External Evaluation of ESMAP and ASTAE

Final Report

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A report submitted by ICF Consulting Limited

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Acronyms and Abbreviations

AAA	Analytical and Advisory Activities
ABG	Annual Block Grant
ADF	Agence Française de Développement
AFREA	Africa Renewable Energy and Access Program
ASTAE	Asia Sustainable and Alternative Energy Program
BP	Business Plan
CG	Consultative group
CMU	Country Management Unit
CPF	Country Partnership Framework
CSI	Clean Stove Initiative
EAP	East Asia and Pacific
EASP	Energy Assessment and Strategies Program
EE	Energy Efficiency
ESMAP	Energy Sector Management Assistance Program
ESW	Economic and Sector Work
IEG	Independent Evaluation Group
GFR	Grant Funding Request
GPOBA	Global Partnership on Output-Based Aid
GP	Global Practice
GRM	Grant Reporting and Monitoring report
KEF	Knowledge Exchange Forums
KP	Knowledge Product
M&E	Monitoring and evaluation
MDTF	Multi-Donor Trust Fund
MENA	Middle East and North Africa
NGO	Non-Governmental Organisation
PSF	Proposal Summary Form
RE	Renewable Energy
SAR	South Asia Region
SE4ALL	Sustainable Energy for All
SIDS	Small island developing states
TA	Technical Assistance
TAG	Technical Advisory Group
TOR	Terms of Reference
TTL	Task Team Leader
WBG	World Bank Group

Executive Summary

Introduction

This report presents the findings and recommendations of an external evaluation of the World Bank Group-led Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy Program (ASTAE). The evaluation focuses on ESMAP and ASTAE activities between 2011 and 2015, covering two years of the previous (2008-2013) and current (2014-2016) ESMAP business plans (BP), and one year of the previous ASTAE BP and three years of the current ASTAE BP (2012-2016).

With both these business plans reaching their end date, the World Bank Group (WBG) requires an external evaluator to review the performance of ESMAP and ASTAE against their respective business plans and investment frameworks. In this context, this evaluation aims to:

- To assess progress towards the intended strategic objectives of the ESMAP and ASTAE;
- To assess the effectiveness and value for money of ESMAP as a global TA program, and the ASTAE's program for the client region and countries;
- To assess the major factors which have influenced results either positively or negatively including program relevance and adaptation to changing needs;
- To provide lessons and recommendations to guide and inform the CG and the management of the programs to generate actions to improve the effectiveness of the programs; and
- To assess ESMAP's responsiveness to the core issues identified in the previous external evaluation.

Findings

Strategic Role and Relevance of ESMAP and ASTAE

Relevance to regional and country priorities

At the program level, ESMAP and ASTAE's objectives and programs remain highly relevant to global and regional challenges in the energy sector, including those identified by the Sustainable Energy for All (SE4ALL) initiative, the International Energy Agency's World Energy Outlook, and the World Bank Group's 2013 energy sector directions paper. More broadly, ESMAP and ASTAE are also relevant to development and climate agendas, including the achievement of the Sustainable Development Goals (SDG) for 2030 and the Paris Agreement of the 21st Conference of the Parties to the United Nations Framework Conference on Climate Change. At the country level, interviews and fieldwork suggest that ESMAP and ASTAE activities are highly relevant to the needs and priorities of their client countries. ESMAP and ASTAE's direct links to WBG energy sector operations and policy discussions have been critical for understanding client demand, responding quickly to client demands for assistance, and assessing when a political window of opportunity opens.

Strategic role and comparative advantage

Commonly identified comparative advantages include: cross-fertilization of knowledge with operations; ESMAP and ASTAE's position within the World Bank; responsiveness to client country needs and ability to quickly mobilize to meet those needs; and high quality technical work and strong relevant expertise. World Bank staff interviewed for this evaluation saw ESMAP and ASTAE as critical resources for analytical work, technical assistance, supporting policy dialogue, upstream business development, and identifying new ideas over the horizon.

These comparative advantages point to several strategic roles for ESMAP and ASTAE moving forward. One role is in supporting increased lending for sustainable energy. A related strategic role is the continued facilitation of policy analysis and dialogue, which all case study countries pointed to as a critical support need, and one that ESMAP is uniquely providing in some countries.

Business line and program alignment

ESMAP's businesses lines and program priorities are aligned with its three objectives enhance development financing; influence policy and strategy and increase client capacity; and deepen knowledge and generate innovative solutions. Changes in the FY2014-2016 Business Plan have been responsive to the Consultative Group and to the findings and recommendations of the previous evaluation. An increase in the number of initiatives could pose a risk to the effectiveness of those initiatives, as well as the ability of ESMAP's lean administrative structure to manage them. Moving into the next business planning period, maintaining a manageable and strategic number of areas of concentration will continue to be important.

Institutional Arrangements and Organizational Effectiveness

Governance

Overall, ESMAP and ASTAE are well-governed. The Consultative Group (CG) is an effective governing body that is fulfilling its key functions, including providing strategic direction, management oversight, and commissioning evaluations. A manageable number of members (13-14 donor participants during the evaluation period) and accepted governance norms contribute to effective and efficient decision-making, even in the absence of formally documented roles and responsibilities.

The Technical Advisory Group (TAG) has been effective in its role as a provider of strategic advice to the CG and ESMAP/ASTAE programming over the evaluation period. TAG reports have generally been relevant and useful for governing ESMAP over the evaluation period.

Management

The ESMAP Unit is widely seen as providing high quality and responsive management for ESMAP and ASTAE. While the evaluation finds the organization of the ESMAP Unit appropriate and supportive of the FY2014-16 Business Plan, interviews with CG members suggested that ESMAP's organizational structure is not widely understood and could be more clearly communicated.

ESMAP management has sufficient flexibility to adjust the focus and funding distribution of programs and business lines in order to respond to client and donor needs, and to achieve program goals, and this flexibility is supported by the CG and TAG. Soft earmarking—while a fact of life for most trust funds—affects the flexibility and transparency of funding allocations, and creates administrative challenges for management.

Clear operational roles and responsibilities, TAG reviews and CG meetings, and annual reports and portfolio reviews all serve as strong accountability mechanisms for ESMAP and ASTAE. The consistency of financial reporting could be improved to further support accountability; the use of different budget categories across reports made it difficult to track allocations, commitments, and disbursements over the review period.

Efficiency and program growth

In the face of significant program growth, ESMAP has not only maintained a lean administrative budget, but reduced it further. ESMAP and ASTAE have achieved efficiencies through economies of scale, cost sharing, and drawing on existing World Bank resources and structures. Staffing of the ESMAP core unit has also stayed relatively constant despite program growth, and interviews suggest that staff are stretched too thin.

The new World Bank cost recovery policy will affect ESMAP and ASTAE administrative costs moving forward, and is already impacting ESMAP management's autonomy in being able to

implement strategic staffing or fill key positions quickly. If program funding levels—or the number of programs/business lines—continue to increase, these challenges could have risk implications for staffing/resources to support future program growth.

At the activity-level, across all ESMAP and ASTAE activities approved in FY2012-2015, average disbursements per grant for economic and sector work (ESW) and technical assistance (TA) were roughly comparable to the average costs of a country-level ESW and TA across all regions and sectors for 2000-06, as assessed by the Independent Evaluation Group (IEG) (2008). The evaluation found no obvious examples of inefficiencies, nor any instances of perceived duplication of effort. That said, interviews and the quantitative assessment did suggest some inconsistency in resource allocation for similar activities, possibly based partly on funding availability.

Relationship with the World Bank

The World Bank's dual role as a partner in ESMAP and ASTAE and the trust funds' host organization brings both benefits and costs. Many donors see the hosting arrangement as an advantage of these trust-funded programs given the close proximity to operations and familiarity of the trustee in administering such trust funds. Although the arrangement has a perception of a conflict of interest, this is nothing new for global and regional partnership programs hosted by the World Bank, but instead represents an ongoing monitoring issue. The evaluation found no evidence of conflicts that have arisen during the review period.

The World Bank's comprehensive organization reform into Global Practices has complemented ESMAP's scope and objectives. Interviews with ESMAP and World Bank staff indicated that the global practice structure has enabled better information flows and lessons learning across regional teams, improved staff mobility, and made it easier to collaborate with other global practices, supporting ESMAP results achievement.

Trust fund structuring

The transfer of management for ASTAE to ESMAP has been successful and supportive of program growth. Specifically, through a wider pool of resources it has enabled better quality control of products, and enhanced communications and M&E, while at the same time maintained ASTAE's ability to respond quickly to demand in Asia, and ensured support is more linked to downstream World Bank, GEF, and other funding source operations.

Monitoring and evaluation (M&E) and learning

ESMAP's revised M&E framework is a good practice example for activity- and program-level results reporting among World Bank-administered multi-donor trust funds. The framework aligns objectives with outcomes, includes measurable indicators, and is supported by operational guidance and staff. This M&E system has been consistently and effectively applied for ESMAP.

Monitoring and reporting on ASTAE activities is in the process of being integrated into the ESMAP system, which should help respond to recent IEG findings about the insufficiency of ASTAE's M&E system. ASTAE's current outcome indicators reflect the program's core objective to "scale-up the use of sustainable energy solutions" through its three pillars, but do not sufficiently reflect ASTAE's four key delivery approaches. Monitoring and reporting only on higher-order outcomes (such as gigawatts of renewable energy installed) reduces the program's ability to use its M&E framework as an accountability tool and increases the risk of outcomes being overstated.

Feedback processes to facilitate learning and improved decision-making have improved since the last evaluation. Some evidence exists that lessons learned from the M&E system have informed decision-making at the program level, but the evaluation could not discern whether learning from M&E processes is filtering down to the individual activity level.

Communication

ESMAP communication and dissemination support have significantly improved since the previous external evaluation. ESMAP developed a new comprehensive communications

strategy (including a dissemination strategy), which has been effectively implemented by an integrated communications team. Communications to donors are generally appropriate and timely, and communications to external stakeholders in client countries were effective in five of the six case study countries.

Starting in FY2015, ASTAE has been benefiting from ESMAP communications support. Previously, ASTAE's lack of communications support had detrimental effects on the quality of some knowledge products. The integration of ASTAE into ESMAP brings significant communications needs, with associated resources.

While effective, the ESMAP communications strategy focuses only on the latter half of the knowledge management lifecycle (e.g., communication channels and dissemination procedures). ESMAP and ASTAE support many projects and initiatives that test new ideas and offer opportunities for generation and sharing of knowledge, but the results and lessons learned from these activities are not systematically provided in a format that can inform broader learning or global knowledge.

Development Effectiveness

Results achievement: outputs and outcomes

ESMAP and ASTAE outputs and outcomes have grown significantly between FY2011 and FY2015, with the majority associated with influencing policy/strategy and client capacity, and renewable energy, respectively. ESMAP and ASTAE programs reflect a broad portfolio of activities, which have been largely effective in achieving development objectives. Where programs have been effective, they have benefited from focused outreach and coordination at the World Bank and country-level, which has helped create demand and ownership; replicable approaches; and the capture and application of lessons learned from prior engagements. However, programs that test new ideas and concepts have suffered from a lack of familiarity and potentially too high expectations. For these programs, greater consideration and resources should be given to creating demand, and the assignment of appropriate targets and timeframes for outcome achievement.

Evidence suggests that 80% of planned outcomes have a good potential to achieve their targets. Also, some "unplanned" outcomes were noted, indicating ESMAP and ASTAE's potential and likelihood for broader impacts. However, there are instances where the inappropriate assignment of an outcome as "planned," sometimes long after the activity has closed, may mask its true effectiveness. Longer term monitoring of activity outcomes should remedy this issue, and could also highlight potential broader outcomes.

Program impacts and benefits

ESMAP and ASTAE disbursement has increased to all regions; however, program impacts may not always be immediately visible. Evidence suggests that sufficient time is required for activity outputs and outcomes to develop and gain traction within their country environments. Overall, ESMAP and ASTAE activities play an important role in incrementally improving the existing country situation, whether directly through tangible outcomes, or indirectly by opening the door for other interventions to support longer term impacts.

Gender, social and environmental inclusion

ESMAP has responded to recommendations from the previous external evaluation, and there has been a visible increase in gender and social inclusion in ESMAP and ASTAE activities. There is evidence of increasing collaboration and demand for gender experts, as the understanding and value of gender and social inclusion has increased amongst Task Team Leaders (TTLs). Administratively, revision of the operational manual and proposal summary form (PSF) updates have ensured better consideration of these topics during the project planning stage. However, the process would benefit further from the incorporation of gender and social components in the Grant Funding Report and Grant Reporting and Monitoring (GRM) report to ensure consistency with PSF and enhance visibility during activity implementation.

There is limited visibility of Energy-Water-Food nexus projects. Although the program is still at an early stage of engagement with demand still limited, additional efforts will be required to increase awareness and coordination amongst the World Bank Water and Energy and Extractives Global Practices. ESMAP should ensure a model where the project team of the activity includes staff from both Global Practices. Environmental aspects are being incorporated into activities, whether directly or indirectly.

Influence of related investments

ESMAP and ASTAE's operational links to World Bank investment are strong, with both programs influencing several billion dollars of financing. However, ASTAE would be better served with more reasonable and consistent indicators. Evidence suggests that the catalysis relationship between activities and investments is not always strong, and in some cases tenuous. "Influence" is considered a more appropriate indicator of what is being achieved operationally.

ESMAP's influence on private sector and other non-World Bank investment is likely greater than currently reported due to potential under-reporting, and the fact that most of ESMAP's work supports the development of the enabling environment for investment. Considering the importance of private sector and other non-World Bank investment, ESMAP should consider better tracking and reporting, including appropriate indicators; especially, as it will help to highlight the broader influence of ESMAP beyond the World Bank. Furthermore, stronger links and opportunities with the International Finance Corporation (IFC) should be identified.

Program Sustainability

Resource levels

To meet current and future demand, evidence suggests that resource levels will need to increase. The historic growth in ESMAP and ASTAE funding allocations and implemented activities mirrors the World Bank's increasing energy sector financing to Renewable Energy, Energy Efficiency and Energy Access, which accounted for 50% of commitments between 2011 and 2015. Significantly more investments in these areas will be required if SDG goals are to be met. Consequently, the role and resource requirements for ESMAP and ASTAE to support these developments will likely increase.

Partnerships

ESMAP and ASTAE are engaging and working with partners at internal and external levels. Generally, responsibility for identifying and maintaining partnerships is with the ESMAP teams and TTLs. As such, partnerships are situational, rather than the result of a formal process. Internally, there are links, but more could be done, specifically with IFC to develop private sector interaction. As such, where opportunities are strategically relevant, ESMAP should consider whether it is useful, on a program by program basis, to open up ESMAP's tender process to include not only World Bank Global Practices, but also the IFC.

Externally, while there are many organisations working in the same areas as ESMAP, evidence suggests that, where required, ESMAP is engaging with multi-/bi-lateral partners and other organisations, and that these partnerships reflect either a coordinated pooling of resources or complementary initiatives, with little noticeable overlap. As such, rather than an institutional issue, concerns about the lack of partnerships and collaboration opportunities are more likely a communication-related problem, which could be addressed through better knowledge management (see Communication). Thus, a formal process to manage these relationships would be considered difficult, unwieldy to manage, and not cost effective.

Recommendations

Recommendation #1: ESMAP should pursue program growth, while actively managing and monitoring threats to effectiveness associated with that growth.

