ADB

Technical Assistance Report

Project Number: 48435-001
Cluster—Regional—Capacity Development Technical Assistance (C-R-CDTA)
June 2015

Promoting Sustainable Energy for All in Asia and the Pacific

(Cofinanced by the Clean Technology Fund, the Government of Austria, and the Clean Energy Fund under the Clean Energy Financing Partnership Facility)

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
DMC	–	developing member country
IEA	–	International Energy Agency
SE4ALL	–	Sustainable Energy for All
TA	–	technical assistance

NOTE

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

Vice-President	B. N. Lohani, Knowledge Management and Sustainable Development
Director General	M. C. Locsin, Sustainable Development and Climate Change Department (SDCC)
Senior Director	G. H. Kim, Sector Advisory Service Division, SDCC
Technical Advisor (Energy)	Y. Zhai, Sector Advisory Service Division, SDCC
Team leader	J. Acharya, Senior Climate Change Specialist (Clean Energy), SDCC
Team member	A. Zhou, Senior Energy Specialist, SDCC
Peer reviewer	P. Wijayatunga, Principal Energy Specialist, SAEN

CONTENTS

CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data

Project Number: 48435-001

Project Name	Promoting Sustainable Energy for All in Asia and the Pacific	**Department /Division**	SDCC/SDAS
Country	REG	**Executing Agency**	Asian Development Bank
Borrower	Not applicable		

2. Sector

	Sector	Subsector(s)	Financing ($ million)
✓	Energy	Energy efficiency and conservation	1.00
		Energy sector development and institutional reform	6.74
		Total	**7.74**

3. Strategic Agenda

Strategic Agenda	Subcomponents
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded
Environmentally sustainable growth (ESG)	Eco-efficiency Natural resources conservation Urban environmental improvement

Climate Change Information

Climate Change impact on the Project	Low

4. Drivers of Change

Drivers of Change	Components
Governance and capacity development (GCD)	Client relations, network, and partnership development to partnership driver of change Institutional development Organizational development
Partnerships (PAR)	Official cofinancing United Nations organization
Private sector development (PSD)	Promotion of private sector investment Public sector goods and services essential for private sector development

Gender Equity and Mainstreaming

Effective gender mainstreaming (EGM)	✓

5. Poverty Targeting

Project directly targets poverty	No

Location Impact

Not Applicable

6. TA Category: A

7. Safeguard Categorization Not Applicable

8. Financing

Modality and Sources	Amount ($ million)
ADB	**0.00**
None	0.00
Cofinancing	**7.74**
Clean Energy Fund - Multi-Donor	1.50
ADB Clean Technology Fund	3.50
Government of Austria	2.74
Counterpart	**0.00**
None	0.00
Total	**7.74**

9. Effective Development Cooperation

Use of country procurement systems	No
Use of country public financial management systems	No

I. INTRODUCTION

1. The proposed cluster regional capacity building technical assistance (TA) aims to address energy poverty in Asia and the Pacific. The Asian Development Bank (ADB), in the course of implementing its Energy for All Initiative and Clean Energy Program, has conducted extensive consultations on scaling up access to energy, renewable energy, and energy efficiency with a wide range of stakeholders representing governments, civil society organizations, the private sector, financial institutions, and development partners. ADB, as the leading partner and host of the Asia-Pacific Sustainable Energy for All (SE4ALL) hub, supports the SE4ALL initiative to (i) ensure universal access to modern energy services; (ii) double the annual global rate of improvement in energy efficiency; and (iii) double the share of renewable energy in the global energy mix, all by 2030.[1]

2. The proposed TA aims to provide accessible, cleaner, and more efficient energy in Asia and the Pacific through mainstreaming operations while focusing on the nexus of the three pillars of the ADB Energy Policy: (i) promoting energy efficiency and renewable energy; (ii) maximizing access to energy for all; and (iii) promoting energy sector reform, capacity building, and governance.[2] The proposed TA is aligned with ADB Strategy 2020's environmentally sustainable growth agenda and Midterm Review of Strategy 2020, especially with regard to the environment and ADB's climate change strategic priority for 2014–2020.[3] The design and monitoring framework of the cluster TA is in Appendix 1.[4]

