



Technical Assistance Report

Project Number: 40543
December 2006

Preparing Clean Energy Projects Eligible for the Clean Development Mechanism (Financed by the Japan Special Fund)

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
CDM	–	clean development mechanism
CEEP	–	clean energy and environment program
CER	–	certified emissions reduction
CMI	–	carbon market initiative
CPS	–	country partnership strategy
DMC	–	developing member country
GHG	–	greenhouse gas
PDD	–	project design document
RSDD	–	Regional and Sustainable Development Department
TA	–	technical assistance

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	General intervention
Sector	Multisector (energy; water supply, sanitation, and waste management; agriculture and natural resources)
Subsectors	Energy sector development, waste management, agriculture sector development
Themes	Sustainable economic growth, environmental sustainability, capacity development
Subthemes	Fostering physical infrastructure development (energy and urban sanitation), global and regional transboundary environmental concerns and issues (climate change)

NOTE

In this report, "\$" refers to US dollars.

Vice President	U. Schäfer-Preuss, Knowledge Management and Sustainable Development
Director General	B. N. Lohani, Regional and Sustainable Development Department (RSDD)
Director	W. C. Um, Energy, Transport, and Water Division, RSDD
Team leader	T. Kubo, Clean Energy and Climate Change Specialist, RSDD
Team members	K. Decker, Senior Financing Partnerships Specialist, Office of Cofinancing Operations K. Mulqueeny, Counsel, Office of the General Counsel

I. INTRODUCTION

1. The Asian Development Bank (ADB) has been active in promoting clean energy initiatives¹ to minimize adverse local, regional, and global impacts. To this end, ADB has initiated the clean energy and environment program (CEEP) to increase the number of clean energy projects in the Asia and Pacific region. One of the key components of the CEEP is the carbon market initiative (CMI), which will provide technical support and up-front financing for clean energy projects with greenhouse gas (GHG) mitigation benefits.

2. The CMI is a value-added service extended to renewable energy and energy efficiency projects in Asia and the Pacific that are suitable for ADB financing. It contributes to ADB's efforts in the field of sustainable development by providing additional financial incentives to project developers and sponsors to construct and operate clean energy projects. The CMI is a tool-based approach that harnesses the carbon market to catalyze investment in clean energy projects. The CMI has three components: (i) a project cofinancing facility (the Asia Pacific Carbon Fund) that provides up-front financing against the purchase of future certified emission reductions (CERs) generated by eligible projects, (ii) a carbon credit marketing facility for project developers and sponsors to obtain the best available market price for carbon credits, and (iii) technical support for project preparation and implementation.

3. The proposed technical assistance (TA), which will contribute directly to the third component of the CMI, is needed to undertake preparatory due diligence work, carbon credit valuation, and documentation preparation. These activities will facilitate the validation and registration of projects within ADB's 2007–2008 work program which may obtain additional benefits through use of the clean development mechanism (CDM)² under the Kyoto Protocol. Concept clearance for this TA was obtained on 11 August 2006.³ The TA is expected to build the capacities of project developers in ADB's developing member countries (DMCs) and to help ADB operational departments conceptualize and prepare clean energy CDM-eligible projects for ADB financing.

II. ISSUES

4. Access to energy is essential to ensure sustained economic growth and poverty reduction. In response to expected high rates of economic growth, the demand for energy in Asia and the Pacific is projected to increase significantly in the next 30 years. However, continued reliance on fossil fuels as the dominant sources of energy will have adverse impacts on the environment. The increasing level of GHGs in the atmosphere is becoming a significant international challenge, causing global warming and resultant climate change. A shift toward cleaner energy sources and a low-carbon global economy is essential to ensure sustainable growth and environmental integrity. ADB's energy policy⁴ includes a recommendation to reorient energy sector activities to address regional and global environmental concerns. Therefore the next logical step for ADB is to help its DMCs mobilize additional resources for energy development projects that mitigate GHG emissions.

¹ Clean energy initiatives include energy efficiency and renewable energy technologies and policies.

² The CDM is one of three flexible market mechanisms established under the Kyoto Protocol to the United Nations Framework Convention on Climate Change. The CDM is relevant to ADB operations, as it is a way to encourage investment in GHG reduction projects in developing countries, including ADB's developing member countries.

³ The TA first appeared in *ADB Business Opportunities* on 22 August 2006.

⁴ ADB. 2000. *Energy 2000 Review of the Energy Policy of the Asian Development Bank*. Manila.

