



Technical Assistance Report

Project Number: 40629
January 2008

Energy for All Initiative (Financed by the Government of the Netherlands)

ABBREVIATIONS

ADB	—	Asian Development Bank
DMC	—	developing member country
GEF	—	Global Environment Facility
MDG	—	Millennium Development Goal
NGO	—	nongovernment organization
PREGA	—	Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement
REACH	—	Renewable Energy, Energy Efficiency and Climate Change
TA	—	technical assistance
RSDD	—	Regional and Sustainable Development Department
RSID	—	Energy, Transport and Water Division

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	Targeted intervention-Supporting the Millennium Development Goals
Sector	Energy
Subsectors	Energy sector development
Themes	Inclusive social development, Environmental sustainability, Sustainable economic growth
Subthemes	Human development, Cleaner production, control of industrial pollution, Developing rural areas

NOTE

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

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I. INTRODUCTION

1. The Asian Development Bank (ADB) is committed to increasing access to clean and affordable energy for people throughout the Asian and Pacific region, particularly the poor. ADB's *Energy Policy*,¹ approved in 1995, emphasizes the acceleration of the widespread application of renewable energy and energy efficiency in its developing member countries (DMCs). This focus was strengthened through ADB's Energy Policy Review² of 2000, which states that, among other priorities, ADB will assist its DMCs in formulating and implementing viable renewable energy projects—preferably with private sector involvement—to provide electricity in remote areas and improve the quality of life of the poor.

2. The Energy for All initiative proposes to build on ADB's strengths and experience, and develop new approaches and methodologies for promoting access of the poor to reliable and affordable modern energy services, and scale up to levels that can be supported by the operational departments through ADB loans. Concept clearance of this regional technical assistance (TA) was obtained from the Vice President, Knowledge Management and Sustainable Development, on 6 December 2006.³

II. ISSUES

3. Energy services, in the broadest terms, refer to the benefits of an energy delivery system that meet the needs of the users (e.g., lighting, cooking, heating, etc.). Access to efficient, affordable, and reliable modern energy services is recognized as essential for sustainable development. Yet almost half of the world's population do not have access to modern forms of energy. Some 2.4 billion people are still dependent on traditional biomass fuels to meet their cooking and heating needs, with all the health problems that the practice entails. Almost 70% of the people from developing countries relying on biomass for cooking and heating are in Asia and the Pacific. Similarly, around 27% of the world's population (i.e., 1.6 billion people) still do not have access to electricity. More than 99% of those without electricity live in developing countries. Of that number, around 1 billion are in developing countries of Asia and the Pacific; and four out of five live in rural areas.

4. Lack of electricity is not only a rural issue. More than 13% of the urban population still do not have electricity in developing countries in Asia and this figure rises to almost 30% for South Asia. Fast population growth and rapid urbanization over the next three decades will intensify the challenge of providing access to electricity in cities of most developing countries, and urban electrification programs will need to accommodate the swelling mass of the urban poor especially those in slums.

5. Even though no Millennium Development Goals (MDGs) refer to energy explicitly, various studies have shown clear linkages between energy and all of the MDGs and have argued that much greater quality and quantity of energy services will be required to meet the MDGs. One common finding of the 10 task forces of the United Nations Millennium Project is the urgent need to improve energy access so as to attain the MDGs. Without scaling up the availability of affordable and sustainable energy services, not only will the MDGs not be achieved; 1.4 billion people globally will still have no access to electricity in 2030.

¹ ADB. 1995. *Bank Policy on the Energy Sector*. Manila.

² ADB. 2000. *Energy 2000 Review of the Energy Policy of the Asian Development Bank*. Manila.

³ The TA first appeared in *ADB Business Opportunities* on 13 December 2006.