- Given its relevance, comparative advantages, and the increasing demand for its services, ESMAP resources will need to grow. However, given its historic lean

administrative structure, and donor funding commitments, it should be cautious about expanding its number of programs and business lines. If expansion is justified, it is also critical to ensure that there is sufficient management capacity to implement and support growth.

- ESMAP should be careful not to let soft earmarking significantly affect its efficiency or legitimacy. Defensive strategies include increased transparency around earmarking, ensuring that soft earmarking is for activities that were already collectively agreed to, and rationalizing the number of business lines and programs.

Recommendation #2: To enhance effectiveness, ESMAP should strengthen outreach and coordination efforts at the WBG and country-level.

- The effectiveness of programs to achieve outcomes is strongly linked to their ability to create demand within the WBG and amongst country stakeholders, which, in part, ensures ownership. Demand creation activities that have successfully been used within the WBG and at country-level include training, webinars, conferences, and shared materials. Newer programs, such as Results-based Financing (RBF) and Energy-Water-Food Nexus, have suffered from a lack of familiarity amongst pertinent stakeholders, and potentially unrealistic expectations. As such, ESMAP should ensure appropriate resources are allocated to demand creation, and that more appropriate targets and timeframes for outcome achievement are assigned.
- For programs that require cross global practice coordination, such as nexus-related and energy efficiency initiatives in the transport and water sectors, ESMAP should ensure that a model where the project team of the activity includes staff from the relevant Global Practices.
- To further improve IFC coordination and linkage opportunities with ESMAP and ASTAE, where strategically relevant, ESMAP should assess the possibility, on a program by program basis, to open up its tendering process to include the IFC.

Recommendation #3: ESMAP and ASTAE should continue to support and refine the M&E framework.

- The successful implementation of ESMAP's M&E framework is driven partly by the persistent efforts of ESMAP staff. This requires continued resourcing to ensure sufficient oversight and follow-up with World Bank task team leaders to validate achievement of outputs and outcomes.
- ASTAE indicators should be revised. Given donors' interest in tangible outcomes, it may be appropriate to continue to track higher-level outcomes related to renewable energy generation, energy efficiency and energy access. However, ASTAE lower-order outcomes should also be tracked using the same indicators as are used for ESMAP (e.g., development financing informed, client capacity increased, etc.). The ASTAE indicator on "catalysing" World Bank investment should be dropped or revised to "influencing" because of its misleading and ambitious implication.
- ESMAP should consider better tracking and reporting, including appropriate indicators for its influence on private sector and other non-World Bank investment; especially, as it will help to highlight the broader influence of ESMAP beyond the World Bank.
- To reflect ESMAP's commitment to gender and social inclusion in its programming, activity-level gender considerations should be more meaningfully tracked in GRMs. For example, activities identified as "high" or "medium" level gender relevance could report on how gender considerations are being integrated during implementation.
- In order to close the loop on activity monitoring, ESMAP should consider additional follow-up on closed projects whose outcome category is still designated as "planned." This will ensure a realistic interpretation of activity outcomes, and effectiveness. ESMAP could use an intermediary designation between "achieved" and "not achieved" to reflect the sometimes long gestation times for outputs to become outcomes.
- Given the track record for evaluating ESMAP and the integration of ASTAE into ESMAP, this evaluation would recommend that ASTAE activities be evaluated in line with ESMAP moving forward, if ASTAE remains under the ESMAP management umbrella.

Recommendation #4: The institutional arrangements for ASTAE should be finalized.

- In this evaluation's view, a single trust fund is more administratively efficient and possibly more effective from a development standpoint, given the similar priorities of the programs. However, if a single trust fund limits the ability of donors to mobilize resources for a certain region, then the CG will need to weigh the need for those resources against the administrative and other disadvantages of a separate trust fund. If a separate trust fund is maintained, a common management structure (within ESMAP) should be utilized and operational procedures (e.g., for proposal review, implementation and financial monitoring, dissemination, and so on) should be harmonized. Already, through a wider pool of resources bringing ASTAE under ESMAP management has enabled better quality control of products, and enhanced communications and M&E, while at the same time maintained ASTAE's ability to respond quickly to demand in Asia, and ensured support is more linked to downstream World Bank, GEF, and other funding source operations.

Recommendation #5: ESMAP should develop a knowledge management strategy

- Knowledge is a key asset of ESMAP and ASTAE, and the intersection of that knowledge with operations is one of the programs' critical comparative advantages. However, the results and lessons learned from these activities are not systematically identified, captured or generated to inform broader learning or global knowledge for all ESMAP stakeholders. To address these gaps in knowledge capture, a knowledge management strategy should be developed, which defines a systematic process for identifying, generating, disseminating and storing/organising knowledge.

1 Introduction

The World Bank Group-led Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy Program (ASTAE) share the aim of assisting low- and middle-income countries (and communities therein) to achieve sustainable development through clean-energy solutions that promote poverty reduction and economic growth while protecting the environment. Both programs complement each other, with ESMAP focused on upstream knowledge and technical assistance work, and ASTAE focused on operations-oriented activities and project preparation.

ESMAP was launched in 1983 as a global knowledge and technical assistance program assisting low- and middle-income countries in growing their know-how and institutional capacity in environmentally sustainable energy solutions for poverty reduction and economic growth. Since its inception, ESMAP has supported more than 800 energy-sector activities in more than 100 countries. In its previous five-year business plan (2008-2013), more than US$80 million was disbursed covering annual block grants; analytical and advisory activities addressing energy security, and poverty reduction; and project activities in clean energy, energy access, energy assessments and strategies, energy efficiency; support for Small Island Developing States, as well as Monitoring & Evaluation, communications, dissemination and program administration requirements. The current three-year business plan (2014-2016) proposes a budget of US$137 million and identifies the following outcomes:

1. Enhance Development Financing
2. Influence Policy and Strategy and Increase Client Capacity
3. Deepen Knowledge and Generate Innovative Solutions

ASTAE was established in 1992 as a three-year pilot program focused on mainstreaming alternative energy in the World Bank's lending and technical assistance operations in the South Asia (SAR) and the East Asia and Pacific (EAP) regions. Since then ASTAE has scaled-up its activities, with its current four-year business plan (2012-2016)[1] emphasizing mainstreaming sustainable energy in the Bank's portfolio in Asia, and addressing its three pillars of activities – access to modern energy services, increased use of renewable energy, and improved energy efficiency. Linked to these pillars are six outcome indicators:

1. Total World Bank lending catalysed
2. New capacity and increased generation of RE
3. Electricity savings resulting from efficiency improvements
4. Householders with access to modern energy services
5. Avoided greenhouse gas emissions
6. Countries benefiting from ASTAE support

1.1 Purpose and scope of the external evaluation

The evaluation covers a four year period from July 2011 to June 2015. This period covers two years of the previous (2008-2013) and current (2014-2016) ESMAP business plans, and one year of the previous ASTAE business plan and three years of the current ASTAE business plan (2012-2016). With both these business plans reaching their end date, the World Bank Group (WBG) requires an external evaluator to review the performance of ESMAP and ASTAE against their respective business plans and investment frameworks.

The primary objectives of the evaluation are:

- To assess progress towards the intended strategic objectives of the ESMAP and ASTAE;
- To assess the effectiveness and value for money of ESMAP as a global TA program, and the ASTAE's program for the client region and countries;

[1] The business plan is currently in the process of being extended by another year to June 30, 2017 (i.e. FY17).

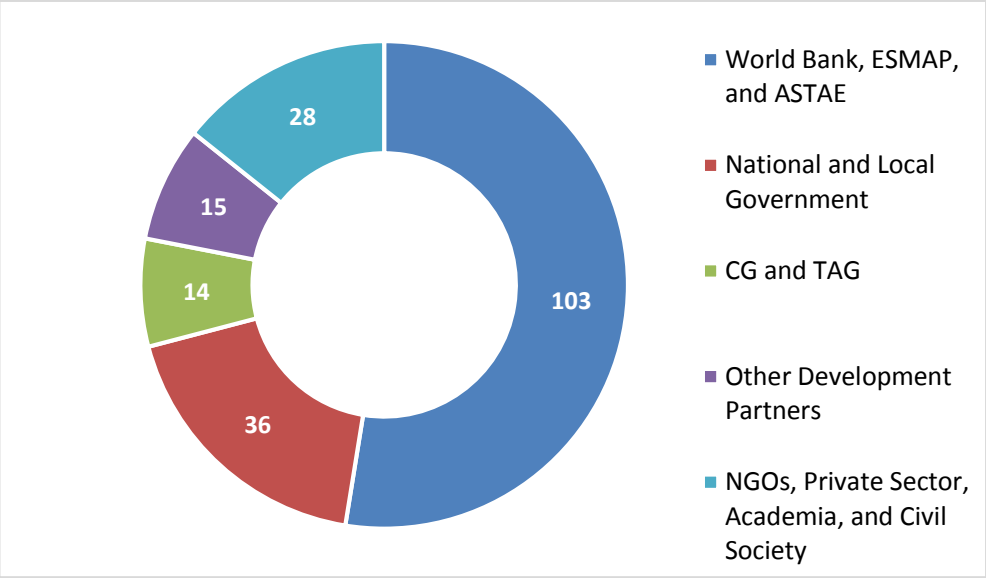
- To assess the major factors which have influenced results either positively or negatively including program relevance and adaptation to changing needs;
- To provide lessons and recommendations to guide and inform the CG and the management of the programs to generate actions to improve the effectiveness of the programs; and
- To assess ESMAP's responsiveness to the core issues identified in the previous external evaluation.

The evaluation responds to 40 questions in the Terms of Reference (TOR) covering these objectives. To improve the readability of the evaluation, these TOR questions were grouped by evaluation topic, as presented in Annex A.

1.2 Methodology

The evaluation draws on primary and secondary sources of information and uses qualitative and quantitative methods to respond to the key evaluation questions. Data collection included a thorough desk review (including a sample of 77 projects), interviews with ESMAP, ASTAE, and WBG staff, interviews with members of the Consultative Group (CG) and Technical Advisory Group (TAG), and in-depth fieldwork in Bangladesh, Egypt, Indonesia, Saint Lucia, Senegal, and Turkey. These countries were purposively selected based on program representation, geographical representation, project status, adjustments for balance across sectors and themes and logistical considerations. Nearly 200 stakeholders were interviewed for this evaluation (see Figure 1.1).

Figure 1.1 Summary of Stakeholders Consulted



The evaluation team built and tested hypotheses, conducted portfolio analysis, wrote back-to-office reports for country visits, and triangulated information across all sources to synthesize and identify findings across methods. Annex B gives more detailed information on data collection and analysis methods used in this evaluation.

1.3 Roadmap for the evaluation

The remainder of the evaluation report is divided into five main chapters:

- **Chapter 2** discusses ESMAP and ASTAE's relevance to global, regional, and national priorities in the energy sector, as well as the programs' strategic roles and comparative advantages.

- **Chapter 3** addresses the institutional arrangements and organizational effectiveness, including findings related to governance, management, efficiency, relationship with the WBG, trust fund structure, monitoring and evaluation, and communications.
- **Chapter 4** presents findings related to the development effectiveness of ESMAP and ASTAE, including achievement of outputs, outcomes, and impacts, gender, social, and environmental inclusion, and influence of broader investments.
- **Chapter 5** considers issues related to program sustainability, including resources and partnerships.
- **Chapter 6** provides the overall conclusions and recommendations for the evaluation.

2 Strategic Role and Relevance of ESMAP and ASTAE

This section discusses ESMAP and ASTAE's relevance to global, regional, and country priorities in the energy sector, the programs' strategic role and comparative advantages, and the alignment of ESMAP's business lines with its program objectives.

2.1 Relevance to regional and country priorities

At the program level, ESMAP and ASTAE's objectives and programs remain highly relevant to global and regional challenges in the energy sector, including those identified by the Sustainable Energy for All (SE4ALL) initiative, the International Energy Agency's World Energy Outlook, and the World Bank Group's 2013 energy sector directions paper. More broadly, ESMAP and ASTAE are also relevant to development and climate agendas, including the achievement of the Sustainable Development Goals (SDG) for 2030 and the Paris Agreement of the 21st Conference of the Parties to the United Nations Framework Conference on Climate Change. At the country level, interviews and fieldwork suggest that ESMAP and ASTAE activities are highly relevant to the needs and priorities of their client countries. ESMAP and ASTAE's direct links to WBG energy sector operations and policy discussions have been critical for understanding client demand, responding quickly to client demands for assistance, and assessing when a political window of opportunity opens.

ESMAP and ASTAE's objectives and programs remain highly relevant to current global and regional challenges in the energy sector. ESMAP and ASTAE are relevant to all of the concerns for the global energy system identified in the International Energy Agency's World Energy Outlook. ESMAP and ASTAE objectives and programs also directly address all three of the interlinked objectives of the Sustainable Energy for All (SE4ALL) initiative (see Box 1.1), which is a multi-stakeholder partnership launched by the United Nations Secretary-General in 2011. SE4ALL's goals and activities are supported by regional and thematic hubs. Building on ESMAP's comparative advantage as a knowledge leader (see Section 2.2), ESMAP hosts the SE4ALL's Global Knowledge Hub[2], which includes the Global Tracking Framework, Multi-tier Definition and Measurement of Energy Access, Readiness for Investment in Sustainable Energy (RISE), and the Global State of the Energy Access Report. ESMAP has also implemented the SE4ALL Technical Assistance Program (S-TAP) in 10 countries. ESMAP and ASTAE are also relevant to the concerns for the global energy system identified in the International Energy Agency's World Energy Outlook.

More broadly, ESMAP and ASTAE are relevant to the sustainable development and climate agendas, where sustainable energy plays an important central role. Sustainable Development Goal (SDG)

Box 1.1 Global Energy Challenges and Objectives

The Sustainable Energy for All initiative has three interlinked objectives to be achieved by 2030:

[1] Ensure universal access to modern energy services.
[2] Double the global rate of improvement in energy efficiency.
[3] Double the share of renewable energy in the global energy mix.

The International Energy Agency identifies in World Energy Outlook (WEO-2014) the following concerns for the global energy system:

[1] Limited and carbon intensive power supply mix;
[2] Electricity remains inaccessible to many people;
[3] Global greenhouse gas emissions and stifling air pollution continue to rise;
[4] Lack of political engagement to enforce the adoption of innovate technologies; and
[5] Global energy demand growth.

Sources: http://www.worldenergyoutlook.org/weo2014/; http://www.se4all.org/

[2] Other thematic hubs include energy efficiency; energy efficiency facilitating; capacity building; and renewable energy. Regional hubs are maintained for Africa, Asia-Pacific, and Latin America and the Caribbean. For more information on SE4ALL's other hubs, see http://www.se4all.org/hubs.

7 calls on the international community to ensure access to affordable, reliable, sustainable and modern energy for all by 2030. This goal has similar objectives to SE4ALL, including ensuring universal access, substantially increasing the share of renewable energy, and doubling the rate of improvement in energy efficiency—all objectives to which ESMAP and ASTAE programming is directly linked. ESMAP and ASTAE's role in influencing World Bank and other investment (see Section 4.4) is further relevant for the objective to promote investment in energy infrastructure and clean energy technologies. Through the SIDS-DOCK program and activities in 19 LDCs, ESMAP also responds to the SDG objective to supply sustainable energy services especially in SIDS and LDCs. Finally, through ESMAP's energy subsidy reform initiative is also particularly relevant to the objective under SDG 12 on ensuring sustainable consumption and production patterns, which speaks directly to rationalizing inefficient fossil-fuel subsidies.