II. ISSUES

3. **Energy security and the region's increasing energy consumption.** By 2035, developing Asia's primary global energy consumption is expected to increase to as much as 56% from 34% in 2010.[5] This trend reflects (i) Asia's increasing role as a center of manufacturing, (ii) its commercial sector growth, and (iii) its greatly expanded population (in particular its urban population), which has resulted in over half of global megacities in Asia. This energy consumption is being met by rapidly growing energy imports. ADB projects that by 2035, most countries in the region will generate only half of the energy they require locally, with the rest of the demand met by imports. Imported oil in particular will continue to be critical in the region. The projected level of consumption requires approaches beyond the installation of new power generation. For instance, a 1%–4% investment in energy efficiency, as a share of overall energy sector investments, can meet as much as 25% of the projected increase in primary energy consumption in developing Asian countries by 2030.[6]

4. **Need for sustainable energy solutions.** Clean energy responds to both energy supply issues and the threat of climate change; it decouples economic and social development from increased greenhouse gas emissions. The People's Republic of China and India are among the global leaders in renewable energy development, which is now the fastest growing sector of energy generation. The wide range of clean energy resources available also benefits the

[1] Sustainable Energy for All. Asia-Pacific Hub. http://www.se4all.org/hubs/asia-pacific-hub/; Sustainable Energy for All. Our objectives. http://www.se4all.org/our-vision/our-objectives/
[2] ADB. 2009. *Energy Policy*. Manila.
[3] ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank*, *2008–2020.* Manila; ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific.* Manila.
[4] The TA first appeared in the business opportunities section of ADB's website on 28 April 2015.
[5] ADB. 2013. *Asian Development Outlook 2013: Asia's Energy Challenge*. Manila.
[6] ADB. 2013. *Same Energy, More Power*. Manila.

region's diverse landscape; India has vast solar resources, while the Greater Mekong Subregion in Southeast Asia has untapped hydropower potential. Increased energy efficiency is possible throughout all of the region's economies.

5. **Majority of the world's energy poor is found in Asia and the Pacific.** The International Energy Agency (IEA) estimates that around 628 million people in the region account for almost 50% of the total number of people globally without access to electricity.[7] The region also ranks the highest in terms of dependence on traditional solid fuels for cooking, with 1.8 billion people (out of a global total of 2.6 billion) lacking access to clean cooking solutions. Access to electricity and clean cooking energy solutions has tremendous positive impacts on the environment, greenhouse gas reduction, and the socioeconomic situation of people.

6. **Energy poverty is not only a rural problem.** Asian cities currently have an urbanization rate of more than 40% and are home to more than 500 million urban poor. With 90% of the urban growth taking place in the developing world, the Asian urban population will reach 2.6 billion people by 2030.[8] The urban poor are deprived of basic services, including the provision of reliable and efficient lighting, heating, and cooking, which excludes them from the benefits of modern energy services and exposes them to serious health risks from unsustainable and harmful cooking practices. Urban sector interventions often miss such issues.

7. **Huge investment requirements to address energy poverty.** The IEA has estimated that around $600 billion of additional investment is required to provide universal access to electricity by 2030, or an average of $35 billion per year (footnote 9). According to the IEA, the Asia and Pacific region accounts for 36% of this investment need based on current levels of energy poverty. Private financing can and should play a greater role.

8. The problem of energy poverty and the need for sustainable energy solutions are of global concern. The SE4ALL initiative is a global response to these issues that will help catalyze major new investment opportunities to speed up the transformation of the world's energy systems, pursue the elimination of energy poverty, and enhance prosperity. Even though energy was left out in the Millennium Development Goals, sustainable energy is now being proposed as one of the Sustainable Development Goals for the post-2015 development agenda and is consistent with the vision and objectives of the SE4ALL initiative. The proposed TA could assist developing member countries (DMCs) in undertaking early actions to implement the proposed energy Sustainable Development Goal in the post-2015 era.