6. The poor, especially women and children, are the most vulnerable section of society and are disproportionately affected by the adverse environmental effects of current energy patterns, high costs, and lack of access to clean, affordable energy services. Without access to modern energy services, the poor will (i) suffer from respiratory diseases, (ii) spend many hours collecting fuelwood from forests and water from streams, and (iii) be deprived of opportunities to engage in income-generating activities. Particularly worrisome are the slow pace and the deterioration in quality and reliability of modern energy services available to the poor in some of the developing countries where many still rely on traditional biomass fuels and the proportion of people without electricity continues to grow. It is urgent to take the quantum leap to replicate and scale up successful programs to disseminate cleaner fuels, efficient stoves, and both grid and off-grid electrification to reduce adverse impacts on health and other damaging effects and to enhance the livelihood of people with the appropriate financing mechanism. The need to scale up arises from the limited impact and sustainability inherent in small-scale or one-off energy projects if they are to reach the vast majority of people still lacking such services. The current rate of rural electrification in many developing countries is very low. With the current rate of rural electrification in South Asia for instance, it would take at least 40 years to provide electricity to the whole subregion.

7. The last decades have witnessed a wide range of technology interventions and energy sector reform initiatives undertaken by developing countries. These initiatives range from ambitious government-run programs to small-scale community-led programs with active participation of the private sector and financial institutions, coupled with gender mainstreaming approaches for both rural and urban areas. Those initiatives have resulted in some improvements in modern energy services to the poor and women, but were not expanded nor replicated on a large scale. This TA aims to support demonstration projects that are scalable and replicable and/or modalities that are designed to lead to large-scale programs and will have the most significant long-term impacts on increasing households' access to energy. Demonstration of just the technology would not add any value to existing knowledge and practice. The focus of the TA will be on the approaches, methodologies, and institutional arrangements that are scalable and replicable so that large-scale programs can be implemented afterward with financial support from ADB or other sources.

8. ADB has played an important role in supporting its DMCs to increase access to modern energy services. For example, ADB has been very active in providing financing to rural electrification projects, both through grid extension and off-grid applications. However, ADB's emphasis has mainly been on grid extension. Off-grid applications and promotion of more efficient energy uses have been difficult for ADB to finance because such initiatives are often very small and widely distributed throughout the country. ADB acknowledges the need to look at new strategic approaches to help DMCs scale up successful interventions to increase access to modern energy services for the poor. Such a scale-up is required so that such programs can be of a significant size for ADB to finance. There is also the need for ADB to catalyze local financing institutions and the private sector to participate in the delivery of modern forms of energy. The TA will specifically look at modalities and financial instruments and mechanisms needed to catalyze and mobilize financial and private sector entities into this area. In addition, awareness needs to be raised and capacity built within DMCs so that the issue of access to energy can be part of the dialogue and country programs of the ADB energy portfolio with the DMCs. Implementation of this TA will help ADB build on its expertise and respond to requests from its DMCs to implement projects to access energy.

9. The Government of the Netherlands has expressed strong interest in supporting an Energy for All initiative with the remaining funds of the Dutch Cooperation Fund for Promotion of Renewable Energy and Energy Efficiency. This initiative will also add to the commitment made by the Dutch Government to provide 10 million people with access to modern forms of energy by 2015. ADB will serve as a “multiplier” and coordinate with the Government of the Netherlands to help achieve that target as well as assist ADB’s participating DMCs achieve their MDGs.

III. THE PROPOSED TECHNICAL ASSISTANCE

A. Impact and Outcome

10. The TA will improve the economic, environmental, and health conditions of the poor by increasing their access to modern forms of energy. The outcomes will be (i) improved overall efficiency and effectiveness of energy access delivery mechanisms in participating DMCs, (ii) new approaches and methodologies for providing energy access for the poor, and (iii) ADB’s strengthened institutional capacity and technical capability to develop and implement energy access projects. The detailed design and monitoring framework is in Appendix 1.

B. Methodology and Key Activities

11. The TA will be implemented in 2–3 DMCs. The countries will be selected after considering where the available resources can best be utilized and the value these projects will add to existing knowledge and practice in the specific country and to the whole region and in close consultation with the operations departments of ADB. Other ongoing programs in the host countries will also be taken into account to avoid duplication of efforts. DMCs participating in this TA will have demonstrated a strong commitment to increase access of the poor to modern energy services.