In the climate change arena, the Paris Agreement negotiated at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change has significant implications for the energy sector. The agreement sets a long-term vision toward a low carbon and sustainable future, and calls on countries to peak their greenhouse gas emissions as soon as possible, and submit intended nationally determined contributions (INDCs) that detail plans to rapidly reduce the pace of emissions. Financial resources will be mobilized to implement these INDCs, with a floor of US$100 billion by 2020. ESMAP and ASTAE have a strategic role in providing technical assistance to support capacity development, knowledge, and investment in the sustainable energy sector, which will be critical for establishing, prioritizing, and meeting emission reduction commitments.

ESMAP and ASTAE are also synced with—and important for—the strategic direction of their host organization in the energy sector. The World Bank Group's 2013 energy sector directions paper[3] set a new course focused on the poor and universal access, accelerating efficiency gains, expanding renewable energy, creating an enabling environment, and intensifying global advocacy. The paper reflects ESMAP and ASTAE's objectives, and makes reference to the programs' supportive contributions to reducing barriers to adopting climate-smart energy actions, including upstream analysis, policy issues, and identifying and developing World Bank projects. As the umbrella trust funds in the new Energy and Extractives Global Practice (see also Section 3.4), ESMAP and ASTAE can help the WBG build a more substantial engagement in individual countries and strengthen its sustainable energy portfolio. For example, in Indonesia, the newly approved Country Partnership Framework (CPF) for 2016-2020 endorses the broad objectives supported by ESMAP and ASTAE with significant associated investment volumes.[4] ESMAP resources were used to support the development of geothermal policies that are supported in the first operation under the CPF, the First Sustainable and Inclusive Energy Development Policy Loan (DPL) ($500 million), and are expected to be supported through future DPLs.

At the country level, interviews and fieldwork suggest that ESMAP and ASTAE activities are highly relevant to the needs and priorities of their client countries. In all six countries visited, government counterparts indicated that they consider projects to be relevant and useful.

- In **Bangladesh**, ESMAP activities are relevant to the Government's energy development strategy in its Sixth Five Year Plan (2011-2015) and Strategic Transport Plan for Dhaka, while ASTAE activities address needs related to the Country Action Plan for Clean Cookstoves and Bangladesh Solar Home Systems program.
- In **Egypt**, ESMAP activities support the Government's comprehensive reform process in the energy and gas sectors, including related to pricing and subsidies and social

[3] World Bank. 2013. *Toward a sustainable energy future for all: directions for the World Bank Group's energy sector*. Washington DC; World Bank. http://documents.worldbank.org/curated/en/2013/07/18016002/toward-sustainable-energy-future-all-directions-world-bank-group's-energy-sector

[4] World Bank. 2015. *Indonesia - Country partnership framework for the period FY16 - 20*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/2015/12/25256041/indonesia-country-partnership-framework-period-fy16-20

accountability. ESMAP support for data analytics for urban transport in Cairo is relevant to the Government's national commitment to energy efficiency.

- In **Indonesia**, ESMAP support for geothermal development helps respond to aggressive Government targets for installed geothermal capacity by 2020 and 2025. ESMAP activities related to renewable energy electrification are directly relevant to the National Energy Policy, National Medium Term Development Policy, and the 1,000 island electrification program. With 40 percent of Indonesia's households (about 24.5 million households) still relying on traditional biomass as their primary cooking fuel, ESMAP and ASTAE support for the Indonesia Clean Stove Initiative (CSI) focuses on an important need. Interviews suggested low ownership of some hydropower activities by Government counterparts, despite World Bank efforts to socialize these concepts through reports and workshops.
- In **Senegal**, ESMAP's SE4ALL technical assistance activity supports the Government's commitment to electrification, as reflected by Senegal's Letter for Energy Sector Development Policy, rural electrification strategy and targets, and status as one of the first countries to opt into SE4ALL. The Africa Renewable Energy and Access (AFREA) gender and energy activities also reflect Government priorities, demonstrated by the recent establishment of a Ministry of Culture, Gender and Living Environment, and adoption of a law establishing absolute parity between women and men in elected assemblies.
- In **Saint Lucia**, ESMAP activities are highly relevant to the country's National Energy Policy (2010), which holds as key objectives the exploitation of indigenous renewable energy resources (including solar and geothermal) and creating a regulatory and institutional environment to enable that exploitation.
- In **Turkey**, ESMAP activities are relevant to the Government's energy security strategy, National Climate Change Strategy, and National Energy Efficiency Strategy, as well as to country reforms to liberalize its energy market.

Box 1.2 The Africa Renewable Energy and Access (AFREA) Program

AFREA was established in 2008 as ESMAP's program for Africa to reflect the urgent need in sub-Saharan Africa to develop scalable, innovative solutions to address the energy access gap. AFREA-I (the first phase) was financed by The Netherlands with a contribution of US$ 28.875 million. AFREA-II seeks to deepen and expand on this first phase, giving more attention to shaping the nature and content of Africa's International Development Association (IDA) borrowing. Progammatic activities in the 2013-15 Business Plan include Lighting Africa; Africa Clean Cooking Energy Solutions; Africa Electrification Initiative; and Gender and Energy.

ESMAP and ASTAE country-level activities are identified through multiple channels. Annual Block Grants (ABGs) are administered through ESMAP regional coordinators. These regional coordinators serve as a bridge among ESMAP, WBG task team leaders with energy sector operations in the regions, and regional practice managers, and country management units. For WBG operational staff, ongoing dialogue with country clients is a normal part of supervising projects, preparing new operations, and maintaining relationships. These dialogues help formalize investment and non-investment needs that are relevant to ESMAP and ASTAE's offerings. ESMAP and ASTAE have also been successful at communicating their program offerings to WBG task team leaders, so that those offerings can be shared with government counterparts to gauge interest. For ESMAP and ASTAE, these direct linkages to WBG energy sector operations and policy dialogues have been critical for understanding client demand, responding quickly to client demands for assistance, and assessing when a political window of opportunity opens.

2.2 Strategic role and comparative advantage

Commonly identified comparative advantages include: cross-fertilization of knowledge with operations; ESMAP and ASTAE's position within the World Bank; responsiveness to client

country needs and ability to quickly mobilize to meet those needs; and high quality technical work and strong relevant expertise**.** World Bank staff interviewed for this evaluation saw ESMAP and ASTAE as critical resources for analytical work, technical assistance, supporting policy dialogue, upstream business development, and identifying new ideas over the horizon.

These comparative advantages point to several strategic roles for ESMAP and ASTAE moving forward. One role is in supporting increased lending for sustainable energy. A related strategic role is the continued facilitation of policy analysis and dialogue, which all case study countries pointed to as a critical support need, and one that ESMAP is uniquely providing in some countries.

In ESMAP strategy documents, discussion seems to have shifted from "comparative advantages" toward "core principles" over the past few years. While ESMAP's FY2014-16 Business Plan does not explicitly mention any comparative advantages as such, the 2008-13 business plan referred explicitly to multiple advantages: "a knowledge clearinghouse", "client-centered partner," an "honest broker that addresses issues in a balanced way," and "being well positioned to exploit synergies across the World Bank Group, leverage expertise of the global energy practice, and engage stakeholders and energy champions from client countries." ESMAP's 2013 Annual Report reinforces the perception of some of these comparative advantages: "ESMAP has stayed true to its mandate by targeting its resources and activities directly at the needs of clients" and "ESMAP's unique features [are] its combination of global and country-level work; its ability to leverage the technical and financial resources of the WBG; and its forward-looking mandate."

The previous evaluation found that ESMAP strategy documents did not make clear how these comparative advantages contributed to the program's objectives. This evaluation finds that the new "core principles" appear to be partly designed to reflect ESMAP's comparative advantages in shaping how ESMAP operates. For example, the principle "ensure relevance to the Bank's country sector dialogue and lending operations" reflects ESMAP's client orientation through the World Bank's regional operations units. Similarly, the principle "help shape the future" reflects ESMAP's comparative advantage as a think tank, generating new knowledge and promoting innovation.[5]

Interviews with ESMAP and World Bank staff, donors, TAG, and client country representatives identified several common themes vis-à-vis the strategic role and comparative advantages of ESMAP and ASTAE. A key theme is the cross-fertilization of knowledge with operations. ESMAP tackles "innovation," "thought leadership," "big picture thinking," and "pushing the envelope," in the words of its team members and beneficiaries. At the same time, ESMAP and ASTAE's home within the World Bank connects this cutting edge knowledge with investment operations, to support stronger results achievement. In particular, most donors saw ESMAP and ASTAE's position within the World Bank as an advantage, for several reasons: the programs can access and draw on World Bank expertise; the programs are positioned to influence World Bank investment operations, policies, strategies; and being part of the World Bank brings visibility for the program and convening power in-country.

Within the World Bank, the language of "comparative advantage" did not resonate because ESMAP and ASTAE are the only dedicated trust-funded programs in the Energy and Extractives Global Practice; while other trust funds like the Public-Private Infrastructure Advisory Facility (PPIAF) and Global Partnership on Output-Based Aid (GPOBA) have thematic commonalities, they have different mandates and functionality. World Bank staff interviewed for this evaluation saw ESMAP and ASTAE are critical resources for analytical work, technical assistance, supporting policy dialogue, upstream business development, and identifying new ideas over the horizon. World Bank staff also indicated that ESMAP has served as an incubator for not only ideas but also for staff.

[5] In 2011, the CG indicated that ESMAP's think tank function gave it a comparative advantage in looking ahead, "thinking outside the box," and helping to shape the future.

Fieldwork identified four commonly cited advantages of ESMAP, as summarized in Table 2.1:

- **The program's responsiveness to client country needs and ability to quickly mobilize to meet those needs—**For example, in Indonesia, at the request of the Ministry of Energy and Mineral Resources, ESMAP provided analysis and recommendations on the development of the 2014 ministerial regulation on geothermal policy and pricing in a matter of months. In Egypt, ESMAP provided "just-in-time" support to the Government on energy pricing and subsidy reforms, enabling political windows of opportunity to be seized.
- **Coordination or leadership by ESMAP in partnership with the World Bank**—For instance, in Saint Lucia, ESMAP has played a strong coordination role for the development of a geothermal project.
- **High quality technical work and strong relevant expertise**—For example, in Bangladesh, government counterparts complimented the quality of technical analysis.
- **Facilitation of policy analysis or dialogue—**In several countries, government counterparts indicated that ESMAP (through the World Bank) was the only organization (or one of very few development partners) providing critical sustainable energy-related policy support.

Table 2.1 ESMAP Comparative Advantages, as Identified in the Case Study Countries

	Bangladesh	Egypt	Indonesia	Saint Lucia	Senegal	Turkey
Responsiveness / quick mobilization / flexibility	✓	✓	✓			✓
Coordination / leadership / partnership with the World Bank			✓	✓	✓	
High-quality analysis / technical assistance / expertise	✓	✓	✓		✓	✓
Facilitation of policy analysis / dialogue	✓	✓	✓	✓	✓	✓

In both countries visited with ASTAE activities, stakeholders noted that ESMAP and ASTAE were complementary, and that the speed of ASTAE proposal review was a key advantage. Particularly in the energy access space, where investments often require significant upfront work and have high transaction costs, ASTAE has funded analytical pre-investment work that wouldn't typically be financed by World Bank loans or grants. Part of ASTAE's value added is seen by World Bank staff as augmenting funds for preparation and supervision of challenging projects, to better enable a project to meet its development objective.

These comparative advantages point to several strategic roles for ESMAP and ASTAE moving forward. One role is in supporting increased lending for sustainable energy. For example, in Bangladesh, currently, World Bank energy sector lending accounts for about 12% of its lending portfolio, but there is interest in increasing this amount considering the importance of energy in Bangladesh's economic development. In Turkey, energy projects already account for over 50% of the World Bank's lending portfolio in Turkey, an achievement that ESMAP has contributed to through its initiatives supporting policy dialogue, which provide the building blocks for lending operations.

A related strategic role is the continued facilitation of policy analysis and dialogue, which all case study countries pointed to as a critical support need, and one that ESMAP is uniquely providing in some countries. For example, in Saint Lucia, partners saw ESMAP's work on energy regulations as a particularly strategic engagement, given Saint Lucia's need for reform and the reality that other development partners have not been active in this area. Similarly, in Indonesia, ESMAP (through the World Bank) and now ADB are the only two

development partners actively helping the Government on critical policy issues related to the geothermal development.

2.3 Business line and program alignment

ESMAP's businesses lines and program priorities are aligned with its three objectives enhance development financing; influence policy and strategy and increase client capacity; and deepen knowledge and generate innovative solutions. Changes in the FY2014-216 Business Plan have been responsive to the Consultative Group and to the findings and recommendations of the previous evaluation. An increase in the number of initiatives could pose a risk to the effectiveness of those initiatives, as well as the ability of ESMAP's lean administrative structure to manage them. Moving into the next business planning period, maintaining a manageable and strategic number of areas of concentration will continue to be important.

From the FY2008-13 to the FY2014-16 Business Plan, ESMAP shifted from thematic strategic priorities (i.e., energy security, poverty reduction, and climate change) to objectives that are oriented to the types of services offered and results that ESMAP seeks to achieve. The evaluation found that the businesses lines and program priorities are aligned with ESMAP's three objectives: enhance development financing; influence policy and strategy and increase client capacity; and deepen knowledge and generate innovative solutions. Existing programs in the FY2014-216 Business Plan also show evidence of moving in line with ESMAP's shift to results-oriented objectives. Examples from the FY2014-216 Business Plan include:

- SIDS DOCK addresses institutional strengthening, as well as better policies and strategies for attracting renewable energy and energy efficiency investments, including piloting new solutions and business models.
- The SE4ALL technical assistance initiative focuses on establishing planning, institutional and policy frameworks, and preparing investment prospectuses that could mobilize investments for scaling up and accelerating energy access programs.
- The Clean Energy Program includes focus areas centred on production and dissemination of knowledge, capacity development, and project preparation to enhance investment operations.
- An initiative on energy efficient cities transformation includes knowledge exchange, targeted capacity building, assessment of energy efficiency opportunities; development of action and implementation plans; and mobilization of financing.
- A program on gender and social inclusion in the energy sector focuses on knowledge generation and dissemination, capacity building, and support to task teams in design and implementation of gender aspects in energy operations.

Business lines and program priorities have been responsive to the CG and to the findings and recommendations of the previous evaluation. For example, in the Energy Assessment and Strategies Program (EASP), a new focus on energy resources and linkages (i.e., water-energy-food nexus) with $1 million allocated, responds to requests from the CG.[6] An allocation of $1.5 million for updating and maintenance of energy planning tools (TRACE, EFFECT, MACTool, META) is responsive to the previous evaluation's recommendations, as is strengthened emphasis on gender issues and social inclusion. The City Energy Efficiency Transformation Initiative (CEETI) also responds to the previous evaluation's recommendations by focusing on global cross-sectoral work—i.e., by bringing together expertise from energy, water, urban, and transport sectors to support the enhancement of energy efficiency in participating cities.

The previous evaluation also recommended that ESMAP maintain a clear and well-delineated area of concentration in order to avoid overextending resources. The FY2014-16

[6] 2012 CG Meeting Closed Session Minutes

Business Plan reflects a rationalization of ESMAP's programs and business lines, and budget revisions have primarily focused on concentrating more resources in business areas with strong demand (e.g., renewable energy resource mapping, energy subsidy reforms, and the SE4ALL knowledge hub), although a new Green Mini-Grids Facility has also been launched in 2015. Some stakeholders raised concerns about the ability of ESMAP to manage a growing number of initiatives, especially given its lean administrative structure (see also Section 3.3), as well as the risk that an increased number of initiatives could dilute the effectiveness of ESMAP's interventions. Moving into the next business planning period, maintaining a manageable and strategic number of areas of concentration will continue to be an important focus.