III. THE PROPOSED CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE

A. Impact and Outcome

9. The impact of the proposed cluster TA will be achievement of Sustainable Energy for All targets in Asia and the Pacific. This will be measured against the SE4ALL targets of (i) universal access to modern energy services; (ii) a doubling of the annual global rate of improvement in energy efficiency; and (iii) a doubling of the share of renewable energy in the global energy mix, all by 2030. The overall outcome of the proposed cluster TA will be increased capacity, maturity,

[7] IEA. 2014. *World Energy Outlook*. Paris.
[8] United Nations Human Settlements Program. 2011. *The State of Asian Cities 2010/2011*. http://mirror.unhabitat.org/pmss/listItemDetails.aspx?publicationID=3078

and investment readiness of SE4ALL projects. The target is to increase investment for SE4ALL by $1 billion by 2020.

B. Methodology and Key Activities

10. The cluster TA will build on ADB's experience and is proposed to formulate a more integrated response to energy poverty and energy security, addressing technological, institutional, and operational barriers to achieve sustainable energy for all by 2030. The proposed cluster TA subprojects will complement existing regional TA projects such as Empowering the Poor through Increasing Access to Energy and other activities under ADB's Clean Energy Initiative and Energy for All Program for promotion of energy access, renewable energy, and energy efficiency.[9] Partnerships with other institutions, governments, and private sector organizations will be forged to increase the impact of the TA, ensure its complementary nature, and avoid duplication with other efforts. Also, North–South and South–South cooperation on knowledge sharing and experiences will be promoted among ADB's member countries and beyond. There will be four subprojects initially included in the cluster TA that directly contribute toward achieving 2030 SE4ALL targets; additional subprojects, or topping up of initial subprojects, may be proposed later. Paras. 11–14 outline the methodology and key activities, consistent with fund regulations, agreements, and guidelines, including eligibility of expenditure of each of the subprojects.

11. **Subproject A: Renewable energy mini-grids and distributed power generation.** This subproject addresses the fundamental challenge of providing access to energy by utilizing combinations of technologies and new private sector business models. It aims to provide support to entrepreneurs and private sector project developers in DMCs in identifying and developing viable projects for investment from ADB's private and public sector windows or other sources. This will provide more targeted investment advisory and due diligence support to those project developers that could benefit from ADB's Private Sector Operations Department program providing concessional finance to a range of early to mid-stage mini-grid and distributed power generation companies in ADB's DMCs. The subproject also aims to build partnerships to encourage regulators, policy makers, and other stakeholders to recognize that (i) a healthy enabling environment for private developers is critical to achieving universal energy access; and (ii) there will be a need to continue providing assistance to DMCs in their efforts to build capacity, share knowledge, and create an enabling environment for the private sector.

12. **Subproject B: Energy access for the urban poor.** This subproject will address urban energy poverty in the region by overcoming the major barriers in the deployment of clean, reliable, and environmentally friendly energy services. It will address the lack of energy services through (i) stakeholder consultation; (ii) active involvement of government agencies, municipalities, electricity utility companies, the community, and civil society organizations; and (iii) the introduction of new inclusive business models that allow sustainable access to energy. Furthermore, this subproject will support DMCs in pursuing reforms to address issues that directly relate to urban energy poverty such as the lack of attention to informal settlements, high up-front cost of connecting to modern energy, unreliable distribution network of energy services common in urban slums, and energy-inefficient construction of housing. This subproject will also review ADB's pipeline of projects in the energy and urban sectors, and it will provide support to ADB's operations departments in identifying best models and pilot testing which then can be scaled up with possible ADB investment. The subproject will also support promotion of green architecture and energy-efficient construction methods in low-cost housing. Pilot projects will be

[9] ADB. 2013. *Technical Assistance for Empowering the Poor through Increasing Access to Energy.* Manila.

selected based on the innovative nature of the concept, commitment and interest from the targeted DMCs, and possible links with ADB's future investments.

