proposal, while CIFOR and ICRAF will submit simplified technical proposal. Any equipment purchased under the TA will be obtained in accordance with ADB's *Guidelines for Procurement*.

17. The TA will be implemented over a period of 18 months, from 1 September 2003 to 28 February 2005. The main reports of the TA will include an inception report, the position paper, an interim report, an approved project design document for at least two pilot district areas, and the final report. Two national workshops will be conducted to disseminate the findings of the interim report and the final report. The TA implementation will be closely coordinated with the ADB CDM facility, when established.

#### IV. THE PRESIDENT'S DECISION

18. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance not exceeding the equivalent of \$700,000 to the Government of Indonesia to be financed on a grant basis by the Government of Canada, through the Canadian Cooperation Fund for Climate Change, for Carbon Sequestration through the Clean Development Mechanism, and hereby reports this action to the Board.

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<sup>8</sup> CIFOR and ICRAF are international centers with mandate for forestry and agroforestry research, and have carried out a number of research projects on CDM, LULUCF, and forest modeling. CIFOR is based in Indonesia. ICRAF has a southeast regional program office based in Indonesia.

## TECHNICAL ASSISTANCE FRAMEWORK

<b>Design Summary</b>	<b>Performance Indicators/Targets</b>	<b>Monitoring Mechanisms</b>	<b>Assumptions and Risks</b>
<p><b>Goal</b> Assist the Government of Indonesia to (i) earn certified emission reduction (CER) units for the reduction of greenhouse gas (GHG) emissions under the clean development mechanism (CDM) of the Kyoto Protocol, and (ii) promote sustainable forest development.</p>	<p>CERs sold in CDM markets.</p> <p>CDM projects associated with practice of sustainable forestry.</p>	<p>Number of CERs approved by the CDM Executive Board.</p> <p>Areas of sustainable forestry.</p>	<p>Commitment by the Indonesian Government to pursue CDM projects.</p>
<p><b>Purpose</b> Assist the Government in piloting a carbon sequestration project under CDM to help Indonesian stakeholders understand the processes, implications, and potential applications of CDM.</p>	<p>Position paper for ninth conference of parties (COP9) on land use, land use change, and forestry (LULUCF) and CDM in Indonesia.</p> <p>Production of marketable CERs in pilot areas.</p> <p>Approval of CERs by the CDM Executive Board.</p> <p>Plans for sustainable forest development in pilot areas.</p>	<p>Minutes of the deliberations and negotiations of COP9.</p> <p>Comments and feedback from technical assistance (TA) participants and CDM experts.</p> <p>Progress of the CER approval process.</p> <p>Progress in the preparation and implementation of sustainable forest management plans in pilot areas.</p>	<p>Pilot districts, local communities, and other government agencies are committed to CDM projects.</p>
<p><b>Outputs</b> Review of previous studies and a synthesis of lessons learned on CDM-carbon sequestration.</p> <p>Land use inventory and simulation of LULUCF in two pilot districts, with and without CDM participation.</p> <p>Preparation of project design documents (PDDs) and obtaining of CER approval from the CDM Executive Board.</p> <p>Demonstration of the processes involved in earning CERs through carbon sequestration.</p> <p>Documentation and dissemination of the</p>	<p>Position paper on LULUCF and CDM in Indonesia for discussion at COP9.</p> <p>Inventory maps and LULUCF models.</p> <p>Approved PDDs.</p> <p>Documented approval process.</p> <p>Brochures for dissemination.</p>	<p>Presentation at COP9.</p> <p>Progress reports.</p> <p>Asian Development Bank (ADB) review missions.</p> <p>TA consultant reports.</p>	<p>Government, smallholders, and industrialists are invested in CDM projects.</p> <p>Districts and the Ministry of Forestry are committed to sustainable forestry.</p>