3 Institutional Arrangements and Organizational Effectiveness

This section considers the institutional arrangements of ESMAP and ASTAE from the perspective of organizational effectiveness. Governance and management arrangements are first assessed, followed by discussions of administrative and implementation efficiency, ESMAP and ASTAE's relationship to the World Bank, the structure of the trust funds, the monitoring and evaluation (M&E) function, and communications.

3.1 Governance

Overall, ESMAP and ASTAE are well-governed. The Consultative Group is an effective governing body that is fulfilling its key functions, including providing strategic direction, management oversight, and commissioning evaluations. A manageable number of members (13-14 donor participants during the evaluation period) and accepted governance norms contribute to effective and efficient decision-making, even in the absence of formally documented roles and responsibilities.

The Technical Advisory Group (TAG) has been effective in its role as a provider of strategic advice to the CG and ESMAP/ASTAE programming over the evaluation period. TAG reports have generally been relevant and useful for governing ESMAP over the evaluation period.

ESMAP and ASTAE are global and regional partnership programs, housed in the World Bank's Energy and Extractives Global Practice. They are jointly governed by a Consultative Group for the Energy Trust Funded Programs, comprised of donor governments and the World Bank. The Consultative Group (CG) meets once per year, and meetings are chaired by the Senior Director of the World Bank's Energy and Extractives Global Practice. This governance arrangement is similar to other World Bank-administered multi-donor trust funds, such as the Global Facility for Disaster Reduction and Recovery (GFDRR) and the Global Partnership on Output-Based Aid (GPOBA).

An assessment of the effectiveness of a governing body would typically compare performance to expected duties and commitments. However, since no program charter exists that specifically describes the CG's roles, responsibilities, and decision-making processes, this evaluation considers the effectiveness of the CG vis-à-vis the normal core functions of a global partnership program's governing body: strategic direction; management oversight; stakeholder participation; risk management; conflict management; and audit and evaluation.[7]

In this evaluation's assessment, the CG is an effective governing body that is fulfilling its key functions. A manageable number of members (13-14 donor participants during the evaluation period) and accepted governance norms contribute to effective and efficient decision-making, even in the absence of formally documented roles and responsibilities.

- **Strategic direction**—This evaluation reviewed minutes from all CG meetings during the evaluation period and found that all CG meetings provided strategic leadership to direct the use of program resources. For example, during the 2014 CG meeting, the CG emphasized the need for ESMAP and ASTAE to raise the profile of its gender work. The 2015 annual report and CG meeting minutes showed clear evidence of an increase in gender activities for both ESMAP and ASTAE. Before the merging of the ESMAP and ASTAE annual reports, ASTAE annual reports—unlike ESMAP—did not provide a summary of the CG meeting, making an assessment of the extent of strategic direction and management oversight difficult.
- **Management oversight**—The same review of CG meeting minutes also showed adequate management oversight exercised by the CG. The CG regularly approves

[7] IEG. 2007. Sourcebook for Evaluating Global and Regional Partnership Programs.

annual budgets and business plans, revised budgets, terms of reference (TOR) for the external evaluation of ESMAP, and other materials.

- **Stakeholder participation**—As noted above, the CG represents a shareholder model of governance, where membership is limited to financial contributors and observers. While the trend among World Bank global partnership programs is toward more inclusive stakeholder models of governance,[8] a review of those programs was not able to conclude that one model is more effective than the other.[9] The CG rejected the previous external evaluation's recommendation to include such representation in the CG.[10] In this evaluation's view, the current shareholder model of governance is appropriate, given the current size and objectives of ESMAP and ASTAE. Moreover, as IEG (2010) found, direct representation on the governing body does not necessarily translate into an effective voice; there may be other, possibly more effective means for non-contributing stakeholders to have their voice heard.

  Participating as an observer in a CG meeting is one avenue for other stakeholders' voices to be heard, although observer attendance has been limited. Open CG sessions have occasionally included observers such as representatives of developed country governments who may have an interest in becoming a donor (e.g., Switzerland) and representatives of recipient country governments (e.g., Brazil). Closed sessions are attended by CG members only.

  Another avenue is the ESMAP Knowledge Exchange Forums (KEFs), which have played a key role in expanding ESMAP's stakeholder participation. A wide range of stakeholders participated in the most recent ESMAP KEF (held in Vienna, June 2015), including recipient country governments and civil society organizations.

- **Risk management**—This function is not regularly exercised by the CG. A review of CG meeting minutes did not yield evidence that the CG has discussed program-level risks (e.g., program reputational risks, risks to the adequacy of funding), although interviews with ESMAP management suggest that these risks are being considered and mitigated at the management level. The 2013 CG meeting minutes indicate an agreement to add a risks analysis matrix to the 2014-16 Business Plan, although such a matrix did not materialize. At the operational level, implementation risks at the activity- or grant-level are managed by ESMAP/ASTAE management and World Bank task team leaders. Given the nature of the risks faced by these trust fund programs, the evaluation finds this division of responsibility generally appropriate.

- **Conflict management**—The evaluation did not find evidence that conflicts arose during the evaluation period that would require the CG to exercise this function.

- **Evaluation**—The CG has commissioned several external evaluations of ESMAP, including this evaluation and its predecessor, which covered FY2007-2011 that was completed in June 2012.[11] Before this evaluation, however, ASTAE has not been externally evaluated since 2003.[12] As IEG (2015) noted, this is a "serious and surprising omission" and a failure of ASTAE's CG to meet its governance responsibilities with regard to ASTAE evaluation.

  A review of status updates on ESMAP's action plan for the 2012 external evaluation shows that ESMAP has taken up and completed the implementation of many of the

[8] Where membership in the governing bodies is extended to non-contributors such as recipient countries and civil society organizations.

[9] IEG (Independent Evaluation Group). 2010. The World Bank's Involvement in Global and Regional Partnership Programs: An Independent Assessment. Washington, DC: World Bank.

[10] Detailed Action Plan on ESMAP's External Evaluation Recommendations. Status Update (February 2014).

[11] ESMAP and ASTAE have also been subject to internal evaluation by the World Bank's Independent Evaluation Group (IEG).

[12] An internal review of ASTAE was conducted by the East Asia and Pacific Financial Management unit in Jun 2014.

external evaluation recommendations.[13] Of the eight recommendations that ESMAP agreed to take up (out of eleven), all of them were either on track to be completed or already completed and ongoing.

The CG is advised by a Technical Advisory Group (TAG), a three-member external body that is appointed by and reports to the CG. The TAG is expected to provide an "informed, independent assessment and related recommendations to the CG about the strategic direction and priorities of [ESMAP and ASTAE] and to assess the programs' impact and effectiveness in meeting their missions."[14] The TAG's terms of reference requires it to meet a minimum of once per year; however, in practice it meets twice (once for the annual CG meeting and once for mid-year discussions with the energy trust funded programs).

The TAG has been effective in its role as a provider of strategic advice to the CG and ESMAP/ASTAE programming over the evaluation period. In its annual reports to the CG, TAG takes up different themes from year to year such as business plans, external developments and their implications, follow-up on issues raised in the previous year's report, key focus areas (e.g., energy access), and other broad themes. A review of TAG reports over the evaluation period indicates that there is a good balance between providing strategic advice, assessing budget and funding, and evaluating the progress made by ESMAP and ASTAE, taking care to address both ESMAP and ASTAE separately.

TAG reports have generally been relevant and useful for governing ESMAP over the evaluation period. A review of TAG recommendations and management and CG responses showed that ESMAP has either fully or partially agreed with or acted on the majority of TAG recommendations made during this evaluation period. For example, management fully agreed with eight of the 12 key TAG recommendations in 2013. Reasons for some disagreement between TAG and ESMAP management included differing opinions on the direction of strategic priorities, ESMAP's role, capacity, and comparative advantage.[15] In terms of uptake, one example is progress in integrating gender considerations, stemming in part from a TAG recommendation.

The previous evaluation urged ESMAP to consider the need to integrate recipient country perspectives from different categories of stakeholders directly in TAG assessments and provide the TAG with the resources required to ensure this. In interviews for this evaluation, some donors also suggested that the TAG should gather and consider feedback from client countries and beneficiaries in preparing its reports. It is the view of this evaluation, however, that extending the TAG's mandate to include client country input would not represent value for money. Interviewing a small number of client country stakeholders would not provide valid feedback to inform the broader program's strategic direction, and interviewing a representative sample of country stakeholders would be quite costly. Instead, assessing ESMAP and ASTAE's contributions from the perspective of the beneficiaries should be the role of independent evaluation.

3.2 Management

The ESMAP Unit is widely seen as providing high quality and responsive management for ESMAP and ASTAE. While the evaluation finds the organization of the ESMAP Unit appropriate and supportive of the FY2014-16 Business Plan, interviews with CG members

[13] Baastel. 2012. External Evaluation of ESMAP 2007-2011: Final Evaluation Report. Available online at: http://www.esmap.org/sites/esmap.org/files/Baastel_ESMAP_Final_Report_%2019_June_2012_FINAL_optimized.pdf.

[14] TAG Job Description FY12-13.

[15] For example, TAG recommended in 2014 that ESMAP and ASTAE explore mechanisms to promote nationally embedded coordination mechanisms at the country level. ESMAP management responded that this would be a very challenging recommendation to implement and it's not clear whether ESMAP has the comparative advantage to do so. Similarly, TAG recommended in 2013 that ESMAP provide in-depth assessments of the pros-and-cons of carbon taxes versus cap-and-trade schemes when asked for assistance in designing cap-and-trade schemes. ESMAP management agreed with the recommendation, but later confirmed that another unit in the Bank is leading this work, and ESMAP will need to assess whether it has a comparative advantage in this area.

suggested that ESMAP's organizational structure is not widely understood and could be more clearly communicated.

ESMAP management has sufficient flexibility to adjust the focus and funding distribution of programs and business lines in order to respond to client and donor needs, and to achieve program goals, and this flexibility is supported by the CG and TAG. Soft earmarking—while a fact of life for most trust funds—affects the flexibility and transparency of funding allocations, and creates administrative challenges for management.

Clear operational roles and responsibilities, TAG reviews and CG meetings, and annual reports and portfolio reviews all serve as strong accountability mechanisms for ESMAP and ASTAE. The consistency of financial reporting could be improved to further support accountability: the use of different budget categories across reports made it difficult to track allocations, commitments, and disbursements over the review period.

The ESMAP Unit, situated within the Energy and Extractives Global Practice of the World Bank, is responsible for the day-to-day management of ESMAP (including the SIDS-DOCK multi-donor trust fund) and also, beginning in July 2014, ASTAE (see Section 3.5 for a discussion of ASTAE's integration with ESMAP). The ESMAP core unit is overseen by a program manager and a lead energy specialist, and implemented by four thematic teams and operations and communications staff (see Figure 3.1 below).

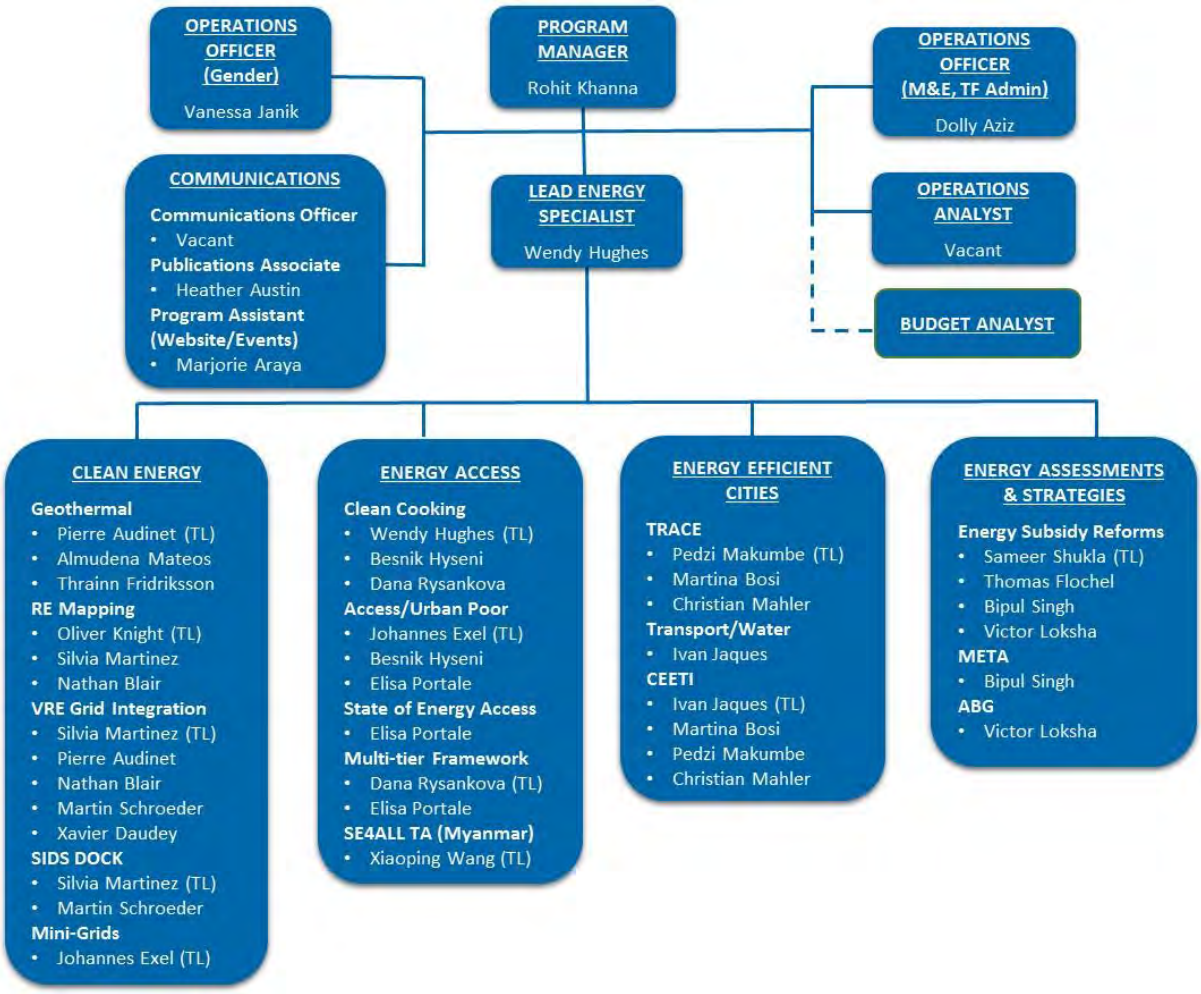
The ESMAP Unit is widely perceived as providing high quality and responsive management. The following discussion specifically considers the organizational effectiveness, flexibility in business planning, and accountability of ESMAP management.

3.2.1 Organizational effectiveness

The organization of the ESMAP core unit has been adjusted to align with the business plan. These realignments are appropriate for achieving the goals of the business plan and represent a results-oriented approach to institutional organization. During the FY2008-13 period, the Business Plan indicated that the ESMAP core team consisted of the Lead Energy Economist (overseeing Program Team Leaders), Thematic Coordinators, and the Global Practice Group (comprised of energy efficiency and energy technology specialists). For the FY2014-16 period, the core team has been realigned into small teams that reflect the programs in the current business plan: energy access; energy efficiency; clean energy; energy assessment and strategies; gender and social inclusion; and results-based funding.