13. **Subproject C: Sustainable Energy for All regional hub for Asia and the Pacific.** ADB, through its Energy for All Initiative, has been a part of SE4ALL even prior to its official launch, and has remained a close partner of SE4ALL from its launch to the present. In June 2014, ADB formally became lead organization for SE4ALL in Asia and the Pacific and host of the regional hub, with the support of the United Nations Development Programme and the United Nations Economic and Social Commission for Asia and the Pacific. The proposed subproject will provide secretariat services and expert inputs to support the participation of ADB's DMCs in SE4ALL in (i) developing their action agendas, investment prospectuses, and detailed project design; (ii) mobilizing their resources; and (iii) undertaking other activities such as capacity building, knowledge sharing, and tracking of results of SE4ALL in Asia and the Pacific. Monitoring and tracking of progress will be undertaken together with the United Nations Development Programme and United Nations Economic and Social Commission for Asia and the Pacific, as well as the global facilitation team of SE4ALL through an online platform that will also serve as a repository of knowledge products. All subproject activities will support ADB's Energy for All Initiative and Clean Energy Program.

14. **Subproject D: Project development and investment facilitation.** Through this subproject, the methodology of ADB's Energy for All Initiative in identifying credible energy access entrepreneurs, providing relevant project development services through its mentoring program, and facilitating private sector investment will be scaled up. This subproject will also offer support services to impact investors and financing institutions to support small-scale, high-impact investments in areas such as energy access or sustainable energy. These support services include feasibility studies of electricity generation, providing due diligence support, piloting risk-sharing mechanisms, and offering other technical assistance applications that serve a catalytic role in deploying private sector capital to sustainable energy enterprises and their end users. Support for development of projects involving a range of new and innovative instruments such as output-based aid and results-based financing will be provided. This subproject will also support piloting some of these innovative concepts to prepare for financing from ADB or other sources for scaling up. An online platform will also be developed to coordinate services for energy access entrepreneurs and investors in a systematic way. The experts will review ADB's pipeline of projects and assist ADB's operations departments during project identification, development (pre-project preparatory TA and project preparatory TA stages), and implementation. It will support an existing or new entity, in collaboration with other development partners, to continue providing project development and investment facilitation services in the long term for projects that address sustainable energy for all.

C. Cost and Financing

15. The TA is estimated to cost $7.738 million, of which (i) $3.500 million will be financed on a grant basis by the Clean Technology Fund and administered by ADB, (ii) $2.738 million will be financed on grant basis by the Government of Austria and administered by ADB, and (iii) $1.500 million will be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility and administered by ADB.[10] A possible increase of $17.262 million in the TA amount through additional allocation from donors may be considered in the future, subject to resource availability and implementation progress to reach target of $25 million. The details of the cost estimates and financing plan are in Appendix 2.

[10] The financing partners of the Clean Energy Fund are the governments of Australia, Norway, Spain, and Sweden.

D. Implementation Arrangements

16. ADB will be the executing and implementing agency of the TA. The Sector Advisory Service Division of the Sustainable Development and Climate Change Department will be responsible for the overall implementation of all the subprojects under the TA and will work closely with ADB's operations departments and Energy Sector Group in undertaking specific activities and engaging other partners.[11] ADB's TA mission leader will lead the implementation of the TA under the guidance of the Sector Advisory Service Division Senior Director and Technical Advisor (Energy). A working group of ADB staff representing operations departments and other support departments will be set up to enhance coordination and effective implementation of the TA. ADB's guidelines and procedures will be applied during the implementation of the TA regardless of the funding source. All DMCs will benefit from this TA, but few DMCs will be targeted for pilot testing during the subproject approval stage. Confirmation of no objection will be obtained from participating DMCs before any activities financed by the TA commence in those DMCs. The Sector Advisory Service Division has the capacity to implement the TA and will also engage consultants to help implement the TA subprojects.[12] The implementation period of this cluster TA will be 5.5 years, from June 2015 to December 2020.