5. The carbon market was created to facilitate investments in clean energy. Buyers of carbon credits are expected to provide additional financing for such investments and boost the financial viability of alternative, cleaner energy sources that are locally available and will generate long-term GHG reduction benefits. Despite the possibilities, however, most buyers and investors under existing carbon procurement facilities only provide funding upon project completion, when the carbon credits are delivered. As a result, many clean energy projects never reach the construction phase because of funding shortages, as well as a lack of technical capacity. The CMI is intended to address the up-front funding shortages and technical knowledge gaps.

6. The CDM can promote sustainable development in ADB's DMCs by accelerating the penetration of clean energy projects and the conservation of natural resources in developing countries while helping industrial countries meet their commitments under the Kyoto Protocol. Such activities yield both local and global environmental benefits, and the CDM ensures additional benefits to those project developers that opt for cleaner projects and activities. Substantial synergies exist between ADB's objectives of promoting sustainable growth and clean energy projects and the CDM's objectives. However, the CDM is a complex process and most DMCs are still not fully equipped to harness its benefits in a competitive way. Given these circumstances, ADB can play a critical role in helping DMCs harness the potential of the CDM.

7. On 29 July 2005, ADB launched the energy efficiency initiative to expand its investments in energy efficiency projects (which encompass energy supply, including renewable energy and end-use efficiency) to at least \$1 billion a year starting in 2008. The energy efficiency initiative will pursue energy efficiency and renewable energy projects that can also qualify under the CDM to generate CER credits. Similarly, the multitranche financing facility approved on 25 August 2005 under the innovation and efficiency initiative enhances ADB's assistance to DMCs in the area of clean energy by streamlining the financing of subprojects over multiple years. The proposed TA will maximize the synergy between these initiatives, namely, the CMI, the energy efficiency initiative, and the innovation and efficiency initiative, to enhance the development effectiveness of ADB's CEEP.

8. ADB has a portfolio of projects that could yield a significant quantity of CER credits. A preliminary review of ADB's pipeline of projects for the next 3 years reveals that more than 80 projects across various operations departments have or could incorporate components eligible for the CDM. The scope of these projects has yet to be fully developed, but initial analysis suggests that they could reduce GHG emissions by as much as 12 million to 18 million tons of carbon dioxide equivalent per year by 2012. Use of the CDM can translate into multiple benefits for DMCs through an enhanced revenue stream and a greater number of clean energy projects. ADB staff in the operations departments need to be assisted to screen projects for their CDM potential and to provide assistance to DMCs for further actions in this regard.

9. The TA forms the initial stage of the development of a technical support facility and is designed to help ADB's operations departments assess the concepts, emissions baselines, financial viability, additionality, and technical soundness of eligible ADB-supported projects. Adequate training and country consultations must also take place to ensure a continuous pipeline of candidate projects.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

10. The goal of the TA is to increase the number of clean energy projects with GHG abatement benefits across Asia and the Pacific. The TA is expected to build the pipeline of clean energy projects eligible for the CDM and to enhance the technical knowledge of project developers and sponsors in the DMCs in relation to conceptualizing and preparing such projects for possible ADB financing. The detailed design and monitoring framework is in Appendix 1.

B. Methodology and Key Activities

11. ADB will carry out the work under the TA through a consultative process with the operations departments. The TA activities will include the following:

- (i) **Project identification.** Help the operations departments undertake a preliminary assessment of projects and identify projects with GHG abatement potential. The TA will also provide technical inputs into country consultation missions to identify clean energy projects potentially eligible for the CDM and their inclusion in the country partnership strategies.
- (ii) **Project development.** Assist in conducting preliminary screening of projects' CDM potential to assess projects' eligibility under CDM rules, conducting due diligence on clean energy projects potentially eligible for the CDM, and supporting project developers and sponsors in drafting project design documents and new baseline and monitoring methodologies if required.
- (iii) **Validation and registration.** Help project developers obtain host country approvals and validation of project design documents from the designated operational entity⁵ and have them registered with the CDM Executive Board.
- (iv) **Capacity development.** Help assess the capacities of DMC governments and agencies to develop CDM-eligible clean energy projects and conduct targeted CDM technical workshops for countries and regions with project opportunities in the near term to midterm.

C. Cost and Financing

12. The total cost of the TA is estimated at \$840,000. The TA will be financed on a grant basis by the Japan Special Fund, funded by the Government of Japan. It will support TA consultants and ADB resource staff participate in country programming and project missions, equipment costs, training, seminars and workshops, publications and information services, CDM validation costs, fees and remuneration for international and national consultants and technical experts, and miscellaneous administration and support costs. The detailed cost estimates are in Appendix 2.