The team is also supported by staff focused on communications, monitoring and evaluation, and resource management. Figure 3.1 presents the current organization of the ESMAP unit. The evaluation finds this organization appropriate. However, interviews with CG members suggested that ESMAP's organizational structure is not widely understood and could be more clearly communicated to facilitate more direct interaction between program staff and donors.

Figure 3.1 ESMAP Unit Organization



Prior to merging the program management and administration of ASTAE with ESMAP, ASTAE was embedded within the EAP infrastructure unit (EASIN) with fairly lean staffing. A part-time Program Manager was supported by an ASTAE Coordinator, who provided day-to-day operational and administrative supervision of ASTAE, supported TTLs, acted as a liaison with donors, and coordinated with local counterparts. A part-time budget administrator supported the ASTAE Coordinator in monitoring financial information. These functions have now been effectively absorbed by the ESMAP unit. Interviews suggested that prior to its integration with ESMAP, ASTAE was not managed as strategically as it could have been, primarily because of the short staffing.

3.2.2 Flexibility in business and activity planning

At the program-level, ESMAP management has flexibility to adjust the focus and funding distribution of programs and business lines in order to respond to client and donor needs, and to achieve program goals. Both the CG and the TAG support retaining management flexibility to adjust the budget (as indicated through interviews and CG meeting proceedings), in order to remain consistent with the strategic priorities in the Business Plan. This flexibility has been demonstrated through the evolution of the Business Plans during the evaluation period, as well as the evolution of work programs within business planning periods. As an example, a new cross-cutting work program on results-based approaches was launched during FY2012 due to increasing interest, even though it was not foreseen in the FY2008-12 Business Plan.

During this evaluation period, business planning and budgeting shifted from five to three year periods. Interviews suggested a range of opinions on the right time horizon for business planning moving forward; some donors felt that five years was too long and three years was too short, while other donors preferred the three year timeframe. Across the board, however, stakeholders generally support more flexibility to adapt to new trends and challenges, which can be partly achieved through shorter business planning periods.

Flexibility in business planning is also impacted by the share of earmarked funds. Donors have used a variety of approaches. Some donors have made their contributions to ESMAP without any ties to specific programs (i.e., core funding), while other donors have soft earmarked some or all of their contributions to certain programs.

Donors and ESMAP management alike recognize that soft earmarking is a fact of life for trust funds like ESMAP and ASTAE; the ability to tie finance to programmatic priorities allows donors to fundraise internally and ensure that specific interests are met. At the same time, earmarking has sometimes meant that resources are more aligned with donor interests than with actual demand across the regions. For example, earmarked funds for energy subsidy reform and mini-grids initially exceeded demand, although interviews indicated that demand has eventually caught up for both initiatives. Earmarked funds—and some opacity around that earmarking[16]—also reduce the voice of CG members in the allocation of resources, which has potential to create issues related to fairness and legitimacy moving forward. For ESMAP management, soft earmarking can create administrative challenges and a tendency toward more programs and business lines, which runs counter to the recommendations of the previous evaluation (to streamline the number of program areas).

At the project-level, ESMAP management maintains oversight over the design and execution of activities through several avenues:

- Annual block grants:
  - *Review and approval of activity proposals*—Through its review of proposals and discussions with regional teams, ESMAP management has influence over the design of activities to ensure that they contribute to the achievement of program goals.
  - *Quality assurance and monitoring procedures during implementation*—An ESMAP reviewer is assigned to each activity and oversees activity progress, disbursement of funds, and achievement and quality of outputs to ensure quality implementation.
- Own-managed work:
  - *Peer review of concept notes*—Experts review and provide comments on the concept note. An internal ESMAP review is also held to assess the activity's readiness for a formal decision meeting.
  - *Quality assurance and monitoring during implementation*—The relevant project or task team leader monitors activity implementation and recommends corrective actions, as needed. Final outputs also undergo quality assurance procedures, including review by peer reviewers and regional coordinators.

3.2.3 Accountability

Several organizational features contribute to sufficient management accountability. ESMAP's Operational Manual, adopted in 2011 and revised in 2014, clearly articulates roles, responsibilities, and associated task timeframes for ESMAP management vis-à-vis processing and oversight of ESMAP activities. In doing so, the Manual assigns accountability for the functioning of various management systems. The Manual includes quality assurance guidelines for both annual block grants and own-managed work, as well as roles and responsibilities for activity-level monitoring. For example, for annual block grants, an ESMAP reviewer is specifically assigned to each activity, and participates from concept to completion

[16] Soft earmarking means that earmarks are not in the legal agreements, and thus not entirely transparent.

to ensure consistency with ESMAP objectives and quality standards.[17] Certain checks are also built into the quality assurance process to ensure that tasks are completed; for example, no overdue GRMs for ESMAP activities from a region and/or TTL is a condition for the release of funds for ABG activities.

TAG reviews and the CG meetings also serve as accountability mechanisms for ESMAP management. TAG has also supported the investment of increased resources into measuring program performance, as a means of ensuring accountability. The annual reports and annual portfolio reviews—based on information collected through the M&E framework--serve as further accountability mechanisms by reporting to the CG on results achieved, as well as under-performance such as completed activities with no outcomes reported and delays in disbursement and implementation. For ASTAE, accountability is further promoted by reporting on progress against pledged targets under the FY2012-15 Business Plan.

One concern raised by the CG and TAG, and also noted by the evaluation team during desk review, is related to the difficulty to effectively track and compare allocations, commitments, and disbursements due to reporting format changes, as well as programmatic and structural changes (e.g., the integration of AFREA and ASTAE). For example, ESMAP program budget categories are not always consistent across reports, making it challenging to track changes in allocations and disbursements for particular programs or business lines. A specific example helps illustrate this challenge. In the ESMAP 2013 Annual Report, ESMAP spending by program area is broken into Clean Energy, Energy Access, EECI, and EASP. In the 2014 Annual Report, ESMAP spending is similarly disaggregated by program area, but the program areas are defined differently (e.g., ABGs, Transport, Water, SE4ALL, Global Geothermal Development Plan, and so on). These categories also differ from those listed in budget notes submitted to the CG, in which “Transport” and “Water” are not discrete line items.

3.3 Efficiency and program growth

In the face of significant program growth, ESMAP has not only maintained a lean administrative budget, but reduced it further. ESMAP and ASTAE have achieved efficiencies through economies of scale, cost sharing, and drawing on existing World Bank resources and structures. Staffing of the ESMAP core unit has also stayed relatively constant despite program growth, and interviews suggest that staff are stretched too thin.

The new World Bank cost recovery policy will affect ESMAP and ASTAE administrative costs moving forward, and is already impacting ESMAP management’s autonomy in being able to implement strategic staffing or fill key positions quickly. If program funding levels—or the number of programs/business lines—continue to increase, these challenges could have risk implications for staffing/resources to support future program growth.

At the activity-level, across all ESMAP and ASTAE activities approved in FY2012-2015, average disbursements per grant for economic and sector work (ESW) and technical assistance (TA) were roughly comparable to the average costs of a country-level ESW and TA across all regions and sectors for 2000-06, as assessed by IEG (2008). The evaluation found no obvious examples of inefficiencies, nor any instances of perceived duplication of effort. That said, interviews and the quantitative assessment did suggest some inconsistency in resource allocation for similar activities, possibly based partly on funding availability.

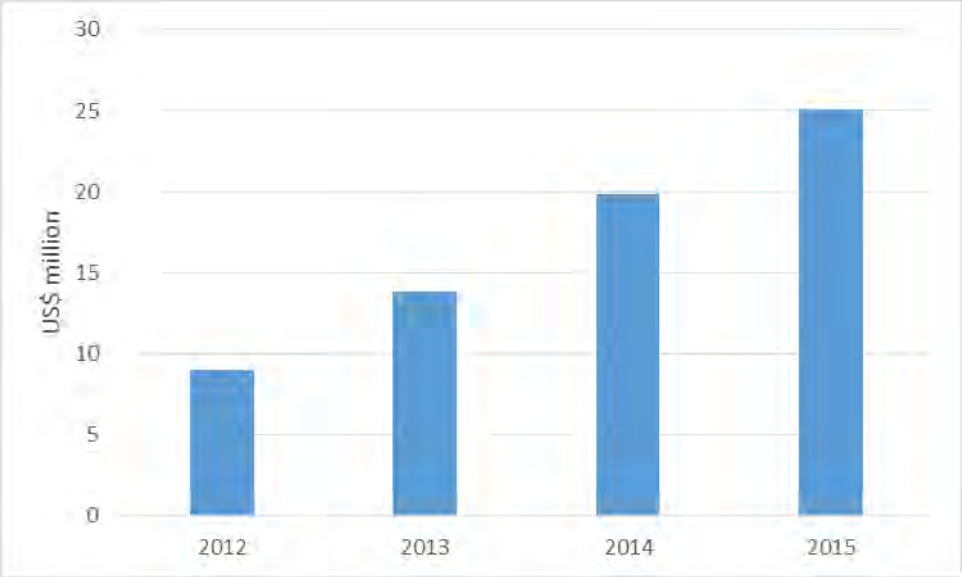
3.3.1 Administrative efficiency

ESMAP and ASTAE have experienced significant growth over the evaluation period. Between 2012 and 2015, ESMAP’s disbursements have progressively increased at a

[17] Prior to May 2010, once a concept note had been approved, ESMAP staff no longer participated in the regional management reviews of the activities.

compound annual rate of over 40% from 2012 levels (Figure 3.2). The growth in disbursements has mirrored donor interest and expectation as reflected by increasing donor contributions[18] and funding allocations during this period. For example, in FY2012 funding allocation was US$16.1 million, which grew to US$55.7 million in FY2014. Although this includes AFREA, which was not present in 2012, and which represents US$10.2 million in 2014, program growth has been significant.

Figure 3.2 ESMAP (incl. SIDS-DOCK, AFREA) disbursements to funded activities (excl. project management); FY2012-2015



Source: ESMAP/ASTAE portfolio review, FY2009-14; Draft ESMAP-ASTAE Annual Report 2015

In the 2007-2010 ASTAE business plan (BP), the budget for the 3 year period was US$9.3 million, with disbursement of over US$9 million.[19] The ASTAE BP for the 2012-2015 estimated a budget of US$20 million; however, it was revised upwards to US$24.2 million,[20] with an extension to FY17. The funding allocation in the current BP reflects a nearly 100% per year increase compared to the 2007-2010 BP. Figure 3.3 presents actual disbursement to funded activities during the current BP. Although FY2012 saw a smaller disbursement, this was due to a late donor payment and subsequent delays in implementing the BP. By 2014, disbursement was close to anticipated levels of US$5 million, which was maintained in FY2015.[21] FY2014 was also the year that management of the ASTAE multi-donor trust fund (MDTF) was transferred to the ESMAP program. Current disbursement levels are over 60% higher than levels seen in the 2007-2010 BP.

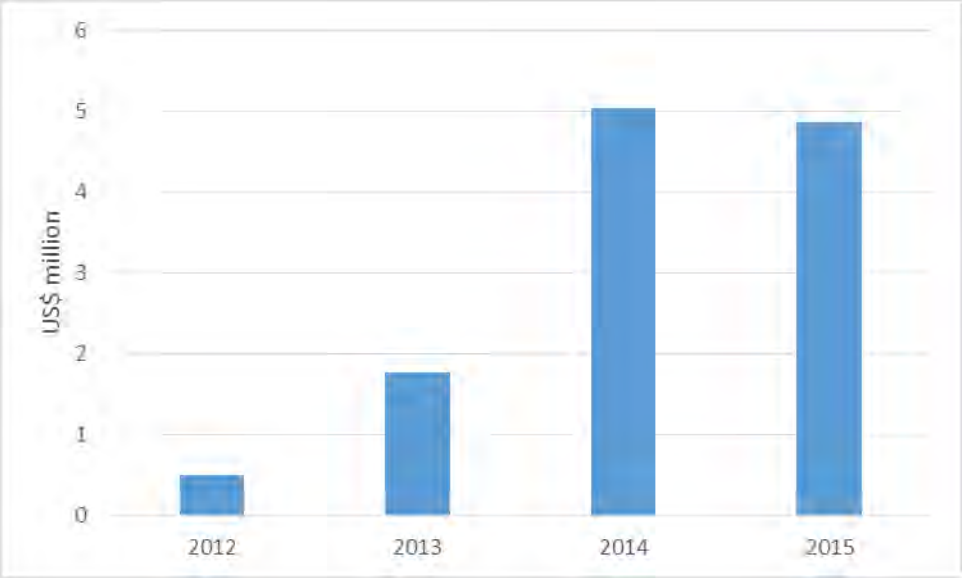
[18] The original FY2014-2016 BP budget was increased from US$122 million to US$155 million.

[19] ASTAE Business Plan - FY2012-15 (July 2011 – June 2015)

[20] TAG report to the CG, April 22, 2015

[21] Draft ESMAP-ASTAE Annual Report 2015

Figure 3.3 ASTAE disbursements to funded activities (excl. project management), FY2012-2015



Source: ESMAP/ASTAE portfolio review, FY2009-14; Draft ESMAP-ASTAE Annual Report 2015

During this period of program growth, ESMAP has not only maintained a lean administrative budget, but reduced it further. Over the evaluation period, administrative costs[22] as a percentage of total program cost have averaged 10 percent for ESMAP (including SIDS-DOCK) and 5 percent for ASTAE, or about 9 percent for the programs combined. While direct comparison across programs is notoriously challenging,[23] ESMAP and ASTAE's combined administrative costs are comparable, or lower, than other World Bank technical assistance global partnership programs.[24,25]

Despite significant program growth, the size of the ESMAP core unit has stayed steady over the evaluation period at just shy of 30 staff. Personnel costs (including for trust fund administration, M&E, communication and outreach, and program management) represent the large majority of administrative costs; other costs include travel, organizing and hosting knowledge forums and CG and TAG meetings, and equipment costs.

Since FY2014, combined administrative costs as a percentage of total program cost have fallen to approximately 6-7% from 12% in FY12-13 (see Figure 3.4). For ESMAP, in FY2012, program management costs were approximately US$2.1 million; by FY2015, this had reduced nearly 15% to US$1.8 million (including SIDS-DOCK, but excluding ASTAE), and is aligned to expectations in the FY2014-2016 BP. This trend reflects the absorption of management responsibilities for ASTAE by ESMAP with no additional staff, as well as the maintenance of relatively flat budgets for related costs, such as communications and outreach and M&E. Program management and administration staff costs have also been kept down through cost sharing (e.g., the program manager charging time to the Bank budget for his portion of costs attributable to being part of the Global Practice management team; the Lead Energy Specialist taking on more task team leadership functions within ESMAP; the costs for the Knowledge Exchange Forums being shared by ESMAP

[22] For the purposes of this evaluation, administrative costs are inclusive of the following budget line items: Program Management; Governance (CG, TAG), Resource Management/Trust Fund Administration; Portfolio Management (M&E); Knowledge Forums; Communication and Outreach.