17. The TA will mainly finance consulting services, pilots, and other capacity building activities. The TA will require 344 person-months of international and 520 person-months of national consulting services in the areas of investments, project development, sustainable energy, energy policy, and communications. Individual consultants will be engaged to be flexible and timely fielded. Some international and national consultants will be engaged in long-term support roles. For some activities that are best packaged and managed independently of the core team, consultancy firms may be engaged using consultant quality-based selection and quality- and cost-based selection. The outline terms of reference for consultants is in Appendix 3. Engagement of experts will follow ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). Partnership with centers of excellence will be promoted. All procurement under the TA will be carried out in accordance with ADB's Procurement Guidelines (2015, as amended from time to time). The disposal of all equipment procured under the TA will follow ADB disposal procedures. Output-based or lump sum contracts will be considered as appropriate where possible to reduce administrative burden and improve efficiency and economy. Disbursements under the TA will be performed in accordance with ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time).

IV. THE PRESIDENT'S RECOMMENDATION AND DECISION

18. The President recommends that the Board approve (i) ADB administering a portion of technical assistance not exceeding the equivalent of $3,500,000 to be financed on a grant basis by the Clean Technology Fund, and (ii) ADB administering a portion of technical assistance not exceeding the equivalent of $2,738,000 to be financed on a grant basis by the Government of Austria, for Promoting Sustainable Energy for All in Asia and the Pacific. If the Board approves ADB administering the technical assistance, the President, acting under the authority delegated by the Board, approves ADB administering a portion of the technical assistance not exceeding the equivalent of $1,500,000 to be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility for Promoting Sustainable Energy for All in Asia and the Pacific.

[11] Some in-kind support will be provided by the participating governments. Efforts will be made to link with ongoing ADB and government programs to leverage additional support.

[12] The Sector Advisory Service Division as TA supervising unit is experienced in administering high-value TA projects and has also already managed a TA project similar to this (footnote 11).

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact SE4ALL targets in Asia and the Pacific achieved	By 2030, universal access to modern energy services (2010 baseline: 1.2 billion people without access to electricity worldwide, of which about half are in Asia and the Pacific) By 2030, a doubling of the share of renewable energy in the global energy mix (2010 baseline: 18% share of renewable energy) By 2030, a doubling of the annual global rate of improvement in energy efficiency (2010 baseline: rate of energy efficiency of 1.2%)	Government statistical and census reports SE4ALL status reports of the United Nations, ADB, and World Bank	**Assumption** Strong and stable commitment from the governments in achieving SE4ALL **Risk** Inadequate resources to mobilize project development and implementation
Outcome Increased capacity, maturity, and investment readiness of SE4ALL projects	Investment approved for SE4ALL increased by $1 billion by 2020	Country reports IEA reports SE4ALL reports	**Assumptions** Continuous strong support and commitment from governments Governments install reforms and put in place national plans and policies that are conducive for sustainable energy projects **Risk** Average project size and quantity of private sector investments are low
Outputs 1. SE4ALL projects developed and investment facilitated	Develop and secure financing for at least 30 new SE4ALL projects by 2020 Establish collaborations with external agencies for at least 2 new project development and investment facilitation by 2020	TA progress reports SE4ALL reports Collaboration agreements with other agencies Business plans, feasibility studies, term sheets	**Assumption** Concessional financing continued to be made available for sustainable energy projects **Risks** Project development and implementation may take excessive time to implement Project development support continues relying on grant resources