D. Implementation Arrangements

13. ADB will be the Executing Agency for the RETA. ADB will implement the TA through the Regional and Sustainable Development Department's Energy, Transport, and Water Division in close collaboration with the operations departments. The Energy, Transport, and Water Division will also work closely with other relevant departments and offices, such as the Office of the

⁵ Third party certification organizations accredited by the CDM Executive Board to review and validate the project documents.

General Counsel and the Office of Cofinancing Operations. ADB will also coordinate closely with other international financial institutions and financing partners. To date, no specific DMC has been identified in whose territory any specific activity of the RETA will be undertaken; however, any activity funded by this RETA will only commence in a particular DMC after ADB has received a no-objection in writing from the government of the DMC.

14. The TA will be implemented from January 2007 to April 2008. The following outputs are expected: (i) the development of clean energy project concepts for inclusion in country partnership strategies, (ii) the identification and preparation of projects potentially eligible for the CDM in the near term to midterm in consultation with DMC partners and ADB's operational departments, (iii) the preparation of project design documents and new baseline methodologies, and (iv) the successful CDM validation of projects.

15. Implementation will involve national expert consultants from DMCs to support DMC governments and ADB operations departments as necessary; international technical consultants based at ADB headquarters to provide central support; and ADB specialist staff to liaise with ADB operations departments as well as with those involved in other initiatives under the CEEP. National consultants within identified DMCs will be engaged for a total of 50 person-months. International consultants will be engaged for 21 person-months. Short-term consultants and resource persons will be recruited to fill skills gaps as needed. Appendix 3 presents the outline terms of reference for consultants. All consultants will be recruited as individuals and in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time).

16. Equipment and materials to be financed by the TA will be procured in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time).

IV. THE PRESIDENT'S DECISION

17. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$840,000 on a grant basis for Preparing Clean Energy Projects Eligible for the Clean Development Mechanism, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact Contribute to low-carbon economic growth.</p>	<p>The project pipeline for the 2008 lending program includes at least \$1 billion of clean energy projects.</p>	<p>CPSs and other operational programs Operations Evaluation Department review</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Continued focus on clean energy by ADB. • Demand from DMCs for ADB support in this area. <p>Risk</p> <ul style="list-style-type: none"> • Collapse of international dialogue in relation to the reduction of greenhouse gas emissions.
<p>Outcome Increased number of clean energy CDM-eligible projects in ADB's near-term work program.</p>	<p>Five projects included in CPSs and operational programs. Three projects with CDM elements processed for approval by ADB's Board of Directors.</p>	<p>CPSs and the Private Sector Operations Department; project pipeline Reports and recommendations of the President submitted for Board approval</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Flexibility in CPSs and operational programs to accommodate new concepts and proposals. • ADB lending modalities are improved through the innovation and efficiency initiative and the energy efficiency initiative to accommodate smaller clean energy projects. <p>Risk</p> <ul style="list-style-type: none"> • Projects are unsuitable for ADB financing.
<p>Outputs</p> <ol style="list-style-type: none"> 1. Clean energy project concepts for inclusion in CPSs identified. 2. Project developers trained and near term to midterm project opportunities identified. 3. PDDs and new CDM methodologies developed (if necessary). 4. Successful CDM validation of clean energy projects obtained. 	<p>10 projects proposed for CPSs and the Private Sector Operations Department project pipeline. 45 project developers trained. 10 near-term projects identified. 5 draft PDDs and new methodologies developed, (as necessary). 3 projects successfully validated</p>	<p>Country consultation meeting reports Workshop documentation Action plans Draft PDDs and methodologies Designated operational entity reports</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Clean energy is on DMCs' development agendas. • Demand from ADB operations. <p>Risk</p> <ul style="list-style-type: none"> • Country consultations not aware of CDM opportunities while developing clean energy projects.
<p>Activities with Milestones</p> <ol style="list-style-type: none"> 1.1 Provide technical inputs to country consultation missions to identify clean energy projects potentially eligible for the CDM. 2.1 Assess the capacities of DMC governments and agencies to develop CDM-eligible clean energy projects. 2.2 Conduct targeted CDM technical workshops for countries and regions with project opportunities in the near term to midterm. 			<p>Inputs</p> <ul style="list-style-type: none"> • Japan Special Fund: \$840,000 • National consultants: 50 person-months • International consultants: 21 person-months • ADB: staff time, office space, equipment

Activities with Milestones	Inputs
<p>3.1 Conduct preliminary screening of clean energy projects to assess their eligibility under CDM rules.</p> <p>3.2 Conduct due diligence on potential clean energy projects.</p> <p>3.3 Assist project developers and sponsors in drafting PDDs and new baseline methodologies, if necessary.</p> <p>3.4 Help project developers obtain validation from Designated Operational Entities.</p>	<ul style="list-style-type: none"> • DMC governments: active participation by counterpart agencies in relation to the CDM

ADB = Asian Development Bank, CDM = clean development mechanism, CPS = country partnership strategy, DMC = developing member country, PDD = project design document.