<b>Design Summary</b>	<b>Performance Indicators/Targets</b>	<b>Monitoring Mechanisms</b>	<b>Assumptions and Risks</b>
<p>processes for earning CER units.</p> <p>Assessment of the global market for carbon and the potential share of Indonesia in this market.</p> <p>Suggested processes for the development of base line data, registration procedures, and monitoring and verification procedures.</p>	<p>Market reports.</p> <p>Recommended processes.</p>		
<p><b>Activities</b></p> <p>Review and analyze national policies, procedures, and institutional arrangements proposed for earning CERs from carbon sequestration.</p> <p>Review and analyze of draft regulations relating to CDM-LULUCF projects, and update them as per the progress of COP negotiations.</p> <p>Land use inventory of districts.</p> <p>Identify boundaries and prepare a base line with regard to sources and sinks of carbon in pilot areas.</p> <p>Determine the ownership patterns of forested and potential forest areas.</p> <p>Examine land use conflicts and livelihood opportunities in the TA areas, with particular emphasis on income and employment.</p> <p>Simulate afforestation and reforestation models in potential sites in the districts and estimate their technical and socioeconomic feasibility and environmental sustainability.</p>	<p>Indonesia's position paper on COP9.</p> <p>Inventory map with details of land use and ownership.</p> <p>Area of agroforests established.</p> <p>Report on socioeconomic profile of community stakeholders.</p> <p>Report on simulation models.</p>	<p>Submission of position paper at COP9.</p> <p>Progress reports.</p> <p>TA consultant reports.</p> <p>ADB review missions.</p>	<p>Timely fielding of consultants.</p> <p>Satisfactory performance of consultants and the Center for International Forestry (CIFOR) and International Center for Research on Agroforestry (ICRAF).</p> <p>Adequate supervision from the ministries of environment and forestry.</p> <p>Timely meetings of national and district steering committees.</p>

<b>Design Summary</b>	<b>Performance Indicators/Targets</b>	<b>Monitoring Mechanisms</b>	<b>Assumptions and Risks</b>
<p>Develop and analyze scenarios of trends with and without CDM projects, using geographic information systems; assess the transaction costs involved in obtaining CERs for various project types.</p> <p>Demonstrate the processes involved in obtaining CER credits in pilot districts.</p> <p>Develop procedures and design the required forms required for the approval process.</p> <p>Create awareness among smallholders, community forest developers, and private large-scale investors on CDM potentials.</p> <p>Train potential stakeholders.</p> <p>Support local workshops and seminars, and at least 3 national workshops.</p>	<p>Estimate of transaction costs.</p> <p>Documented processes.</p> <p>Workshop reports.</p>		
<p><b>Inputs</b></p> <p>ADB:</p> <p>International consultants (10 months)</p> <p>Domestic consultants (42 months)</p> <p>CIFOR and ICRAF (land use inventory and LULUCF modeling)</p> <p>PDD preparation and others</p> <p>ADB (Total)</p> <p>Government financing (total)</p>	<p>\$170,000</p> <p>\$145,000</p> <p>\$100,000</p> <p>\$285,000</p> <p>\$700,000</p> <p>\$175,000</p>		<p>Availability of adequate government counterpart funds.</p> <p>Good TA management by the Executing Agency.</p>

**COST ESTIMATES AND FINANCING PLAN**  
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
<b>A. Asian Development Bank Financing<sup>a</sup></b>			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	170.0	0.0	170.0
ii. Domestic Consultants	0.0	145.0	145.0
b. International and Local Travel	30.0	0.0	30.0
c. Reports and Communications	10.0	0.0	10.0
2. Equipment	15.0	0.0	15.0
3. Capacity Building, Trainings, and Workshops/Seminars	0.0	40.0	40.0
4. Pilot Project			
a. Land Use Inventory and Modeling	60.0	40.0	100.0
b. Preparation of PDD and Other Activities	45.0	0.0	45.0
5. Miscellaneous Administration and Support Costs	0.0	30.0	30.0
6. Representative for Contract Negotiations	10.0	0.0	10.0
7. Contingencies	60.0	45.0	105.0
<b>Subtotal (A)</b>	<b>400.0</b>	<b>300.0</b>	<b>700.0</b>
<b>B. Government Financing</b>			
1. Office Accommodation and Transport	0.0	30.0	30.0
2. Remuneration and Per Diem of Counterpart Staff	0.0	75.0	75.0
3. Others	0.0	70.0	70.0
<b>Subtotal (B)</b>	<b>0.0</b>	<b>175.0</b>	<b>175.0</b>
<b>Total</b>	<b>400.0</b>	<b>475.0</b>	<b>875.0</b>

PDD = project design document.

<sup>a</sup> Financed by the Canadian Cooperation Fund for Climate Change.

Source: Asian Development Bank estimates.