12. Several key internal and external activities will need to be undertaken by the TA. Much work needs to be done in ADB itself. Currently, access-to-energy activities can be components of projects in the energy sector, through rural electrification or renewable energy projects; the urban sector, through projects such as urban slum improvement; agricultural and environment sectors, through rural development projects; water sector, through micro- and small hydro projects; and finance sector, through micro- and small-scale finance schemes. The approaches and methodologies for each of these sectors may differ. However, there are certain similarities and opportunities for learning through cross-fertilization of ideas. Currently, there is no system to share ADB’s experiences from various sectors and regions or to review international best practices. To address this, a working group will be formed with representatives from the various sectors and regions to serve as the source of knowledge, experience, and expertise. The TA will also serve as a resource to retain a full-time international consultant and issue-specific short-term consultants, with demonstrated experience in access-to-energy projects to serve as a resource to operational departments on this issue. It will also be a resource to systematically disseminate information through presentations, seminars, and workshops in ADB to build internal capacity.

13. For the approaches and methodologies to be demonstrated, the working group⁴ will review previous ADB experience, international best practices, and other relevant matters and set the criteria for shortlisting the countries in which the TA will operate and the approaches and

⁴ With assistance from resource person(s) to be recruited under the TA.

methodologies to be demonstrated. Issues to be considered when selecting countries, modalities, and technologies are outlined in Appendix 2. Once the TA is approved, a consultation mission will visit prospective host countries to assess their interest in participating in this initiative, evaluate the prospects of the modalities, and develop the actual mode of implementation. The mission will also assess the capacity and interest of the private sector and financial institutions to undertake access-to-energy projects. The mission will discuss with other aid agencies active in the energy sector in these countries the objectives and proposed modality under the Energy for All initiative and explore potential local partners in implementing the initiative. Based on these consultation missions, and in close collaboration and consultation with the operations departments and the resident missions, the working group will finalize the list of 2–3 DMCs for TA implementation and the approaches and methodologies to be demonstrated. A detailed design for their implementation will then be prepared, outlining the modalities, implementation arrangements, beneficiaries of the project, etc. The TA will then implement these approaches and/or methodologies. Potential projects and countries are included in Appendix 2.

C. Cost and Financing

14. The total cost of the TA is estimated at \$2,300,000 equivalent, to be financed on a grant basis by the Government of the Netherlands and administered by ADB.⁵ The cost estimates and financing plan are in Appendix 3.

D. Implementation Arrangements

15. ADB will be the Executing Agency for the TA. The Energy, Transport, and Water Division of the Regional and Sustainable Development Department (RSID/RSDD) will be primarily responsible for all TA activities and will work together with the operations departments and resident missions. The existing Renewable Energy, Energy Efficiency and Climate Change (REACH) Steering Committee⁶ will continue providing overall strategic guidance for the TA. The working group mentioned in para. 12 will receive secretariat support from RSID.

16. Each participating DMC will designate an existing agency responsible for providing energy to the rural or urban people as the implementing agency for the TA. To date, no specific DMC has been identified in whose territory any specific activity of the TA will be undertaken; any activity funded by the TA will start in a particular DMC only after ADB has received a signed memorandum of understanding from the government of each participating DMC, indicating its support for the TA and designating an appropriate implementing agency with whom ADB will work. During implementation, the TA will explore whether there is merit in establishing a national steering committee for each country as access-to-energy issues are often overseen by more than one government agency. Having such a steering committee will ensure that the various government agencies have a sense of ownership of the demonstration project and see its value.

⁵ The governments of DMCs and project beneficiaries in the host countries that participate in the TA are expected to provide in-kind and/or cash contributions, to facilitate implementation of TA activities in each DMC. However, such contemplated in-kind government counterpart contributions have not been included in the cost estimates and financing plan in Appendix 3.

⁶ The REACH steering committee is chaired by the deputy director general of RSDD. Its members consist of the directors of infrastructure/energy divisions of the regional departments, Environment and Social Safeguard Division and Energy, Transport and Water Division of Regional and Sustainable Development Department, Infrastructure Finance Division 1/Private Sector Operations Department; and the principal director/Office of Cofinancing Operations.

A key participant in such a steering committee would be each country's ministry of finance as that is the ministry that coordinates ADB's country programming and it would be important to have the officials of that ministry understand the importance of energy for all.