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
2. Status of SE4ALL targets and investment readiness reports prepared and updated regularly	SE4ALL status report prepared and updated biannually Investment readiness for sustainable energy report prepared and updated biannually	Websites, newsletters, and other publications produced by ADB and other partners (governments, institutions, and private sector organizations)	**Assumption** Status reports will draw from available data **Risks** Submission of reports may take excessive time; Some countries might not have the technical capacity to take stock of required information
3. Capacity building and knowledge management activities carried out	At least 30 trainings, investor forums, and workshops organized Collaboration with at least two organizations established to serve as centers of excellence for capacity building		**Assumption** There is strong participation of governments, entrepreneurs, financing institutions, and development partners; **Risks** More follow-up activities would be required Centers of excellence may continue relying on grant financing
4. Full-fledged secretariat for SE4ALL regional hub established	Fully funded business plan for the secretariat developed Increased awareness through social media accounts generated, and regular updates, newsletters prepared and shared Active interaction among key stakeholders such as governments, project developers, financial institutions, donors, and investors facilitated At least 10 DMCs supported for action agenda and investment prospects	Websites, social media accounts, newsletters, and other public awareness materials and publications Database of contacts and partnerships established	**Assumption** There is good cooperation from other partners of SE4ALL **Risk** There could be overwhelming requests for secretariat services
Activities with Milestones Detailed activities will be defined at the subproject approval stage. Target dates for implementation are as follows: 1. Subproject A: Renewable energy mini-grids and distributed power generation, June 2015–Dec 2020 2. Subproject B: Energy access for the urban poor, June 2015–December 2020			**Inputs** Cofinancing: Clean Technology Fund: $3.500 million (for subproject A) Government of Austria: $2.738 million: ($2 million for subproject B and $0.738 million for

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
3. Subproject C: SE4ALL regional hub for Asia and the Pacific, June 2015–December 2020 4. Subproject D: Project development and investment facilitation, June 2015–December 2020			subproject D) Clean Energy Fund under the Clean Energy Financing Partnership Facility: $1.500 million (for subproject C)

ADB = Asian Development Bank, DMC = developing member country, IEA = International Energy Agency, SE4ALL = Sustainable Energy for All, TA = technical assistance.
Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN ($'000)

Item	Amount
A. Clean Technology Fund[a]	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	1,400.00
ii. National consultants	700.00
b. International and local travel	650.00
2. Surveys, studies, and knowledge products	150.00
3. Workshops, training, seminars, and conferences[b]	200.00
4. Miscellaneous administration and support costs	50.00
5. Contingencies	350.00
Subtotal (A)	**3,500.00**
B. Government of Austria[c]	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	800.0
ii. National consultants	450.0
b. International and local travel	75.0
c. Reports and communications	20.0
2. Equipment[d]	60.0
3. Pilot projects[d]	700.0
4. Workshops, training, seminars, and conferences[b]	300.0
5. Miscellaneous administration and support costs	90.0
6. Contingencies	243.0
Subtotal (B)	**2,738.0**
C. Clean Energy Fund[e] **under the Clean Energy Financing Partnership Facility**	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	600.0
ii. National consultants	200.0
b. International and local travel	250.0
2. Surveys and studies	25.0
3. Equipment[d]	25.0
4. Workshops, training, seminars, and conferences[b]	225.0
5. Miscellaneous administration and support costs	25.0
6. Contingencies	150.0
Subtotal (C)	**1,500.0**
Total	**7,738.00**

Note: A possible increase of $17.262 million in the technical assistance through additional allocation from donors may be considered in the future to reach target of $25 million, subject to resource availability and implementation progress. The subproject cost estimates, which will be finalized before the start of subprojects, will be determined by the department head, in accordance with Asian Development Bank Operations Manual on Technical Assistance.

[a] Administered by the Asian Development Bank.

[b] Includes honorariums and travel costs for resource persons and facilitators, participants' travel costs, staff travel costs as resource persons and/or speakers as allowed, and logistical costs.

[c] Administered by the Asian Development Bank. This amount ($2 million for subproject B and $0.738 million for subproject D) also includes the administration fee, audit costs, bank charges, and a provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and income earned on this grant, or any additional grant from the Government of Austria.

[d] Includes computers, printers, as well as other equipment for the pilot projects as required. Pilot project costs include design, procurement of hardware, installation, testing, and credit enhancement instruments.