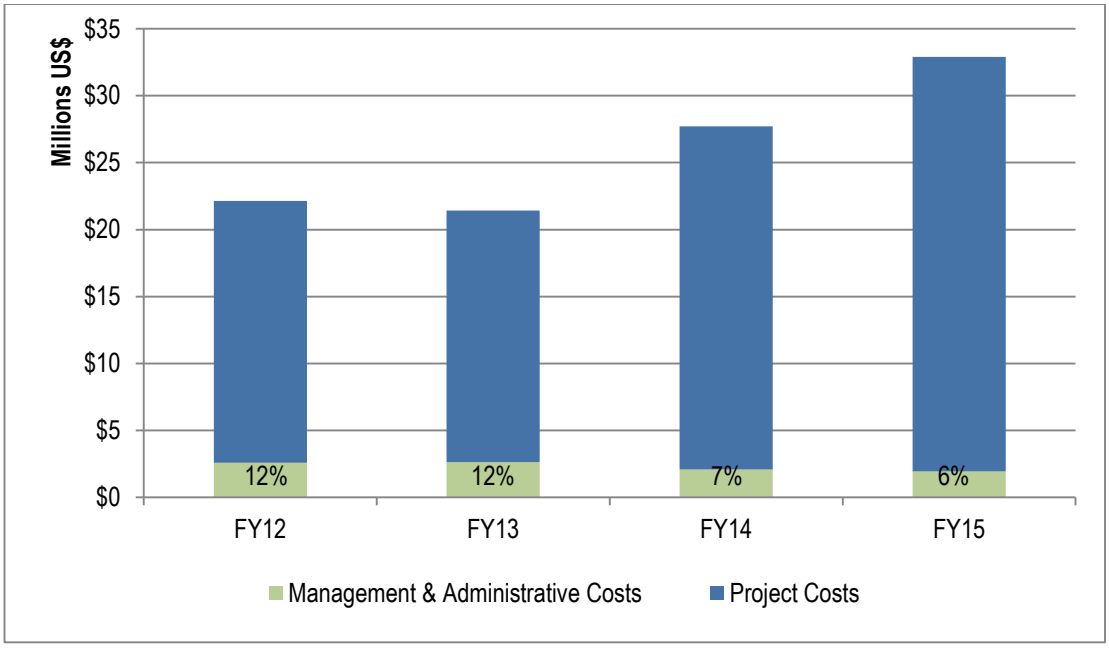
[23] Including the different ways that programs record their administrative and activity costs, the size and maturity of the programs, the types of activities funded, and the different ways programs work with their implementing partners.

[24] IEG (Independent Evaluation Group). 2010. The World Bank's Involvement in Global and Regional Partnership Programs: An Independent Assessment. Washington, DC: World Bank.

[25] IEG (Independent Evaluation Group). 2012. Global Facility for Disaster Reduction and Recovery. Global Program Review Vol. 6, Issue 2.

operational units), and consolidating and streamlining tasks and services (e.g., resource management). While these efforts have suppressed administrative costs, interviews suggest that staff may be overstretched. Some stakeholders expressed concern about the availability of the program manager if ESMAP and ASTAE demands increase, while also recognizing the value of the program manager's integration with World Bank operations.

Figure 3.4 ESMAP and ASTAE Program Management & Administrative Costs, as a Percentage of Total Program Costs



Source: Data compiled from ESMAP Annual Reports (2012, 2015) and ASTAE Annual Reports (2012, 2013)

ESMAP and ASTAE also draw on World Bank resources and existing structures to achieve efficiencies. Examples include tacking on ESMAP agenda items to existing supervision missions to minimize staff and travel costs, and using World Bank country office staff to advance ESMAP activities on the ground. Grants provided to the regional operational units also typically have cost sharing arrangements, with about 10 percent contributed from the Bank budget to promote ownership and efficiency.

Recent changes in how the World Bank administers trust funds will have implications for ESMAP and ASTAE administrative costs moving forward. The new cost recovery policy makes changes to the World Bank's Institutional, Governance, and Administrative (IG&A) costs, which are the costs incurred by the World Bank in administering trust funded programs (e.g., legal, accounting, human resources, office space, and so on). These changes are meant to address a growing gap between the World Bank's trust-fund related administrative overhead expenses and the recovery of those costs. For ESMAP and ASTAE, an increased indirect rate will be levied, and fees charged for funds committed for recipient-executed activities and Bank-executed activities have increased and declined, respectively.[26] The new policy also transferred costs related to budget and resource management and communications from the administration budgets of trust funds to IG&A, meaning that costs for budget and communications will decline in ESMAP's administrative budget. A comprehensive assessment of the impact of these changes on ESMAP and ASTAE administrative costs has not been conducted and is beyond the scope of this evaluation. Interviews with ESMAP management suggested, however, that while total program administrative costs may not change significantly as a result of these corporate decisions,

[26] World Bank. 2015. World Bank (IBRD-IDA) Trust Fund Cost Recovery Reform.

the new World Bank cost recovery policy is already impacting ESMAP management's autonomy in the recruitment and deployment of budget and communications staff, and has resulted in some service disruption. . If program funding levels continue to increase, these current challenges could have risk implications for future program growth.

The ASTAE program provides a useful example of the issues faced when dealing with a growing program and insufficient staffing levels. Before integration with ESMAP, ASTAE had a very lean management structure, incorporating a part-time program manager[27] and a coordinator, who managed ASTAE's trust funds, activities and budget, and task leads. Interviews suggest that the tight staffing structure resulted in the team being focused operationally on responding to activity supply-demand, with less time being allocated for program strategy. Furthermore, the recent World Bank Group Support to Electricity Access, FY2000-2014 evaluation [page xiv] noted that "ASTAE-supported reports reviewed did not meet the expected standards with respect to analytical rigor and completeness of coverage. ASTAE's record keeping was poor for many years, making access to ASTAE data difficult and creating accountability gaps." These comments were confirmed by interviews, which noted that quality control and communication support were previously restricted due to resource time-pressure issues, and low staffing levels. The integration of ASTAE with ESMAP management has helped alleviate some of these issues; see Section 3.5 on the integration of ASTAE and ESMAP.

3.3.2 Implementation efficiency

ESMAP and ASTAE's efficiency or cost-effectiveness in implementing individual activities cannot be fully assessed due to lack of sufficient data and comparable benchmarks.[28] For example, outputs are regularly named in GFRs and reported as planned or achieved in the M&E portal (as discussed below), but outputs are not consistently defined, challenging cost-effectiveness analysis. For example, one activity might define a single output as a series of studies, whereas another activity enumerates six outputs, one for each study. Similarly, one activity might identify a single output as a report and a dissemination workshop, whereas another activity lists a report and a workshop as separate outputs. These challenges are compounded at the outcome level, where it is not straightforward to assess the financial resources spent to achieve each outcome. As a result, cost-effectiveness of ESMAP and ASTAE operations by country, region, or thematic work area cannot be properly assessed, and efficiency is not expressly measured by the programs.

Still, this evaluation attempts to make some quantitative assessment of cost-effectiveness. Across all activities approved during FY2012-15 and with outputs completed by June 26, 2015, actual disbursements have averaged 92% of allocated amounts, suggesting some efficiencies. Across all ESMAP and ASTAE activities approved in FY2012-2015, average disbursements per grant were slightly less for economic and sector work (ESW) and slightly more for technical assistance (TA) than the average costs of a country-level ESW and TA across all regions and sectors for 2000-06, as assessed by IEG.[29] Limited information is available to inform an interpretation of these statistics, however. These differences could reflect different interpretations of ESW and TA, different regional distributions in the ESMAP/ASTAE versus IEG sample, the nature of energy sector work compared to IEG's cross-sectoral analysis, or numerous other factors.

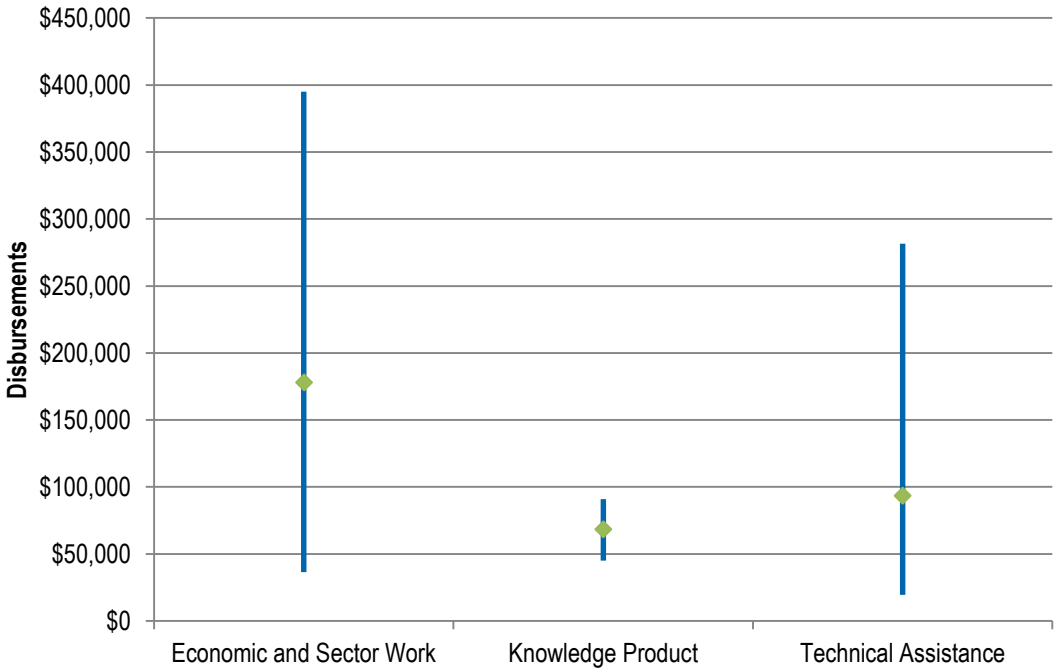
[27] ASTAE's Manager was the sector manager of the EAP infrastructure unit who delegated day-to-day operations of the program to the ASTAE Coordinator.

[28] Very few evaluations of comparable global partnership programs or trust funds have attempted to assess the efficiency of individual program activities. See: IEG (Independent Evaluation Group). 2010. The World Bank's Involvement in Global and Regional Partnership Programs: An Independent Assessment. Washington, DC: World Bank.

[29] IEG (Independent Evaluation Group). 2008. Using Knowledge to Improve Development Effectiveness: An Evaluation of World Bank Economic and Sector Work and Technical Assistance, 2000-2006. Washington, DC: World Bank.

This evaluation also calculates the cost per output, by product line, for activities for which outputs were similarly defined. Such analysis was possible for analytical studies or reports prepared as knowledge products, technical assistance, and economic and sector work. 0 presents the unit costs of ESMAP studies and reports for activities approved during FY2012-15 and completed as of June 26, 2015. As shown, the cost per study ranges significantly, particularly for economic and sector work (ESW) and technical assistance (TA). The average disbursed cost per study is more for ESW than TA and knowledge products (KP). This trend is consistent with World Bank-wide assessments of the relative costs of ESW and TA. [30]

Figure 3.5 Average and Range of Costs of ESMAP Studies and Reports (FY12-15)



Source: Data compiled based on the M&E Portal provided to ICF for this evaluation dated June 26, 2015.

Counts: ESW = 9 activities; KP = 4 activities; TA = 13 activities

Notes: ESW and TA activities include those with one study/report per activity; for KP activities, the cost is calculated per study/report.

Qualitative observations can also be made on the efficiency of ESMAP and ASTAE activities. The evaluation found no obvious examples of inefficiencies, nor any instances of perceived duplication of effort. That said, interviews did suggest some inconsistency in resource allocation for similar activities, based in part on funding availability. Leveraging or influencing of follow-on investments might offer some indication of cost-effectiveness, although this is not the primary objective of many ESMAP investments. For more information on this metric, see section 4.4.

3.4 Relationship with the World Bank

The World Bank's dual role as a partner in ESMAP and ASTAE and the trust funds' host organization brings both benefits and costs. Many donors see the hosting arrangement as an advantage of these trust-funded programs given the close proximity to operations and familiarity of the trustee in administering such trust funds. Although the arrangement has a perception of a conflict of interest, this is nothing new for global and regional partnership

[30] IEG 2006.

programs hosted by the World Bank, but instead represents an ongoing monitoring issue. The evaluation found no evidence of conflicts that have arisen during the review period

The World Bank's comprehensive organization reform into Global Practices has complemented ESMAP's scope and objectives. Interviews with ESMAP and World Bank staff indicated that the global practice structure has enabled better information flows and lessons learning across regional teams, improved staff mobility, and made it easier to collaborate with other global practices, supporting ESMAP results achievement.

ESMAP and ASTAE are trust-funded programs that are administered by the World Bank on behalf of their donors. As such, the World Bank is both a partner in ESMAP and ASTAE and the trust funds' host organization, providing administrative, fiduciary, human resources, and legal support. In turn, ESMAP and ASTAE complements World Bank business by expanding and informing the scope of activities, supplementing preparation and supervision activities for lending operations, and broadening the institution's knowledge base. For example, ESMAP has provided renewable energy training for World Bank and IFC staff in headquarters, as well as for EAP and SAR staff and clients, and launched a small hydropower online course at the 2015 World Bank Energy Learning Days. All training materials produced by ESMAP are made available to the Energy and Extractives Global Practice and broadly to external practitioners through ESMAP's website.

This hosting arrangement brings many benefits—as described above—as well as some potential costs, namely the need to identify and manage the conflicts of interest inherent in World Bank host arrangements; the "two masters" problem, in which the head of the program management unit reports to both the governing body of the program and World Bank management; and the threat of "organizational capture" by the World Bank.[31] These challenges are nothing new for global and regional partnership programs hosted by the World Bank, but instead represent ongoing issues to monitor. The dual role of the ESMAP program manager (with time split between the World Bank and ESMAP) presents a potential conflict of interest that should be monitored, although no evidence of such conflicts arising to-date was found. Such monitoring could be done informally by the CG and TAG members, by ensuring that the CG continues to have sufficient authority in formulating strategies and allocating resources, and by raising the issue if, at some time in the future, the CG or TAG perceives more influence by the World Bank on ESMAP and ASTAE than they feel is appropriate. Interviews suggested that the World Bank has generally been a good host for ESMAP and ASTAE given their long-standing role as trustee for similar trust funds, and that many donors saw the hosting arrangement as an advantage of these trust-funded programs (i.e., their close proximity to operations).

In 2014, the World Bank underwent a comprehensive organizational reform that resulted in 14 Global Practices that cut across countries, funds, and regions, and five Cross-Cutting Solution Areas. Under this new structure, global partnership programs and trust funds were mapped to the global practice of their primary sector affiliation. ESMAP and ASTAE were mapped to, and clearly align with, the Energy and Extractives Global Practice. Since 2010, the World Bank has increased its lending towards affordable, reliable and sustainable energy, a trend which is reinforced by ESMAP and ASTAE objectives. (See also Section 5.1.)

Interviews suggest that the reorganization complements ESMAP's scope and objectives. The global practices include global leads for thematic areas (such as energy access or power systems), which is in line with ESMAP's programmatic focus and better facilitates the development of global approaches. Interviews with ESMAP and World Bank staff also indicated that the global practice structure has enabled better information flows across regional teams, improved staff mobility, and made it easier to collaborate with other global practices, supporting ESMAP results achievement. ESMAP is recognized by some

[31] IEG (Independent Evaluation Group). 2010. The World Bank's Involvement in Global and Regional Partnership Programs: An Independent Assessment. Washington, DC: World Bank.

interviewees as facilitating cohesion and communication across teams in the Energy and Extractives Global Practice.

3.5 Trust fund structuring

The transfer of management for ASTAE to ESMAP has been successful and supportive of program growth. Specifically, through a wider pool of resources it has enabled better quality control of products, and enhanced communications and M&E, while at the same time maintained ASTAE's ability to respond quickly to demand in Asia, and ensured support is more linked to downstream World Bank, GEF, and other funding source operations.