17. The TA will be implemented over a 2-year period starting in February 2008 and ending in December 2009. It will require 264 person-months of consultant inputs (30 international and 234 national). The international consultants are expected to provide guidance and transfer knowledge and experience to the national consultants, who will be responsible for implementing the demonstration projects. As such, a greater proportion of the consultant inputs has been allocated to the national consultants. A national firm or NGO will be engaged using QBS and biodata proposal.⁷ In addition, \$1.2 million has been budgeted for demonstration projects including costs of survey and design, equipment, installation, and credit enhancement facility. This amount exceeds the 30% normally allowed for ADB financing for a TA. However, this TA represents a continuation of TA 5972-REG: Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement (PREGA),⁸ which was financed by the Government of the Netherlands, and included \$1.5 million for demonstration projects. However, the budgeted resources were never used under TA 5972. The Government of the Netherlands, as financier of this TA, would like a similar amount that was budgeted for TA 5972 to be used for the demonstration projects in this TA. Appendix 4 gives the outline terms of reference for the consultants. Consultants will be selected in accordance with ADB's *Guidelines on the Use of Consultants* (April 2006, as amended from time to time). Any equipment and materials⁹ to be financed by the TA will be procured in accordance with ADB's *Procurement Guidelines* (April 2006, as amended from time to time). On completion of the TA, the equipment will become the property of the government and participating local institutions and/or cooperatives.

IV. THE PRESIDENT'S RECOMMENDATION

18. The President recommends that the Board approve ADB administering technical assistance not exceeding the equivalent of \$2,300,000 to be financed on a grant basis by the Government of the Netherlands for the Energy for All Initiative.

⁷ An amplified terms of reference will be developed prior to recruitment.

⁸ ADB. 2001. *TA 5972-REG: Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement*. Manila.

⁹ It is expected that the international consultant/project coordinator will oversee the procurement of equipment and materials in close coordination with the implementing agencies. ADB will make direct payment to the suppliers.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions And Risks
<p>Impact</p> <ul style="list-style-type: none"> Improved economic, environmental, and health conditions of the poor in participating DMCs 	<ul style="list-style-type: none"> Increase in income of the people in the project areas Improvement in meeting the MDGs 	<ul style="list-style-type: none"> Baseline and post intervention surveys DMC energy data and national reports DMC data on MDGs 	<p>Assumptions</p> <ul style="list-style-type: none"> There is continued international collaboration to address energy poverty. International resources for access to energy are available. DMCs have the political will to increase access to modern energy services for the poor to meet MDGs.
<p>Outcome</p> <ul style="list-style-type: none"> Support participating DMCs to improve overall efficiency and effectiveness of their mechanisms for delivering access to energy Develop and demonstrate new approaches and methodologies for providing the poor with access to energy ADB's institutional capacity and technical capability to develop and implement projects for access to energy strengthened 	<ul style="list-style-type: none"> Increase in percentage and/or number of people with access to energy in rural and urban areas compared with that in baseline year More ADB projects with components addressing access to energy 	<ul style="list-style-type: none"> National energy access reports Survey reports TA reports 	<p>Assumptions</p> <ul style="list-style-type: none"> Energy access is a priority for DMCs. Private sector and financial institutions in DMCs see energy access as a potential untapped business opportunity. <p>Risks</p> <ul style="list-style-type: none"> Government interest will be diverted to large-scale energy projects. Private sector and financial institutions will be overwhelmed by opportunities in large-scale energy supply projects or investments in other sectors
<p>Outputs</p> <ol style="list-style-type: none"> Rural and urban poor have access to energy. Successful 	<ul style="list-style-type: none"> Approximately 10,000 people with access to modern forms of energy Demonstration projects implemented in 2–3 DMCs A set of successful 	<ul style="list-style-type: none"> TA reports Progress reports from DMCs ADB review missions Validated CDM 	<p>Assumptions</p> <ul style="list-style-type: none"> Participating DMC governments are committed to implement projects to increase access to energy services. Private sector and financial institutions are active in the energy sector and interested to take part