[e] Financing partners: the governments of Australia, Norway, Spain, and Sweden. Administered by the Asian Development Bank.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The technical assistance (TA) will require the services of international and national experts. Detailed terms of reference, the precise extent of consultancy inputs, and consultant selection methods will be defined during subproject processing in accordance with Asian Development Bank (ADB) procedures for cluster TA. National consultants will be from the country of assignment that will be identified later and may need to travel internationally to assist international experts or ADB staff. Some of the key tasks consultants will undertake under each subproject are outlined below.

A. Subproject A: Renewable Mini-Grids and Distributed Power Generation

2. **Senior investment specialists** (individuals, international, 36 person-months). The specialists and team leader will be responsible for the overall coordination and supervision of the TA activities, development of the pipeline of potential investments, liaison with stakeholders, due diligence, structuring of transactions, negotiation of agreements, arrangement of cofinancing, preparation of documentation, business development mentoring, and dissemination of knowledge products. The specialists must hold a university degree with at least 5 years of relevant experience.

3. **Investment specialists** (individuals, international, 36 person-months). The specialists will be responsible for screening and managing the pipeline of potential companies and funds, and recommending priority investments through engagement with project developers and stakeholders. The specialists will lead financial due diligence, structure transactions within acceptable parameters for Private Sector Operations Department investments, negotiate contracts and agreements, assist with cofinancing arrangements, showcase successful business models and use these to help companies improve models, and provide inputs on knowledge products. The specialists must hold a university degree with at least 5 years of relevant experience.

4. **Technical specialists** (individuals, international, 24 person-months). The technical specialists will be responsible for screening and managing the pipeline of potential companies and funds, leading technical due diligence and risk analysis of potential investments involving site visits and review of documentation, working closely with project developers to address technical barriers, monitoring project performance, showcasing successful business models and using these to help companies improve models, and providing inputs on knowledge products. The specialists must hold a university degree with at least 5 years of relevant experience.

5. **Social development specialists** (individuals, international, 12 person-months). The specialists will be responsible for program evaluation, including stakeholder analysis; social, poverty, and gender impact assessment; assessment of key success factors, business models, and local investment and enabling environments; lead authoring of knowledge products; and engagement with stakeholders to effectively disseminate knowledge products through written outputs, bilateral meetings, workshops, and other means. The specialists must hold a university degree with at least 5 years of relevant experience.

6. **Energy access specialists** (individuals, national, 72 person-months, intermittent). The specialists will provide local logistical support to the project; ascertain the scope of, screen, and support the development of the pipeline of potential investments; provide guidance on regulatory, institutional, and policy frameworks; liaise with in-country partners; monitor and evaluate projects; assist with workshops, outreach activities, and mentoring of investees; and

provide inputs to knowledge products to better address local audiences. The specialists must hold a university degree with at least 5 years of relevant experience.

B. Subproject B: Energy Access for the Urban Poor

7. **Senior energy access specialists** (individuals, international, 12 person-months). The energy access specialists and team leader will be responsible for the overall coordination and supervision of the TA activities, and will help develop a situation report relevant to the subproject, gather information on successful business models, develop pilots, and mobilize low-cost housing experts with help from other experts. The specialists must hold a university degree with at least 5 years of relevant experience.

8. **Energy-efficient housing specialists** (individuals, international, 10 person-months; national, 30 person-months). The energy-efficient housing specialists will help gather information on energy efficiency measures and technologies in the low-cost housing sector; review government plans, policies, and targets; assist project developers in developing energy-efficient projects; and author a handbook on green architecture and energy-efficient construction methods. The specialists must hold a university degree with at least 5 years of relevant experience.

9. **Energy access specialists** (individuals, international, 12 person-months; national, 30 person-months, intermittent). The energy access specialists will help gather information on energy access technologies and business models; review government plans, policies, and targets; assist building developers in providing energy access; and support the development of access to energy projects for urban settings. The specialists must hold a university degree with at least 5 years of relevant experience.

10. **Clean energy economists** (individuals, international, 5 person-months; national, 20 person-months). The clean energy economists will help energy access building developers conduct financial and economic analysis. The economists must hold a university degree with at least 5 years of relevant experience.