Among the energy sector trust funds, the trend has been toward integration. Prior to 2012, AFREA was structured as a separate multi-donor trust fund (MDTF), called the Clean Energy Investment Framework or CEIF-MDTF, with management delegated to the Africa region's energy unit. When the MDTF closed, donors agreed to migrate AFREA under the ESMAP umbrella as a dedicated ESMAP program. AFREA's experience has shown that key program features—including focusing on a single region, providing multi-year funding, and recipient-executed activities—were able to be preserved in its transition to ESMAP.

Longer term options for the institutional arrangements for ASTAE are under discussion. Current donors to ASTAE include the Netherlands, Sweden, and the United Kingdom. At the 2011 CG meeting, donors noted potential opportunities for improved synergies and efficiency gains through joint institutional arrangements for ESMAP and ASTAE. In 2012, donors decided to maintain the status quo – i.e., separate multi-donor trust funds and institutional arrangements. The CG decided to revisit this decision starting in 2014, however, following the World Bank's restructuring into Global Practices. Several options have been explored, including:

- Closing the ASTAE MDTF.
- Extending the ASTAE MDTF as a separate trust-funded program under the new Energy and Extractives Global Practice.
- Keeping the ASTAE MDTF as a separate MDTF and transfer management to ESMAP.
- Fully consolidating ASTAE into ESMAP's MDTF (as was done with AFREA).
- A transition/hybrid model, combining the second option with the third or fourth.

Two papers produced by the ESMAP Unit clearly describe some of the advantages and disadvantages of these different options.[32] In 2014 and again in 2015, the CG agreed to extend the MDTF by one year and merge ASTAE's program management and administration functions (including M&E and communication and dissemination) with that of ESMAP.

This evaluation considers different models of trust fund integration from two broad perspectives: development effectiveness and resource mobilization. In terms of effectiveness, the difference between what ESMAP, ASTAE, and AFREA are funding has narrowed, both thematically and functionally. For example, renewable energy mapping is now sometimes funding by ESMAP with co-financing by ASTAE. Similarly, support for developing investment prospectuses for energy access started with ESMAP and AFREA has been replicated by the SE4ALL initiative. From this perspective, economies of scale may be increased through integration.

Interviews have suggested that the integration of ASTAE with ESMAP has been successful, and supportive of program growth. Specifically, through a wider pool of resources it has enabled better quality control of products, and enhanced communications and M&E, while at the same time maintained ASTAE's ability to respond quickly to demand in Asia, and

[32] ESMAP. World Bank Trust-Funded Energy Programs: ASTAE and ESMAP Options Paper; and Institutional Arrangements for the World Bank's Energy Trust-Funded Programs: ASTAE, ESMAP, & AFREA.

ensured support is more linked to downstream World Bank, GEF, and other funding source operations.

The adequacy and predictability of resources mobilized and disbursed is another key consideration. If donor funds are coming from regional budget windows, merging ASTAE into ESMAP may negatively impact their ability to raise or access those monies. On the other hand, ASTAE could benefit from a more coordinated fundraising approach if it were fully integrated into ESMAP. ASTAE disbursement rates increased significantly in FY2014 (US$5 million) and have been maintained in 2015, which indicates that the integration with ESMAP and the associated benefits have helped support ASTAEs program growth.

3.6 Monitoring and evaluation (M&E) and learning

ESMAP's revised M&E framework is a good practice example for activity- and program-level results reporting among World Bank-administered multi-donor trust funds. The framework aligns objectives with outcomes, includes measurable indicators, and is supported by operational guidance and staff. This M&E system has been consistently and effectively applied for ESMAP.

Monitoring and reporting on ASTAE activities is in the process of being integrated into the ESMAP system, which should help respond to recent IEG findings about the insufficiency of ASTAE's M&E system. ASTAE's current outcome indicators reflect the program's core objective to "scale-up the use of sustainable energy solutions" through its three pillars, but do not sufficiently reflect ASTAE's four key delivery approaches. Monitoring and reporting only on higher-order outcomes (such as gigawatts of renewable energy installed) reduces the program's ability to use its M&E framework as an accountability tool and increases the risk of outcomes being overstated.

Feedback processes to facilitate learning and improved decision-making have improved since the last evaluation. Some evidence exists that lessons learned from the M&E system have informed decision-making at the program level, but the evaluation could not discern whether learning from M&E processes is filtering down to the individual activity level.

ESMAP revised its results framework and associated monitoring and reporting system in 2010. The new framework aligns ESMAP's stated objectives with its expected outcomes at both the program and activity level (i.e., to enhance development financing; influence policy and strategy and increase client capacity; and deepen knowledge and generate innovative solutions), as well as aligns ESMAP with the World Bank's results framework for analytical and advisory activities (AAA). This alignment enables program-level aggregation of activity-level results, in order to report on the achievement of program objectives.

The new framework also defines measurable indicators at the outcome level. The implementation of the framework is supported by an Operational Manual that lays out roles, responsibilities, and timelines for collecting and reporting data, as well as a web-enabled M&E portal that enables the tracking, analysis, and reporting of monitoring data for ESMAP activities. Since 2013, ESMAP annual Portfolio Reviews and Annual Reports have comprehensively applied the new results monitoring framework, reporting on outputs and outcomes achieved by ESMAP activities.

At the activity level, financial progress is monitored quarterly using the World Bank's Systems, Applications, and Products (SAP) accounting system. ESMAP staff review progress on disbursement and commitment alongside updates on implementation status, in order to determine when to identify the activity as "off track." Interviews indicated that when projects haven't disbursed for one or two quarters, and if plans are not in place to address these delays, TTLs are asked to return funds.

This evaluation finds that ESMAP's M&E framework is a good practice example for activity- and program-level results reporting among World Bank-administered multi-donor trust funds.

IEG's recent assessment also concluded that ESMAP's revised framework is well-designed to track and report on the entire results chain of each activity.[33]

The M&E system has been consistently and effectively applied for ESMAP. Outputs were defined for all of the 248 ESMAP activities approved in FY2012 or later and included in the M&E portal,[34] and just one ESMAP activity did not define outcomes. Among the project sample, baselines and targets were identified for 55 of 57 ESMAP projects. The persistent efforts of ESMAP staff to ensure that outputs and outcomes are appropriately defined by World Bank TTLs, entered into the M&E portal, and measured at the close of the project, is a strong contributor to the successful operationalization of the new M&E system.

Monitoring and reporting on ASTAE activities is in the process of being integrated into the ESMAP system. This transition should help respond to the recent IEG finding that the program should create a "basic monitoring framework to keep track of inputs, activities and outputs and link them to objectives."[35] Among the 16 ASTAE projects included in this evaluation's sample, outputs and outcomes were defined for eight projects, and baselines and targets were also identified for eight.

ASTAE program indicators are markedly different than ESMAP's, reflecting the program's downstream, operational focus. These indicators measure outcomes such as total World Bank lending catalysed by ASTAE activities, new capacity and increased generation of renewable electricity (in gigawatt-hours), and households with access to modern energy services. While some donors expressed that they like these more tangible indicators, IEG recently found that ASTAE's indicators are over-ambitious and do not match with the scope of a small trust-funded program. IEG concluded that "ASTAE's results framework could be redesigned to focus on the program's own inputs, outputs and intermediate outcomes that can be attributed to the program's interventions rather than to show a commitment to high-level targets that are beyond its scope."[36]

Box 3.1 ASTAE Monitoring Approach

In the early years of ASTAE, leverage of World Bank operations (in dollar terms) was the primary indicator monitored. Currently, ASTAE indicators measure not only World Bank lending influenced by ASTAE, but also impacts of that lending (as taken directly from World Bank project information documents or project appraisal documents). ASTAE considers the program's impact on Bank lending to be direct, because ASTAE supports TTLs in project design and implementation, with intended results of improved operations.

Source: World Bank. 2013. ASTAE Annual Status Report FY2012.

This evaluation finds that ASTAE's current outcome indicators reflect the program's core objective to "scale-up the use of sustainable energy solutions" through its three pillars, but do not sufficiently reflect ASTAE's four key delivery approaches, which include supporting innovative delivery mechanisms, enhancing policy and regulatory frameworks, building capacity, and sharing knowledge. These delivery approaches align more closely with ESMAP's current outcome indicators (i.e., to enhance development financing; influence policy and strategy and increase client capacity; and deepen knowledge and generate innovative solutions). While ASTAE's theory of change is clear, monitoring and reporting only on higher-order outcomes (such as gigawatts of renewable energy installed) reduces the

[33] IEG (Independent Evaluation Group). 2015. World Bank Group Support to Electricity Access, FY2000-2014: An Independent Evaluation. Volume II: Together for Energy: How Partnership Programs Support Energy Access. Washington, DC: World Bank.

[34] The version of the M&E Portal provided to ICF for this evaluation was current as of June 26, 2015.

[35] IEG (Independent Evaluation Group). 2015. World Bank Group Support to Electricity Access, FY2000-2014: An Independent Evaluation. Volume II: Together for Energy: How Partnership Programs Support Energy Access. Washington, DC: World Bank.

[36] IEG (Independent Evaluation Group). 2015. World Bank Group Support to Electricity Access, FY2000-2014: An Independent Evaluation. Volume II: Together for Energy: How Partnership Programs Support Energy Access. Washington, DC: World Bank.

program's ability to use its M&E framework as an accountability tool and increases the risk of outcomes being overstated.

Opportunities exist to improve ESMAP and ASTAE's M&E system. First, guidance is insufficient in terms of how to report against outcome indicators, which can undermine the robustness of reported program results. For example, reporting of the outcome "client capacity increased" should clearly indicate whose capacity has been increased to do what, specifically. Many of the reports on capacity-related outcomes, for example, appear to assume that the delivery of training or a workshop, for example, can be equated with increased capacity, without indication of how a change in capacity has been assessed.[37] Second, the implementation of the monitoring framework is partially dependent on the diligence and doggedness of the ESMAP staff, with future resource implications. Lastly, the evaluation plan is not as clearly articulated as the monitoring system. As mentioned in section 3.1, this evaluation represents the first external evaluation for ASTAE.[38] ESMAP has undergone several comprehensive, independent evaluations—including this one—and although the need for external evaluation at the end of each business planning period is understood by management, this plan has not been codified in a decisions by the CG.[39]

One of the stated objectives of the M&E system is "to enhance the use of performance-based criteria for making decisions about ESMAP policies, strategies, program management, and activities."[40] Feedback processes to facilitate learning and improved decision-making have improved since the last evaluation. ESMAP has taken a number of steps to generate lessons learned that could be used to adapt its programs, including periodic assessment of long-range trends affecting future energy sector development, strategic use of the Portfolio Reviews to analyse lessons learned,[41] and development of an action plan in response to the findings and recommendations of comprehensive external evaluation in FY2012.

Some evidence exists that these lessons learned have informed decision-making. For example, as detailed in Annex 6, many of the findings and recommendations from the FY2012 evaluation have been implemented. As another example, the FY2014-16 Business Plan states that "key conclusion from the Portfolio Review FY 2009-12 that is being applied to the current Business Plan is that ESMAP is able to have the most impact in its own-managed activities when it devotes a critical mass of resources to a particular area." Interviews also suggested that ESMAP management is attempting to avoid the proliferation of programs and business lines. As a further example, the 2013 Annual Report states that ESMAP "improved its [M&E] systems in response to stakeholder feedback," and indeed, as this section has demonstrated, ESMAP's M&E systems have vastly improved since the last evaluation.

It is difficult to discern, however, whether learning from M&E processes is filtering down to the individual activity level. For instance, the FY2014-16 Business Plan states that "one-off studies and stand-alone activities tend not to have as many outcomes." The evaluation was not able to verify whether that lesson is reflected in fewer approvals of such studies and activities, although interviews suggest some learning. ESMAP program staff indicated that several activities were not anchored in a specific ESMAP global program or WBG country engagement prior to the current business plan, but that almost all ESMAP activities in the current business plan are directly linked to a global or country program. Similarly, the GRM template has a "lessons learned" section, but it was unclear how or whether these lessons

[37] See for example, the ESMAP-ASTAE Portfolio Review FY2014

[38] The World Bank's East Asia and Pacific Financial Management unit executed a review of ASTAE in June 2014.

[39] The FY2014-16 Business Plan indicates a plan to develop anecdotal "impact stories" as communication products. These may provide useful lessons but are not a substitute for objective evaluation.

[40] ESMAP Operational Manual

[41] In 2012, the CG suggested that the portfolio review report be more strategic to include the trends and lessons learned from the ESMAP activities (Annual Report 2012). This recommendation appears to have been implemented; for example, the ESMAP-ASTAE Portfolio Review FY2009-14 includes an analysis of key factors for closed activities with no reported outcomes and lessons learned from this analysis.

were being applied at the activity level. Interviews suggest that activity-level learning is happening through informal channels, rather than connected specifically to the M&E system.

3.7 Communication

ESMAP communication and dissemination support have significantly improved since the previous external evaluation. ESMAP developed a new comprehensive communications strategy (including a dissemination strategy), which has been effectively implemented by an integrated communications team. Communications to donors are generally appropriate and timely, and communications to external stakeholders in client countries were effective in five of the six case study countries.

Starting in FY2015, ASTAE has been benefiting from ESMAP communications support. Previously, ASTAE's lack of communications support had detrimental effects on the quality of some knowledge products. The integration of ASTAE into ESMAP brings significant communications needs, with associated resources.

While effective, the ESMAP communications strategy focuses only on the latter half of the knowledge management lifecycle (e.g., communication channels and dissemination procedures). ESMAP and ASTAE support many projects and initiatives that test new ideas and offer opportunities for generation and sharing of knowledge, but the results and lessons learned from these activities are not systematically provided in a format that can inform broader learning or global knowledge.

ESMAP communication and dissemination support have significantly improved since the previous external evaluation. Beginning in FY2012, ESMAP developed a new comprehensive communications strategy (including a dissemination strategy) and assembled an integrated communications team that included a communications officer, publications associate, website coordinator, and writer. The ESMAP Operational Manual also includes guidelines related to ESMAP-funded publications and peer-reviewed research.

The communications team has made substantial progress. In their first year of operation, the team was able to update and improve ESMAP's website, E-Bulletin, brochures, and other collateral; establish a new series of technical reports; streamline processes for production of reports and other knowledge products; and substantially expand the format of ESMAP's Knowledge Exchange Forum. Examples of recent communications achievements include:

- The Communications package on Myanmar National Electrification Plan (universal electricity coverage – 7.2 million households – by 2030), including film, media release, feature story and social media push, received wide pick-up in Asia and through social media.
- The release of "Progress Toward Sustainable Energy Goals" report in June 2015, which generated 9,000 views in five languages, 50 media mentions, and 7 million Twitter users.
- The release of the communications package for the launch of the Variable Renewable Energy Grid Integration Support Program, which reached more than one million Twitter accounts and almost 4,300 views. The report "Bringing Renewables up- to scale" has generated nearly 3,300 views and been downloaded almost 1,800 times.

A review of ESMAP's recent communications achievements indicates that the team has been effective at disseminating ESMAP-produced knowledge, receiving 267 academic mentions in 2015 (up from 197 in 2014), as shown in Table 3.1. On the other hand, peer-reviewed research published decreased after 2013.