**IINDICATIVE SCHEDULE OF ACTIVITIES**

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	2003				2004												2005	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1. Preparation of Indonesia Position Paper on c-sequestration	█	█	█	█														
2. Presentation of Position Paper at COP9						█												
3. Establishment of organizational structure	█																	
4. Selection of districts (2)		█																
5. Landuse inventory			█	█	█	█	█	█	█	█								
6. LULUCF modelling and analysis						█	█	█	█	█								
7. Socioeconomic study and stakeholder analysis					█	█	█	█	█									
8. Site selection within districts (2)									█									
9. Preparation of PDD for selected sites (baseline, boundary leakage, credit time, stakeholde comments)										█	█	█	█	█	█			
10. Aproval of PDD (verification and registration)																	█	
11. Designing draft ERPA														█				
12. Development of marketing strategy													█	█	█	█		
13. Public awareness		█	█				█	█	█						█	█	█	█
14. Training of oversight agencies and potential investors (LULUCF, PDD, monitoring)		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
15. National workshops					█												█	
16. Local workshops						█					█						█	
17. Reports						▼					▼						▼	▼

COP9 = Ninth Conference of Parties; ERPA = emission reduction purchase agreement; LULUCF = land use, land use change, and forestry; PDD = project design document.

## OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

### A. International Consultants

#### 1. CDM-LULUCF Policy Specialist and Team Leader (10 person-months)

1. **Qualifications.** The specialist must be (i) a university graduate and have expertise in the analysis and formulation of policies related to forestry and rural development; (ii) an acknowledged expert and have at least 3 years of experience with issues on land use, land use change, and forestry (LULUCF) in relation to the clean development mechanism (CDM); and (iii) familiar with the processes and procedures in the Conference of Parties (COP) to the United Nations Framework Convention on Climate Change. Fluency in the Indonesia language is an advantage.

2. **Responsibilities.** The team leader will do the following.

- (i) Manage and coordinate the implementation of the technical assistance (TA) at national and local levels in consultation with Ministry of Environment (MOE) and Ministry of Forestry (MOFr). This will involve (a) for each activity preparation in detail of cost estimates, work and financial plans, implementation schedule, and monitoring plan; and (b) the preparation and submission of inception, midterm, and final reports and other reports required by the Asian Development Bank (ADB).
- (ii) Analyze reports and projects (past and ongoing) relating to carbon sequestration under the CDM, and identify the needs of the Indonesian Government in fulfilling the CDM requirements for carbon sequestration.
- (iii) Coordinate closely with the implementation of the Canadian International Development Agency projects: (a) Forest Resource Management for Carbon Sequestration Project, and (b) Climate Change, Forests and Peatlands in Indonesia, and ensure that the lessons learned in these projects are adequately shared.
- (iv) Analyze national policies relating to carbon sequestration under the CDM, and the institutional structure. Identify potential barriers to implementation of the CDM and propose remedial measures if necessary.
- (v) Examine the competitiveness of certified emission reduction (CER) units in the global market and suggest ways of improving it.
- (vi) In consultation with the National Development Planning Agency (BAPPENAS), MOE, MOFr, and other stakeholders, draft a forestry CDM position paper for Indonesia to present at the 9<sup>th</sup> COP meeting in December 2003. Include the position of Indonesia on to the nature of "Kyoto lands", establishment of baseline information, project boundary, leakage, calculations of carbon pools validation, implementation monitoring plan, issuance of CERs, and sustainable forest management. In consultation with MOE and MOFr, improve the criteria for selection of pilot districts and select two sites for pilot studies.
- (vii) In consultation with the Center for International Forestry (CIFOR) and International Center for Research on Agroforestry (ICRAF), develop strategies for sustainable forest development in the pilot districts.
- (viii) In consultation with MOE and Ministry of Finance (MOF), closely coordinate with CIFOR and ICRAF and ensure that their output on land use inventory and LULUCF modeling are in keeping with objectives of the TA.

- (ix) Develop at least two project design documents (PDDs) taking into account local physical and socioeconomic conditions, and ensure that the TA activities are designed to meet the needs of designated national authority (DNA).
- (x) Using information from CIFOR and ICRAF models and considering project boundary, leakage, potential credit period, and risks, establish a base line for pilot areas.
- (xi) Design a monitoring plan that includes documentation of data, calculation methodology, monitorable indicators, and frequency of monitoring, and oversee the preparation of PDDs as per the CDM Executive Board guidelines.
- (xii) Oversee the establishment of procedures for obtaining approval from the DNA and securing registration by the CDM Executive Board.
- (xiii) Coordinate closely with ADB CDM facility, when established, through the ADB Technical Assistance Support Unit.