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions And Risks
<p>approaches that DMCs can pursue to scale up their efforts to provide energy access for the poor are developed and disseminated.</p> <p>3. Capacity of the participating host countries, private sector, and financial institutions to design and implement energy access projects is increased.</p> <p>4. Lessons learned from the demonstration projects are widely shared with other agencies.</p> <p>5. A system is established to support ADB operations departments to identify, plan, and implement energy access programs.</p>	<p>approaches to scale up energy access programs published</p> <ul style="list-style-type: none"> • About 10 financial institutions and private companies actively involved in projects increasing access to energy • Capacity of at least 200 government officials, private sector representatives, financial institutions representatives and other stakeholders to implement energy access programs enhanced through training, workshops, field visits • At least 1 CDM project developed • At least 8 national, sub-regional, and regional workshops held to disseminate information <p>A system/unit at RSID for identifying and supporting operations department on energy access projects</p>	<p>project design document</p> <ul style="list-style-type: none"> • TA completion report 	<p>in the projects.</p> <ul style="list-style-type: none"> • Communities are willing to take part in planning, constructing and/or managing the energy systems. <p>Risks</p> <ul style="list-style-type: none"> • Demonstration projects cannot be implemented/completed on time due to internal conflict and/or security reasons. • The private sector is not active in energy and lacks capacity to manufacture and install energy systems. • Financial institutions are not active in energy and do not want to extend their services in project areas. • Communities are not united to plan, construct, and manage the systems.

Activities with Milestones	Inputs
<p>1.1 Select 2–3 DMCs for projects that increase access to electricity (Mar 2008)</p> <p>1.2 Obtain memorandum of understanding from participating DMCs (Apr 2008)</p> <p>1.3 Design the scalable and replicable projects pursuing new approaches using the private sector, cooperatives/financial institutions, and community-based organizations based on the PREGA studies and other best practices in the region in close consultation with the operations departments and host DMCs (Jul 2008)</p> <p>1.4 Implementation of demonstration projects (Aug 2008–Jul 2009)</p> <p>2.1 Develop a system to identify projects with components that could increase access to modern energy services in the ADB’s project portfolio (Aug –Nov 08)</p> <p>2.2 Develop a system for monitoring and evaluating access to energy projects (Aug – Nov 08)</p> <p>2.2 Provide regular inputs to operations departments (ongoing)</p> <p>2.3 Continued ADB involvement in the development of a clean-energy investment framework, coordinated by international financial institutions, for increasing energy access (ongoing)</p> <p>3.1 Specify successful approaches that DMCs can pursue to scale up their efforts to provide modern energy services for all, especially the poor (Oct 09)</p> <p>3.2 Disseminate the results of the demonstration projects and successful approaches and other promotional activities to increase access to modern energy services (Nov –Dec 09)</p> <p>3.3 Cooperate with other agencies by exchanging best practices and analytical work, and collaborate in capacity-building activities</p> <p>3.4 Develop these projects into CDM project/s (Apr –Dec 08)</p> <p>4.1 Provide training, capacity building, field visits and awareness-raising activities for planners, the private sector, and financial institutions to contribute to increasing the poor’s access to modern energy services</p> <p>4.2 Conduct national, subregional, and regional workshops</p> <p>5.1 Retain consultant to serve as a resource for operational departments (Feb 08)</p> <p>5.2 Provide ongoing assistance to operational departments (ongoing)</p> <p>5.3 Mainstream “Energy for All” into ADB operations (ongoing)</p>	<ul style="list-style-type: none"> • Significant inputs by ADB staff in TA management • Annual review by REACH steering committee • 30 person-months of international consultants, 234 person-months of national consultants • Commensurate efforts by government personnel in coordinating TA activities and providing guidance to implement demonstration projects • \$1.2 million for demonstration projects

ADB = Asian Development Bank, CDM = clean development mechanism, DMC = developing member countries, MDGs = millennium development goals; REACH = Renewable Energy, Energy Efficiency and Climate Change, RSID = Energy, Transport, and Water Division, TA = technical assistance.

