

**PROJECT PREPARATORY TECHNICAL ASSISTANCE**  
(Preparing the Solar Park Development and Transmission Sector Project)

**A. Justification**

1. A project preparatory technical assistance (TA) is required to develop the project. It will conduct due diligence covering technical, economic, financial and social and environmental safeguards.

**B. Major Outputs and Activities**

2. The final TA output is a fully prepared loan proposal. This includes completed social and environmental analysis and documentation, and technical, economic and financial due diligence. The major outputs and activities are summarized in Table A3.1.

**Table A3.1: Summary of Major Outputs and Activities**

<b>Major Activities</b>	<b>Expected Completion Date</b>	<b>Major Outputs</b>	<b>Expected Completion Date</b>
1. Fielding consultants	January 2016	Deliverable 1: Inception Report	February 2016
2. Conduct due diligence and develop strategies and recommendations to address gaps and strengthen project	July 2016	Deliverable 2: Draft Final Report	July 2016
3. Finalize summary of findings from due diligence activities	August 2016	Deliverable 3: Final Report	August 2016

Source: Asian Development Bank staff estimates.

**C. Cost Estimate and Proposed Financing Arrangement**

3. The TA is estimated to cost \$1 million equivalent, which will be financed on a grant basis by the Asian Clean Energy Fund<sup>1</sup> under the Clean Energy Financing Partnership Facility and administered by the Asian Development Bank (ADB). The government will provide counterpart support in the form of counterpart staff, provision of office space, communication facilities for consultants, and other in-kind contributions. The detailed cost estimate is presented in Table A3.2.

<sup>1</sup> Established by the Government of Japan.

**Table A3.2: Cost Estimates and Financing Plan**  
(\$'000)

Item	Total Cost
<b>Asian Clean Energy Fund<sup>a</sup> under the Clean Energy Financing Partnership Facility</b>	
1. Consultants	
a. Remuneration and per diem	
i. International consultants (37 person-months)	608.0
ii. National consultants (38 person-months)	178.0
b. International and local travel	100.0
c. Reports and communications	20.0
2. Surveys	50.0
3. Contingencies	44.0
<b>Total</b>	<b>1,000.0</b>

<sup>a</sup> Established by the Government of Japan.

Source: Asian Development Bank staff estimates.

#### D. Consulting Services

4. ADB will recruit three individuals and one firm following *Guidelines on the Use of Consultants* (2013, as amended from time to time) by ADB and its Borrowers using quality- and cost-based selection (QCBS) on a 90:10 basis. The proceeds of the TA will be disbursed in line with ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time). The TA will require 10 international consultants for a total of 37 person-months and 9 national consultants for a total of 38 person-months. Lump-sum payments and output-based contracts will be considered for consulting services under the TA.

**Table A3.3: Summary of Consulting Services Requirement**

International Name of Positions	Person-months	National Name of Positions	Person-months
Solar Park Master Planner	4.0	Electrical Engineer	6.0
Solar Park Commercial Expert	4.0	Environmental Officer	3.0
Solar Power Integration Expert	3.0	Social Safeguard Officer	4.0
Renewable Energy Policy/Regulatory Expert	6.0	Financial Management Specialist	5.0
Solar Park Expert	4.0	Procurement Specialist	4.0
Environmental Specialist	3.0	Community Policy Expert	6.0
Social Safeguard Specialist	4.0	Livelihood Expert	6.0
Financial Specialist	3.0	Communications Expert	2.0
Economist	3.0	Gender Expert	2.0
Institutional Specialist	3.0		
<b>Total:</b>	<b>37.0</b>		<b>38.0</b>

Source: Asian Development Bank staff estimates

5. The outline terms of reference for the project preparatory TA consultants are described below:

Position	Summary Tasks	Qualification
Solar Park Master Planner (International, 4 person-months)	<ul style="list-style-type: none"> <li>Review and suggest requirements for investment grade detailed project reports</li> <li>Provide inputs on design and implementation of solar parks</li> <li>Lead development of a knowledge product on Solar Park Design</li> </ul>	Extensive knowledge of civil engineering and extensive experience preparing similar plans for other renewable energy