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

Item	Total Cost
A. Asian Development Bank Financing^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	326,000
ii. National Consultants	110,000
b. International and Local Travel	103,000
c. Reports and Communications	6,000
2. Equipment ^b	5,000
3. Training, Stakeholder Consultations, and Workshops ^c	90,000
4. Publications and Technical Information Services	20,000
5. Clean Development Mechanism Validation Costs ^d	100,000
6. Miscellaneous Administration and Support Costs	20,000
7. Contingencies	60,000
Total	840,000

^a Financed by the Japan Special Fund, funded by the Government of Japan.

^b Equipment includes computers and printers and will be purchased in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time).

^c Includes honorariums and travel costs for resource persons and facilitators, participants' travel costs, staff travel costs as resource persons and/or speakers, and logistical costs.

^d Costs for third-party certification organizations accredited by the Clean Development Mechanism Executive Board, referred to as designated operational entities, to review and validate project documents.

Source: ADB estimates

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Consulting Services

1. A consulting team of international and national consultants with extensive experience in the areas of clean energy and the clean development mechanism (CDM) will be required for this technical assistance (TA). The national consultants will be familiar with local conditions and institutional structures. International consultants will be required to collaborate with and supplement the skills of the national consultants. About 21 person-months of international and 50 person-months of national consulting services are envisaged.

2. The consulting team will provide the services outlined in para. 11 of the report through a consultative process with the operations departments. The consulting team will ensure that all work and outputs under the TA comply fully with all relevant Asian Development Bank (ADB) policies and guidelines. The consultants will be expected to be familiar with ADB's guidelines for technical, financial, and economic analyses and social safeguards. The TA consultants will develop and use a comprehensive evaluation framework for all workshops and seminars to determine their effectiveness.

B. Scope of Work

1. International Consultants

a. Clean Energy and CDM Specialist and Team Leader (11 person-months)

3. The responsibilities of the consultant will include, but not necessarily be limited to, the following:

- (i) Review the project pipelines of the operations departments to identify opportunities for developing CDM-eligible projects.
- (ii) Advise the operations departments on procedural criteria for screening and selecting CDM-eligible projects in conjunction with the CDM project cycle.
- (iii) Select projects for which to develop required due diligence and project documentation and register them as CDM-eligible projects under the Kyoto Protocol rules.
- (iv) Assign national consultants to the selected portfolio of projects and provide overall coordination between the TA team, governments, ADB, and other stakeholders.
- (v) Provide direction to national consultants and offer technical support to ensure the quality of project design documents (PDDs) and new CDM methodologies.
- (vi) Prepare targeted capacity-building programs in relation to the CDM where government-level support is needed to implement identified projects.
- (vii) Provide direction for the regional training workshops.
- (viii) Participate in country programming missions as necessary.

b. Project Specialist (9 person-months)

4. The specialist will undertake the following tasks:

- (i) Analyze developing member countries' (DMCs') energy development plans and climate change policies and their associated institutional and regulatory frameworks in relation to promoting clean energy and CDM-eligible projects.

- (ii) Review in detail the loan and nonlending assistance portfolio of potential greenhouse gas reduction projects under various categories (renewable energy, energy efficiency, forestry, etc.) in selected DMCs by each ADB operations department.
- (iii) Screen, identify, and prioritize relevant projects in ADB's pipeline that would qualify for potential CDM financing through the Asia Pacific Carbon Fund and other financing from regular ADB financing sources and through the Asia Pacific Fund for Energy Efficiency.
- (iv) Recommend specific strategies for promoting clean energy and CDM-eligible projects, including potential projects in the country partnership strategies, and for mainstreaming greenhouse gas reduction benefits in the project design and development processes and practices of ADB's operational departments.
- (v) Review CDM documentation (PDDs, new baseline and monitoring methodologies) and provide substantial inputs during the preparation of such documentation and during project validation.
- (vi) Identify specific areas for assistance and capacity building required for mainstreaming clean energy and CDM-eligible projects with respect to the eligibility criteria and preliminary risk assessments of such projects.
- (vii) Recommend capacity building in DMCs based on a review of policies pertaining to clean energy and climate change and of the enabling environment.

c. Legal Expert (1 person-month)