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CRITERIA FOR SELECTING DEMONSTRATION PROJECTS

1. In principle, demonstration projects can be an effective means of engendering confidence and thus scaling up the technologies, processes, or products that increase access to modern energy services. A number of factors govern the likely success of particular demonstration projects. There is then a further wide range of factors that need to be considered to determine whether technically, economically, and financially successful demonstration projects would lead to market-based replications or a pipeline of development-assisted projects. Some issues to consider when selecting countries, modalities, and technologies are as follows.

- (i) **Innovativeness of the approach in particular markets/applications.** The approach or modality that will be demonstrated should either be innovative in the particular target market sector or have benefits that are not measured/quantified/credible/widely known. In other words, the innovation is meant to demonstrate.
- (ii) **Available market.** Before a project can be successfully replicated, a potential market must exist—one that will use the technology, process, or product once it is successfully demonstrated.
- (iii) **Replicability.** Demonstration projects should provide opportunities for relatively simple replications. Projects that will have applications only in specialized environments or in very limited circumstances are unlikely to have desired impacts on the scaling-up efforts. In countries with an existing proactive and strong private sector, financial institutions, and nongovernment organizations, replication efforts to provide access to modern energy services for more households are likely to be scaled up.
- (iv) **Technical viability.** To be effective, the technology must be robust. Technologies that are available for a known price, sold by established firms and organizations with existing track records in the same or similar products or markets, can be made available through existing distribution channels and technology providers that have in-house technical support for installation, after-sales service ,and so on to help ease the scaling-up efforts. Such providers should be able to easily solve minimal technical problems if any occur during the operation.
- (v) **Economic viability.** Demonstration projects must be inherently economic. Project economics, including the cost savings potential of the project, and the magnitude of the expected benefits associated with its replication must be assessed. Mobilizing existing resources through the Global Environment Facility, the Clean Development Mechanism, and other local/national/international cofunding sources, and some contribution from the users themselves would help create a sense of ownership and make the pro-poor projects viable.
- (vi) **Effective supply chain.** To be effective, the demonstration project needs to be supported by a supply chain that has a proven track record of delivering the requisite goods and services as and when required. All elements of the supply

chain would also need the capacity to respond adequately to the needs of new projects during scaling up.

- (vii) **Monitoring and evaluation.** The project needs to be such that at its completion, it should be possible to determine whether the project actually worked and led to beneficial, let alone financial or economic, results. To do this, a point of reference must be established against which outcomes can be compared. In addition to detailed monitoring, evaluation of the wider aspects of the demonstration project is required.
- (viii) **Plan for scaling up.** Right at the beginning, there should be a clear plan on how the projects will be scaled up once the demonstration project is successful. This is to ensure that the successful project/idea will move to the desired scale as the outcome of the demonstration project. Any viable demonstration project thus needs to be complemented by a marketing strategy to disseminate the project's benefits so that scaling up can take place.

2. **Potential Projects.** The potential projects and countries for Energy for All include but are not limited to (i) promotion of community-managed decentralized energy systems (micro-hydro, solar, biomass) in Indonesia, Lao People's Democratic Republic (Lao PDR), Pakistan, and the Philippines (where feasible, private entrepreneurs, instead of the community, can also operate the energy system); and (ii) new financing mechanisms using credit enhancement, promoting local financing for individual household-level technologies (e.g., solar home systems, solar powered white-light-emitting diode lamps) through local financial institutions in Nepal. These approaches and methodologies will focus on (i) private sector participation, (ii) new and innovative financing mechanisms, and (iii) use of community-based models (e.g., cooperatives, etc.) to improve access to energy. The demonstration projects and modalities will be based on prefeasibility and feasibility studies undertaken under TA 5972-REG: Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement (PREGA)¹⁰, as well as other best practices in the region, in consultation with the host developing member countries.

3. PREGA was financed by the Dutch Cooperation Fund for Promotion of Renewable Energy and Energy Efficiency, funded by the Government of the Netherlands. A total of 18 DMCs (Azerbaijan, Bangladesh, Cambodia, People's Republic of China, India, Indonesia, Kazakhstan, Kyrgyz Republic, Lao PDR, Mongolia, Nepal, Pakistan, Philippines, Samoa, Sri Lanka, Tajikistan, Uzbekistan and Viet Nam) participated in PREGA, which was completed on 31 December 2006.