<b>Position</b>	<b>Summary Tasks</b>	<b>Qualification</b>
		parks and infrastructure projects
Solar Park Commercial Expert (International, 4 person-months)	<ul style="list-style-type: none"> <li>• Benchmark policies for solar park development with global best practices</li> <li>• Evaluate business models and structuring proposed for solar parks</li> <li>• Support development of solar park business plans</li> </ul>	Extensive experience conducting similar studies for special economic zones or infrastructure projects
Solar Park Integration Expert (International, 3 person-months)	<ul style="list-style-type: none"> <li>• Evaluate local and regional grid impacts from increased variable renewable energy at parks</li> <li>• Recommend approaches for park and load dispatch levels to mitigate grid disruptions</li> </ul>	Extensive experience in load flow modeling and assessing grid impacts from variable renewable generation
Renewable Energy Policy/Regulatory Expert (International, 6 person-months)	<ul style="list-style-type: none"> <li>• Assess sector development plan, institutional capacity, and policy environment</li> <li>• Review policy and regulation for achieving solar park targets</li> <li>• Review implementation requirements to achieve solar targets</li> <li>• Develop readiness criteria for subprojects to be covered under the loan</li> </ul>	Extensive experience reviewing renewable energy policies internationally and advising stakeholders
Solar Park Expert (International, 4 person-months)	<ul style="list-style-type: none"> <li>• Investigate success and challenges from previous and ongoing solar park development in India</li> <li>• Identify innovative approaches that can be applied to solar parks under proposed project</li> </ul>	Degree in engineering or management, 10 years of relevant experience, expertise in solar parks in India
Environmental Specialist (International, 3 person-months)	<ul style="list-style-type: none"> <li>• Help prepare all required environmental safeguard documents ensuring conformity with ADB policy and government guidelines</li> <li>• Assess climate impacts, identify any adaptation requirements, and estimate GHG emission reductions expected from project</li> </ul>	Experience preparing and reviewing safeguard documents, relevant educational qualifications
Social Safeguard Specialist (International, 4 person-months)	<ul style="list-style-type: none"> <li>• Help prepare all required social safeguard documents ensuring conformity with ADB policy and government guidelines.</li> <li>• Organize surveys and stakeholder consultations</li> <li>• Prepare the summary poverty reduction and social strategy</li> </ul>	10 years of relevant experience and relevant educational qualifications
Financial Specialist (International, 3 person-months)	<ul style="list-style-type: none"> <li>• Support preparation of cost estimates and financing plan</li> <li>• Prepare financial projections and conduct project financial evaluations</li> <li>• Identify financial performance indicators</li> </ul>	Experience in financial modeling of transmission projects, including financial appraisal and modeling.
Economist (International, 3 person-months)	<ul style="list-style-type: none"> <li>• Conduct economic analyses following ADB's requirements based on demand and supply forecasts and least cost alternatives</li> </ul>	Relevant experience in economic appraisal; economics degree
Institutional Specialist (International, 3 person-months)	<ul style="list-style-type: none"> <li>• Undertake institutional assessment of SECI and relevant joint ventures</li> <li>• Prepare an institutional model for project implementation and park management</li> </ul>	Degree in engineering or management, post-graduate degree, 12 years of relevant experience.
Electrical Engineer	<ul style="list-style-type: none"> <li>• Review solar park plans and proposed</li> </ul>	Extensive experience

<b>Position</b>	<b>Summary Tasks</b>	<b>Qualification</b>
(National, 6 person-months)	connection plans for individual projects with the sub-pooling and piling facilities <ul style="list-style-type: none"> <li>Assess grid costs and grid technology standards</li> </ul>	conducting similar studies for connectivity and evacuation of solar projects
Environmental Officer (National, 3 person-months)	<ul style="list-style-type: none"> <li>Support Environmental Specialist in preparing and reviewing all required environmental safeguard document</li> </ul>	Minimum 7 years relevant experience; relevant educational experience
Social Safeguard Officer (National, 4 person-months)	<ul style="list-style-type: none"> <li>Support Social Safeguard Specialist in developing and reviewing all required safeguard documents related to involuntary resettlement and indigenous peoples</li> </ul>	Minimum 7 years relevant experience; relevant educational experience
Financial Management Specialist (National, 5 person-months)	<ul style="list-style-type: none"> <li>Conduct financial management assessment, including establishing funds flow arrangement</li> </ul>	Degree in finance or other relevant qualification
Procurement Specialist (National, 4 person-months)	<ul style="list-style-type: none"> <li>Prepare a procurement risk assessment and management plan, conduct capacity assessment, prepare master bidding documents and implementation schedule</li> </ul>	10 years handling procurement in public sector; experience in MDB procurement
Community Policy Expert (National, 6 person-months)	<ul style="list-style-type: none"> <li>Review community development policies and develop a framework for community development for communities near to solar parks</li> </ul>	Experience designing policy for small communities
Livelihood Expert (National, 6 person-months)	<ul style="list-style-type: none"> <li>Identify livelihood opportunities and build capacity among communities near to solar parks</li> </ul>	Experience in small and micro ventures and skills training
Communications Expert (National, 2 person-months)	<ul style="list-style-type: none"> <li>Conduct a stakeholder analysis, conduct communication-based assessments, and assess capacity of IAs to undertake needed activities</li> </ul>	Experience in stakeholder engagement and communications
Gender Expert (National, 2 person-months)	<ul style="list-style-type: none"> <li>Assess key stakeholder groups, prepare a gender action plan, integrate features into project design, and assess requirements to conduct key activities</li> </ul>	Expert in gender analysis tools and methodologies in energy sector

## **E. Implementation Arrangements**

9. ADB will be the executing agency for the TA. In-kind contributions would be provided by the government, SECI, and PGCIL. The TA will be implemented over 2016.

10. The proposed TA processing and implementation schedule is listed in Table A3.4. Advance action will be taken to enable consultants are mobilized soon after the Concept Paper approval.

**Table A3.4: Technical Assistance Processing and Implementation Schedule**

<b>Major Milestones</b>	<b>Expected Completion Date</b>
TA Approval	September 2015
Consultant Recruitment and mobilization	January 2016
Inception Report	February 2016
Draft Final Report	July 2016
Physical Completion of Technical Assistance	August 2016
Financial Closure	September 2016

Source: Asian Development Bank staff estimates