## **B. Domestic Consultants**

### **1. Land Use Specialist and Deputy Team Leader (18 person-months)**

3. **Qualifications.** The specialist must (i) be a university graduate on natural resources with expertise in rural development, agro forestry and forest management; (ii) be an acknowledged expert on CDM-LULUCF and familiar with requirements of the CDM Executive Board; and (iii) have excellent knowledge of the English language.

4. **Responsibilities.** The deputy team leader will do the following.

- (i) Coordinate all activities with the executing and implementing agencies and with the stakeholders, including the National Climate Change Committee and DNA.
- (ii) Analyze projects and programs related to climate change and land use, land use change, and forestry.
- (iii) Assist the international CDM expert in reviewing guidelines and criteria developed in previous studies.
- (iv) Help draft the forestry CDM position paper for Indonesia. Facilitate the participatory workshops organized to gain the information on carbon sequestration activities under the Kyoto Protocol.
- (v) Design a monitoring plan that includes documentation of data, calculation methodology, and quality assurance. Describe the frequency and measurement activities to be deployed.
- (vi) Prepare the PDDs for at least 2 pilot areas following the guidelines of the CDM Executive Board.
- (vii) Prepare strategies for sustainable forest development in the pilot districts.
- (viii) Develop nationally and locally acceptable sustainable development indicators and build the capacity within appropriate institution for regulating, evaluating and validating acceptable LULUCF projects.
- (ix) Organize the required national and local workshops and seminars on CDM process related to LULUCF and sustainable forest development. Disseminate the lessons learned.

## 2. Social Development Specialist (12 person-months)

5. **Qualifications.** The specialist must (i) be a university graduate, with familiarity on Kyoto Protocol and CDM issues; (ii) have proven skills in participatory approaches in community organization, facilitation of meetings, and conducting workshops; and (iii) have excellent knowledge of the English language.

6. **Responsibilities.** The specialist will do the following.

- (i) Identify the type of information required in LULUCF by stakeholders to achieve local sustainable development.
- (ii) Identify the stakeholders, their possible competing interests, and the roles of the TA and TA-related activities.
- (iii) Develop appropriate participatory tools and approaches to effectively involve local communities, nongovernment organizations (NGOs), and local governments.
- (iv) Identify the target CDM beneficiaries, smallholders, and industrialists, and establish their social profile.
- (v) In consultation with the policy and land use specialists, develop methods and strategies for making CDM projects viable and attractive to smallholders and industrialists.
- (vi) Develop methodologies for local community and stakeholder participation to increase ownership of the projects, securing a higher chance of long-term success.
- (vii) Prepare a social development strategy for the pilot Kyoto-lands. Consult local communities and local and national NGOs, and abide by ADB's policies on involuntary resettlement and indigenous peoples.
- (viii) Participate in the workshops and meetings for knowledge dissemination, and contribute to the evaluation of the TA.
- (ix) In consultation with environment specialist, develop sustainability indicators for CDM projects.

## 3. Legal Specialist (4 person-months)

7. **Qualifications.** The specialist must (i) be graduate in law; (ii) have at least 5 years experience in drafting commercial contracts; (iii) be an acknowledged expert on CDM-LULUCF; (iv) be familiar with Indonesian laws and regulations relating to land uses, forest management, and forestry concessions; and (v) have excellent knowledge of the English language.

8. **Responsibilities.** The specialist will do the following.

- (i) Review international treaties related to forest management that Indonesia has signed and ratified to determine the constraints and implications in development, operation, and management of sequestration projects in Indonesia.
- (ii) Review some of the model emission reduction purchase agreements (ERPAs) suggested by international associations.
- (iii) Analyze in detail model ERPA contracts as they relate to Indonesian laws and international arbitration; the economic, civil, and criminal responsibility of Indonesian contracting parties as provider of CERs; and buyers in Annex I countries.
- (iv) Estimate with the other relevant experts involved risks, insurance cover, and arbitration needed to protect the Indonesia contracting parties.