¹⁰ ADB. 2000. *Technical Assistance for the Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement*. Manila.

COST ESTIMATES AND FINANCING PLAN
(\$)

Item	Total Cost
Government of the Netherlands Financing^a	
1. Consultants	
a. Remuneration and Per Diem	
i. International Consultants	510,000
ii. National Consultants	405,000
b. International and Local Travel	35,000
c. Reports and Communications	10,000
2. Equipment ^b	5,000
3. Training, Stakeholder Consultations, and Workshops ^c	20,000
4. Publications and Technical Information Services	10,000
5. Demonstration Projects ^d	1,200,000
6. Miscellaneous Administration and Support Costs	5,000
7. Contingencies	100,000
Total	2,300,000

^a Administered by the Asian Development Bank. In-kind counterpart contributions of participating developing member countries (DMC) are not included.

^b Equipment includes computers and printers.

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

^d Include costs of survey and design, equipment, installation and credit enhancement facility (e.g. revolving fund) depending on the modality of the project selected for each participating DMC.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. A team of international consultants (total of 30 person-months) will be engaged on an individual basis, and a national project implementation team through a nongovernment organization (NGO) in each participating developing member country (DMC) and national consultants (234 person-months) will be engaged by the Asian Development Bank (ADB) in accordance with the *Guidelines on the Use of Consultants* (April 2006, as amended from time to time) for this regional technical assistance (TA). The access-to-energy advisor, hired on full-time basis, will be the project coordinator for the TA. The advisor will be based in ADB headquarters in Manila with frequent travel to project sites. The team leader will be assisted by other international consultants and national consultants to design, implement, and monitor the TA activities.

A. International Consultants

1. Access-to-Energy Advisor/Project Coordinator (16 person-months)

2. The tasks of the access-to-energy advisor/project coordinator will include, but will not be limited to, the following:

- (i) join the fact-finding missions to potential DMC participants and assist in selecting the countries and projects for the TA;
- (ii) assist in all Energy, Transport, and Water Division (RSID) activities related to the selection, engagement, and supervision of international and national consultants recruited under the TA and in overseeing and coordinating the technical support provided by international and national consultants, as required by RSID, the operations departments;
- (iii) finalize the demonstration project framework, detailed implementation modality and work plan for each participating country, with inputs from other international consultants;
- (iv) review energy consumption across countries by household characteristics; how price (tariff) and other factors such as unmetered connections, theft, and agricultural subsidy have affected such consumption;
- (v) monitor the progress being made in the field, review the progress reports submitted by the national consultants, and provide inputs as and when necessary;
- (vi) organize and facilitate the planning and review workshops, observation visits, and other capacity-building activities for the DMCs;
- (vii) review the proposals made by national consultants to organize workshops and seminars, and recommend approval;
- (viii) provide inputs to develop the projects into clean development mechanisms (CDM), review the project design document, and assist in getting it validated;
- (ix) conduct regular field visits to interact with the implementing agency, national consultants, cooperatives, financial institutions, and the private sector on progress and impacts made, and discuss next steps;
- (x) conduct a closing workshop to present to DMCs the findings and lessons learned from the Energy for All initiative;
- (xi) prepare the findings and lessons learned for ADB publications;
- (xii) assist in preparing a large-scale program or programs on scaling up energy services based on the outcome of the Energy for All Initiative;

- (xiii) assist the operations departments in identifying, developing, and implementing programs for increasing access to energy services;
- (xiv) review the energy programs on the pipeline and explore possibilities for carrying out activities for increasing access to modern energy services;
- (xv) present the Energy for All initiative of ADB in various meetings, seminars, workshops, and conferences; and
- (xvi) follow up the activities being carried out by other organizations for increasing access to energy and explore possibilities for cooperation and collaboration.