11. **Capacity development specialist** (individual, international, 3 person-months; national, 20 person-months, intermittent). The specialist, in collaboration with the technical experts on the team, will develop capacity building and training programs for developing member countries covering technical and institutional management. The specialist must hold a university degree with at least 5 years of relevant experience.

12. **Communications specialist** (individual, international, 3 person-months; national, 15 person-months, intermittent). The communications specialist, in collaboration with the technical experts on the team, will develop communications materials and implement outreach activities. The specialist must hold a university degree with at least 5 years of relevant experience.

13. **Urban energy access policy specialist** (individual, international, 5 person-months; national, 15 person-months, intermittent). The specialist, in collaboration with the technical experts on the team, will identify policy gaps and help governments develop appropriate policy and other instruments necessary to increase access to modern forms of energy for the urban poor. The specialist must hold a university degree with at least 5 years of relevant experience.

C. Subproject C: Sustainable Energy for All Regional Hub for Asia and the Pacific

14. **Sustainable energy investment specialist** (individual, international, 24 person-months). The specialist and team leader will be responsible for the overall coordination and supervision of the TA activities, collaboration with external agencies, project development and investment facilitation, and preparation and regular updating of Sustainable Energy for All (SE4ALL) and investment readiness reports. The specialist must hold a university degree with at least 5 years of relevant experience.

15. **Sustainable energy specialist** (individual, international, 20 person-months; national, 36 person-months). The sustainable energy specialist will assist in project development and investment facilitation, preparation and updating of reports, capacity building and knowledge sharing, monitoring and tracking of SE4ALL progress, and coordination of secretariat activities. The specialist must hold a university degree with at least 5 years of relevant experience.

16. **Capacity development specialists** (individuals, international, 10 person-months; national, 50 person-months, intermittent). The specialists, in collaboration with the technical experts on the team, will develop capacity building and training programs for SE4ALL stakeholders. The specialists must hold a university degree with at least 5 years of relevant experience.

17. **Communications specialist** (individual, international, 12 person-months; national, 24 person-months). The communications specialist, in collaboration with the technical experts on the team, will develop communications materials and implement outreach activities. He/She must hold a university degree with at least 5 years of relevant experience.

18. **Senior writer, editor, and online content manager** (individual, international, 12 person-months). The consultant will plan and design a platform for online discussion, knowledge sharing, and outreach. The consultant, in collaboration with the team's communications specialists and technical experts, will write regular online newsletters and updates, and ensure the high editorial quality of the reports, updates, newsletters, and other materials posted online. He/She must hold a university degree with at least 5 years of relevant experience.

19. **Web designer and editor** (individual, national, 24 person-months). The consultant will design and create a website for the secretariat and will be responsible for maintaining the website and moderating its contents. The consultant will also assist in preparing communication materials, reports, and presentations. He/She must hold a university degree with at least 5 years of relevant experience.

20. **Project assistant** (individual, national, 40 person-months). The project assistant will assist in the creation of a members' database; management of subscriptions; coordination of activities; and preparation and dissemination of reports, newsletters, and other materials. He/She must hold a university degree with at least 5 years of relevant experience.

D. Subproject D: Project Development and Investment Facilitation

21. **Senior project development specialist** (individual, international, 36 person-months). The specialist will be responsible for the overall coordination and supervision of the TA activities; review and screening of pipeline projects; project identification, development, and implementation; and investment facilitation and mentoring. The specialist must hold a university degree with at least 5 years of relevant experience.

22. **Sustainable energy investment specialists** (individual, international, 36 person-months; national, 72 person-months). The specialists will be responsible for screening and financial assessment of pipeline projects, project development, investment facilitation and mentoring, and collaboration with other development partners. The specialists must hold a university degree with at least 5 years of relevant experience.

23. **Sustainable energy specialists** (individuals, international, 36 person-months; national, 72 person-months). The sustainable energy specialists will be responsible for screening and technical assessment of pipeline projects, and for the provision of technical mentoring and project development services. The specialists must hold a university degree with at least 5 years of relevant experience.