- (v) Aside from risk related to operation and management of forestry and agroforestry projects such as fire, storms, infestations, and other natural calamities, study the implications of potential changes in the implementation arrangement of the Kyoto Protocol.
- (vi) Prepare a model ERPA for possible use in sequestration projects in Indonesia.
- (vii) On completion of the review of existing ERPAs, and prior to preparing the model ERPA for Indonesia, obtain concurrence of ADB's Office of the General Counsel through the Technical Assistance Support Unit on the findings of the review and recommendations for the model ERPA.
- (viii) Submit a report outlining (a) the critical analysis of the provisions of model ERPAs, specifically the advantages and disadvantages to Indonesian parties as providers of CERs vis-à-vis with the buyers of CERs; (b) the proposed model ERPA for Indonesian sequestration projects; and (c) a discussion as to how the proposed Indonesian ERPA complies with Indonesian laws, international protocols and treaties that Indonesia has ratified, international arbitration, and removal of provisions that might have put the Indonesian contracting parties at a disadvantage.

#### **4. Environment Specialist (4 person-months)**

9. **Qualifications.** The specialist must (i) be a university graduate in environmental management, science, or forestry; (ii) have at least 5 years experience in preparing environmental impact assessment (EIA) reports in forestry and agroforestry; and (ii) have excellent knowledge of the English language.
10. **Responsibilities.** The specialist will do the following.
  - (i) Review the EIA requirements of the Kyoto Protocol and Indonesia.
  - (ii) Define the background information and data needed on the land, air, and water quality; terrestrial and aquatic ecology; and socioeconomic conditions of the study area, for the team preparing the pilot and modeling study to incorporate in their data gathering.
  - (iii) Based on obtained data and project description, prepare an EIA report complying with the Indonesian EIA laws and regulations.
  - (iv) Prepare a short summary of the EIA in the context and format of the PDD, as required by the CDM Executive Board for incorporation in the PDD.
  - (v) Prepare a short position paper justifying that the project as defined in the PDD complies with Indonesian policies and long-term and short-term strategic plans for sustainable development, for submission and endorsement of the project by the DNA under the Kyoto Protocol.
  - (vi) Contribute to national training workshops and seminars on the preparation of PDD.

#### **5. Institutional Specialist (4 person-months)**

11. **Qualifications.** The specialist must (i) be a graduate in economics with adequate knowledge on institutional economics, (ii) have at least 5 years experience in dealing with formal and informal institutions in Indonesia, and (iii) have excellent knowledge of the English language.

12. **Responsibilities.** The specialist will do the following.
- (i) Review and analyze functioning institutions at the national and local level under the decentralized framework and assess their implications for LULUCF.
  - (ii) Review the regulatory frameworks in consultation with legal specialist, and suggest measures for improvement.
  - (iii) Review the potential economic and institutional barriers in pilot areas and suggest remedial measures.
  - (iv) In association with social development specialist, evaluate the socioeconomic impact of CDM-carbon sequestration projects in pilot communities.
  - (v) In consultation with CIFOR and ICRAF, assess the transaction costs involved in sale of CERs, and assess the impact of land tenures on the project design, equity, and transaction cost.
  - (vi) Assess the role of private and public sector in carbon sequestration.
  - (vii) Assess the need for capacity building, prepare a work plan and implement it.

#### 6. CIFOR and ICRAF

13. CIFOR and ICRAF will follow the Kyoto Protocol procedures and guidelines and will undertake land use inventory and LULUCF modeling of two pilot districts. The activities will include the following.
- (i) Undertake a land use inventory of pilot districts and prepare a geographic information based map on sources and sinks of carbon, with preliminary estimates.
  - (ii) In consultation with local government, MOFr, and MOE, identify lands that have potential for CDM-carbon sequestration through afforestation or reforestation.
  - (iii) Assess the cost effectiveness of approaches for assigning credits for carbon sequestration over time, and suggest a suitable approach for the TA.
  - (iv) Evaluate the social and economic consequences of various approaches and the advantages of the chosen approach. Include an analysis of the opportunity cost of various land use options and the transaction costs under various approaches.
  - (v) Assess the environmental sustainability of adopting various approaches.
  - (vi) Undertake LULUCF modeling of the districts with and without CDM projects. Only models that have great social and political acceptability should be evaluated. In modeling projects with CDM, try various models of land uses, such as agroforestry, and enrichment planting.
  - (vii) In assessing the potential value of land use models for earning CERs, address typology and management of specific aspects such as leakage, additionality, nonperformance, risk and uncertainty.
  - (viii) Help prepare brochures aimed at creating awareness among smallholders and industrialists on the value of CDM in LULUCF.