2. Renewable Energy Technologies Specialists (3 person-months)

3. Several specialists will be required depending on the technology used. The specialists will undertake the following activities as needed:

- (i) examine different technological options and confirm the suitability of particular renewable energy technology to be used for the demonstration projects;
- (ii) review the technical reports prepared by the national consultants and provide inputs to the design, construction/installation;
- (iii) ensure that the quality of the equipment, installation, and after-sales services meet the minimum standard;
- (iv) with support from national consultants, finalize technical design, detailed cost estimates, associated costs of distribution network and connections, contract packaging, project implementation schedule, and drawings for each of the demonstration projects, including a proper assessment of environmental impacts according to ADB policies;
- (v) assess the electricity demand, willingness to pay, proximity to community infrastructure; and potential for electricity connection, electricity-based enterprise development;
- (vi) assess the local community's ability to construct, operate, and manage the renewable energy project and recommend capacity-building programs; and
- (vii) provide inputs to the national consultants for the design and conduct of technical training ,and awareness programs for the communities.

3. Financial Specialist (8 person-months)

4. The specialist will undertake the following activities as needed:

- (i) assess the local needs and capacity of the financial institutions including micro-finance institutions to lend for renewable energy projects;
- (ii) design the appropriate new financing mechanism using a credit enhancement facility;
- (iii) assist national consultants in designing and implementing capacity-building activities for local financial institutions, including microfinance institutions;
- (iv) assist in designing the detailed project for each participating DMC;
- (v) assess the ability to pay, subsidy amount needed and its delivery mechanism;
- (vi) prepare a financial analysis of the demonstration projects following ADB's guidelines; and
- (vii) finalize the community energy fund for the demonstration project and set up its operations guidelines with inputs from other consultants.

4. Social Development Specialist (3 person-months)

5. The specialist will undertake the following activities as needed:

- (i) perform a detailed social assessment for the identified demonstration projects;
- (ii) undertake a beneficiary and stakeholder analysis, considering gender aspects;
- (iii) design the appropriate cooperative model (community mobilization approach, institutional setup, capacity-building needs, etc.) for the particular demonstration projects;
- (iv) assist national consultants in designing and implementing capacity-building activities for the community organizations;
- (v) assess the ability to pay, subsidy amount needed and its delivery mechanism together with other international consultants; and
- (vi) provide inputs in designing the community energy fund for the demonstration project and setting up its operations guidelines.

C. National Consultants

1. National Consultants for Project Implementation (210 person-months)

6. A team of national consultants for project implementation will be engaged as a firm or NGO to implement the project activities in each of the participating countries. Each team will be composed of a renewable energy engineer, a social development specialist, a financial specialist, and an administrative officer, and will be led by the energy specialist. The consultants should have extensive knowledge of domestic energy plans, policies, ongoing programs, renewable energy technologies, social development issues, financial management, and so on. The national consultants will carry out the following activities:

- (i) provide background information and assist the international experts in designing the project framework;
- (ii) conduct baseline and postintervention survey and analyze the data;
- (iii) carry out a survey and design renewable energy technologies appropriate for the communities;
- (iv) implement the community empowerment activities as per the project design, and ensure that women take part in all stages;
- (v) design and implement various capacity-building activities for community members, the private sector, financial institutions;
- (vi) with inputs from international consultants, prepare the CDM project for the demonstration projects;
- (vii) conduct outreach and information activities to raise awareness among stakeholders of the importance of increasing access to modern energy services and to disseminate the results of the demonstration projects;
- (viii) assist in procuring equipment as per ADB's guidelines for procurement;
- (ix) assist in preparing the procurement plan, negotiating with the technology supplier, installation, commissioning, and repair and maintenance of the demonstration projects; and
- (x) participate in capacity-building activities for project preparation and financial appraisal; and in regional and international workshops organized by ADB.

2. Project Analyst (24 person-months)

7. The consultant will assist the following:
 - (i) the core team and steering committee to coordinate the national teams' activities;
 - (ii) the international consultants and ADB staff to organize capacity-building activities;
 - (iii) the core team in project management, including preparing financial accounts for the TA;
 - (iv) the core team in maintaining and regularly updating the TA website;
 - (v) the core team by maintaining project documentation and records;
 - (vi) the core team to scrutinize invoices presented by national teams and vendors; and
 - (vii) the core team to prepare documentation for TA administration that adheres to ADB procedures.

8. The project analyst will prepare progress reports and case studies, with inputs from the national consultants for project implementation.