5. The expert will engage in the following activities:

- (i) Conduct training for TA team members (staff and consultants) on relevant regulatory issues and procedures in relation to developing CDM-eligible clean energy projects (e.g., Kyoto Protocol rules, national CDM regulations).
- (ii) Conduct training for TA team members (staff and consultants) on the legal documents needed to market carbon credits from CDM-eligible clean energy projects (e.g., memorandum of understanding, letter of intent, term sheet, and emission reduction purchase agreement).
- (iii) Review the documentation of potential CDM-eligible clean energy projects, identify any legal issues, and provide recommendations on how best to resolve such issues.
- (iv) Review the legal documents prepared for projects and advise if they follow all applicable ADB policies and procedures, including those on social and environmental safeguards and anticorruption, and those of the Asia Pacific Carbon Fund under ADB's carbon market initiative.
- (v) Advise project developers on the terms and conditions outlined in the contracts prepared to initiate CDM-eligible clean energy projects.

2. National Consultants

a. Project Specialist (9 person-months)

6. The project specialist will help the international consultants and team leader by undertaking the following activities:

- (i) Conduct research and undertake data collection and analysis in relation to the CDM potential of ADB's clean energy projects.
- (ii) Collect and collate project-related data and information for the preparation of CDM project documentation.
- (iii) Research CDM-related issues and monitor new developments at both the

- participating country level and the international level.
- (iv) Follow up regularly on new methodologies approved and apply them to emissions calculations.
- (v) Review decisions made by the CDM Executive Board and other relevant developments at the United Nations Framework Convention on Climate Change and apprise team members regularly.
- (vi) Prepare technical reports, briefing notes, and presentations as necessary.
- (vii) Conduct an initial evaluation of the national technical experts' outputs and recommend actions.

b. Program Coordinator (11 person-months)

7. The coordinator will assist the team leader by undertaking the following tasks:
- (i) Develop a detailed work plan and budget in consultation with the carbon market initiative team and provide assistance with overall implementation of the TA.
 - (ii) Assist ADB professional staff assigned to the TA with the engagement, management, and evaluation of national technical experts in participating countries.
 - (iii) Provide technical and other TA-related assistance to international and national consultants and various ADB departments and offices with regard to clean energy projects.
 - (iv) Organize and participate in regional (at ADB headquarters) and DMC-hosted local conferences and provide assistance with the preparation of reports and/or proceedings.
 - (v) Conduct an initial evaluation of consultants' outputs and make necessary recommendations for action.
 - (vi) Prepare monthly and quarterly technical reports on TA operations for submission to management and annual program reports for submission to external funding agencies through Office of Cofinancing.
 - (vii) Perform other related tasks as assigned by the team leader; the director of the Energy, Transport, and Water Division; and the director general of the Regional and Sustainable Development Department.

c. National Technical Experts (30 person-months)

8. The national technical experts will undertake the following tasks:
- (i) Identify potential clean energy projects and their CDM potential.
 - (ii) Prepare a pipeline of clean energy projects.
 - (iii) Screen potential clean energy projects and their CDM potential.
 - (iv) Manage CDM projects.
 - (v) Develop and prepare PDDs and new baseline methodologies, if necessary, in line with the standard format developed by the CDM Executive Board.
 - (vi) Assist with the organization of and participate in capacity-building workshops for project developers, project sponsors, and host governments.
 - (vii) Prepare technical reports and information and marketing materials.

C. Deliverable Outputs

9. The TA consultants will provide the following deliverables:
- (i) country consultation meeting reports,
 - (ii) clean energy project concepts for inclusion in country partnership strategies,
 - (iii) workshop reports,

- (iv) action plans; and
- (v) PDDs and methodologies.

D. Reporting Requirements and Other Responsibilities

11. The consultants will submit three hard copies and an electronic copy of each of the following reports to ADB: (i) an inception report (a detailed work program with a specific timetable for important tasks) by the end of the first month of commencement of the TA; (ii) an interim report with findings in relation to target countries, project portfolio, status of near-term project opportunities, and capacity-building requirements within 6 months of commencement of the TA; (iii) a draft final report covering similar material to that in the interim report 15 months after commencement of the TA; and (iv) other reports in accordance with milestones to be confirmed at TA commencement. The consultants will also submit at least 10 clean energy project concepts for inclusion in country partnership strategies and 5 PDDs in accordance with the milestones set for these activities. In addition, they will prepare monthly status and progress reports in relation to the specific scope of work that will highlight issues that could become critical for timely completion of the TA.

12. The team leader will be responsible for coordination with the ADB project officer and with international and national consultants, governments and other stakeholders.