Table 3.1 Total Number of ESMAP Communication Outputs, FY11-FY15

Fiscal Year[1]	2011	2012	2013	2014	2015	Total
Economic and Sector Work (ESW) & Technical Assistance (TA) Outputs	NA	NA	72	72	57	**201**

Fiscal Year[1]	2011	2012	2013	2014	2015	Total
Knowledge Products	NA	NA	89	89	86	**264**
Academic Mentions	NA	NA	161	196	267	**624**
Number of Peer-Reviewed Research Published	NA	NA	6	3	0	**9**
Impact Stories Developed and Disseminated	NA	NA	4	4	0	**8**
Total Number of Outputs	**NA**	**NA**	**332**	**364**	**410**	**1,106**

[1]ESMAP communication outputs are not reported in annual reports that were produced prior to FY13.

ESMAP communications have also successfully evolved alongside programming, supporting not only the communication and dissemination of reports but also providing strategic communication around global and regional initiatives. There is clear evidence that communications has since been integrated into all major ESMAP initiatives, including renewable energy resource mapping, global geothermal development plan, SE4ALL, SIDS-DOCK, and AFREA, among others. These communication efforts are targeted at supporting the achievement of the development objective. For example, for renewable energy mapping, in-country communications can help avoid stakeholder misunderstandings when programs move from measurement to putting equipment on the ground.

Interviews suggested that communications to donors are generally seen as appropriate and timely. Fieldwork also suggested that communications to external stakeholders (such as policy- and technical-level decision-makers in client countries) have been appropriately tailored to the nature and scope of the activity and are reaching the target audiences in five of the six case study countries. For example:

- In **Turkey**, reports and tools generated by three grants related to energy efficiency and energy reform were widely disseminated within government, and some evidence was also found of external dissemination to development partners.
- In **Senegal**, the AFREA I and II Gender and Energy Programs have communicated knowledge on energy access gender-informed programs and projects through knowledge events (e.g. AFREA gender and energy workshop in Dakar, or BBLs), trainings, policy briefs, case studies, news stories, blogs and media (e.g., video).
- In **Indonesia**, the Clean Stove Initiative (CSI) has had a substantial communications campaign, aimed at knowledge exchange and generating awareness among the public, government, and private sector, including two national workshops, the establishment of a bilingual web platform, media activities (such as talk shows, press releases, and press conferences), a competition for awareness raising materials (logos, posters, video clips, calendar); awareness raising workshops with local health departments in seven districts (188 participating health workers); cookstove demonstrations in several villages in the pilot program region; and printed posters, CSI program logos, and program-endorsed clean stove logos that were distributed to the government project management office and private sector.

Continued efforts can strengthen ESMAP and ASTAE communications going forward. The following discussion specifically considers the delivery of ESMAP-produced knowledge, ASTAE coverage in communication activities, and funding for communications and outreach.

ASTAE communication activities. Prior to FY2015. ASTAE did not have a dedicated communications team, with some detrimental effects. IEG (2015) noted, and interviews confirmed, that unlike ESMAP, ASTAE lacked a strong internal control mechanism to ensure the quality of knowledge productions, and resource and time pressures may have contributed to less polished products. ASTAE now benefits from ESMAP's fully integrated

communications team, including the quality control function. Moving forward, there is a clear need to keep covering ASTAE through impact stories, the ASTAE website, social media, and other communication outlets, with associated resource implications.

Funding for communications and outreach. As shown in Table 3.2, ESMAP expenditures for communications and outreach have remained relatively flat despite significant increases in project disbursements over the same period (see Figure 4.10). Some efficiencies have been achieved through cost-sharing (e.g., of the KEFs by operational units, or of publication costs by activity budgets), although interviews suggested a need for additional writing, web updates, and knowledge management support. The World Bank's new cost recovery policy will have implications for ESMAP and ASTAE's ability to access and possibly expand communications support, as discussed in Section 3.3.

Table 3.2 ESMAP Disbursements for Communications and Outreach, FY11-FY15

Fiscal Year	2011	2012	2013	2014	2015
Proposed Budget[1]	NA	NA	NA	$700,000	$900,000
Expenditures (US$)	$425,980	$467,060	$543,360	$479,620	$447,811
Year-Over-Year Growth Rate	-1%	10%	16%	-12%	-7%

[1]*The ESMAP 2008-2013 business plan does not specify a proposed budget for communications and outreach; however, interviews suggest a range between $600,000 and $700,000 annually.*

Management of ESMAP-produced knowledge. As many interviewees noted, knowledge is a key asset of ESMAP and ASTAE, and the intersection of that knowledge with operations is one of the programs' critical comparative advantages. At the program-level, the KEFs promote sharing of lessons learned among stakeholders.

Some ESMAP initiatives also have an explicit focus on generating and sharing global or regional knowledge. For example, part of the results-based funding (RBF) initiative has involved a cross-sectoral learning conference, inputs into Energy+ development, and two RBF reports published. These products contribute to advancing global knowledge around RBF. Other ESMAP initiatives produce guidance notes, training modules, or other products with broad appeal. For instance, the Energy Efficient Cities program has produced a series of mayoral guidance notes that can advise city leaders around the world and enhance replicability.

At the activity level, ESMAP and ASTAE support many projects that test new ideas and offer opportunities for generation and sharing of knowledge, but the results and lessons learned from these activities are not systematically provided in a format that can inform broader learning or global knowledge. Interviews suggested that gaps in knowledge capture from project-level interventions are largely due to time demands and resource limitations for World Bank task team leaders, who are best positioned to harvest lessons learned. A similar challenge is the lack of systematic processes and incentives to drive the development and use of knowledge generated.

These challenges point to areas for improvement in terms of knowledge management. While ESMAP has a communication strategy, communication is not equivalent to knowledge management. Knowledge management covers the full lifecycle, from identifying to capturing or creating, from storing to updating, from representing to distributing knowledge. While effective, the ESMAP communications strategy focuses on only the latter half of this lifecycle—communication channels, dissemination procedures for knowledge products, and target audiences—while implicitly assuming that such knowledge has already been strategically identified and generated.

4 Development Effectiveness

This section considers the development effectiveness of ESMAP and ASTAE from the perspective of the results achieved, and their associated impacts and sustainability. Gender, social and environmental inclusion is also discussed, followed by discussion on the influence of the programs on World Bank, private sector and non-World Bank investments.

4.1 Results achievement: outputs and outcomes

ESMAP and ASTAE outputs and outcomes have grown significantly between FY2011 and FY2015, with the majority associated with influencing policy/strategy and client capacity, and renewable energy, respectively. ESMAP and ASTAE programs reflect a broad portfolio of activities, which have been largely effective in achieving development objectives. Where programs have been effective, they have benefited from focused outreach and coordination at the World Bank and country-level, which has helped create demand and ownership; replicable approaches; and the capture and application of lessons learned from prior engagements. However, programs that test new ideas and concepts have suffered from a lack of familiarity and potentially too high expectations. For these programs, greater consideration and resources should be given to creating demand, and the assignment of appropriate targets and timeframes for outcome achievement.

Evidence suggests that 80% of planned outcomes have a good potential to achieve their targets. Also, some "unplanned" outcomes were noted, indicating ESMAP and ASTAEs potential and likelihood for broader impacts. However, there are instances where the inappropriate assignment of an outcome as "planned," sometimes long after the activity has closed, may mask its true effectiveness. Longer term monitoring of activity outcomes should remedy this issue, and could also highlight potential broader outcomes.

This section discusses evidence of the effectiveness of ESMAP and ASTAE outputs in achieving outcomes. Section 4.1.1 and 4.1.3 discusses ESMAP and ASTAE program level achievements and trends, respectively. Section 4.1.2 provides a more detailed assessment of ESMAP and ASTAE activities based on a desk review of 77 activities and country-specific assessments of 39 of these activities.

4.1.1 ESMAP outputs and outcomes

As ESMAP has grown during the evaluation period (see Section 3.3), so has the number of attributable outcomes, which have increased from 35 in FY2012 to 82 in FY2015. In total, 228 outcomes were noted to have been achieved by ESMAP during the evaluation period. Nearly 50% were associated with influencing policy/strategy and client capacity, while development financing and deepening knowledge/ innovative solutions accounted for approximately 30% and 20%, respectively (Figure 4.1). Table 4.1 presents ESMAP performance over the FY2014 and FY2015 period relative to current Business Plan targets. As noted, with two years of the FY2014-2016 BP complete, ESMAP will need to at least double outcome achievements to meet its targets. As noted in Table 4.2, there are a number of "planned" outcomes listed in the M&E portal, with evidence suggesting that the majority will likely meet their targets (Section 4.1.1.2). Nonetheless, considering the type of activities that ESMAP supports, which as discussed in Section 4.1.1.2 tend to require sufficient time to achieve activity ambitions, the BP targets are likely over ambitious for a three year program.

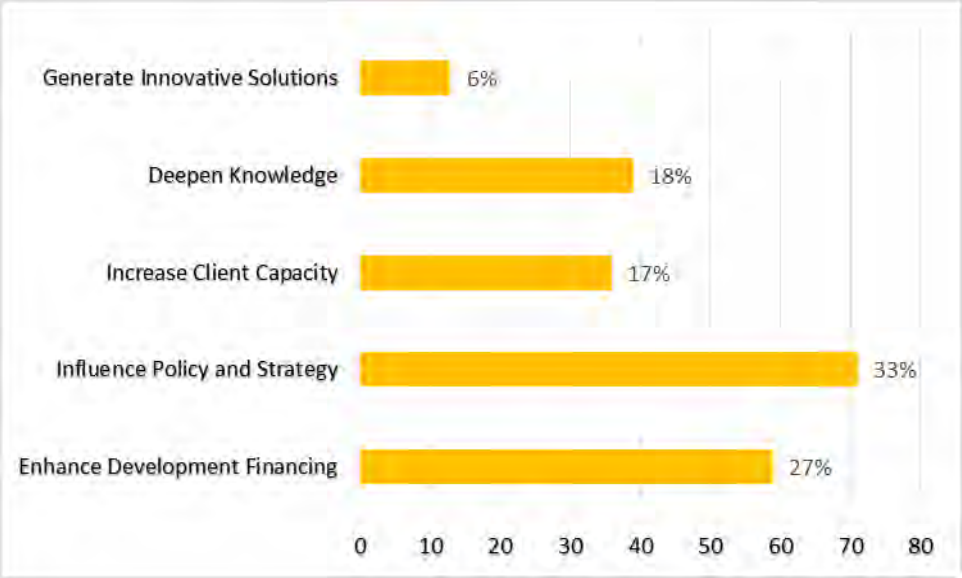
Regionally, in FY2014, the majority of outcomes were focused in AFR (24%) and on global programs (29%). In terms of focus area, Clean Energy and EASP accounted for 27% and 26%, respectively, while Energy Efficiency (EE) was 17% and Energy Access, 9%.

These outcomes have been supported by Analytical Advisory Activities (AAA) (e.g., sector or thematic reports, policy notes), and Knowledge Products (KP) (e.g., internal and external

training, workshops, dissemination events, online platforms, and guidance notes). In the FY2014-2016 BP, the logframe target for research (ESW, TA) and KP outputs was 250. Through FY2015, this target had been achieved, and exceeded, with over 300 outputs published comprising over 130 (42%) research outputs and 180 (58%) KPs.

Regionally, the majority of outputs were for the global programs; 33% and 46% of total outputs in FY2013 and FY2014, respectively.[42] On a focus area basis, the majority of outputs in Clean Energy and EASP were AAA (through ABGs), while for EE it was KP. Considering that the majority of outcomes in Clean Energy and EASP were associated with influencing policy/strategy, there seems an obvious and direct correlation between the development AAA products and this type of outcome. In comparison, EE had more KP, but at the same time, more client capacity related outcomes (45% of total outcomes in FY2014).

Figure 4.1 ESMAP outcomes by type, FY2012-2015



Source: ESMAP-ASTAE Portfolio Review FY2014, April 2015; ESMAP-ASTAE Annual Report 2015

Table 4.1 ESMAP performance against Business Plan (BP) FY2014-2016 logframe targets

Lower Level Outcomes	FY2014-2016 logframe target	FY2014-2015 actual outcomes (% achieved)
Development Financing Informed	90	36 (40%)
Policy and Strategy Informed and Client Capacity Increased	150	68 (45%)
Knowledge Increased/Deepened and Innovative Approaches and Solutions Generated	75	34 (45%)

Source: ESMAP-ASTAE Annual Reports 2014 and 2015

4.1.1.2 Monitoring and reporting of ESMAP outcomes

Table 4.2 presents a summary of ESMAP outcomes and their status (planned or achieved) presented in the M&E portal (as of June 2015).

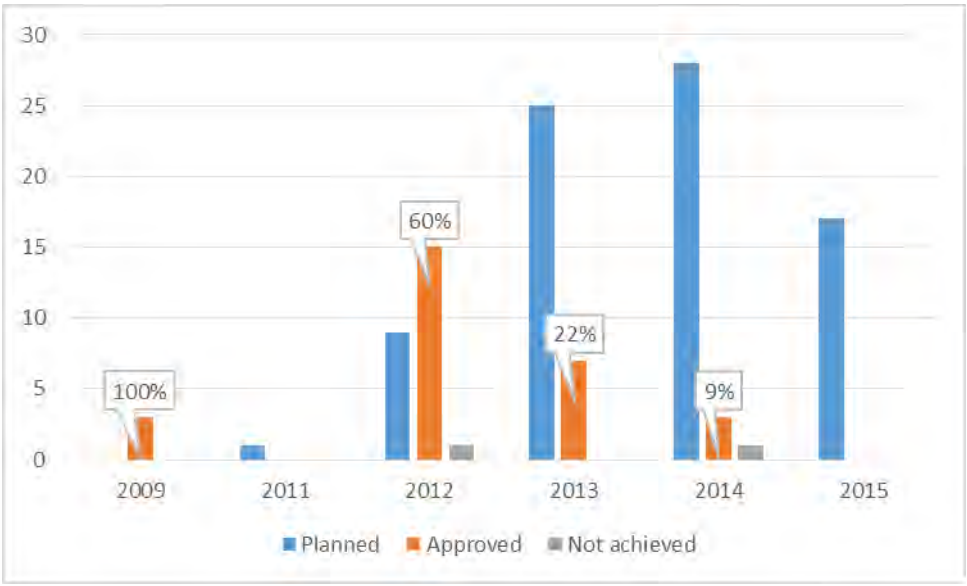
[42] ESMAP-ASTAE Portfolio Review FY2014; April 2015

Table 4.2 Status of ESMAP outcomes

Outcome	Total outcomes	Planned	Achieved	Not achieved	% complete
Enhance development financing	20	13	7		35%
Influence Policy/ Strategy	42	30	10	2	24%
Increase Client Capacity	26	20	6		23%
Deepen Knowledge	15	12	3		20%
Generate Innovative Solutions	7	5	2		29%
Total =	110	80	28	2	26%

Although Table 4.2 indicates that about one quarter of the outcomes have been achieved so far; as noted in Figure 4.2, outcome achievement is directly correlated to the activity approval year. For example, 14 activities were approved in FY2012, with in total 25 outcomes planned. Of these outcomes, 15 (60%) were achieved. Looking at approved activities in later years, the number of achieved outcomes drops from 22% in FY2013 to zero in FY2015. This suggests the importance of time in achieving activity ambitions, which is, in part, linked to managing project risks (Box 4.1), and enabling the activities to gain sufficient traction locally.

Figure 4.2 Status of ESMAP outcomes per activity approval year



In FY2012, 9 outcomes were still in the planning stage; however, 7 of these are attributable to six closed activities. A similar observation is noted in 2013 and 2014, where one and two planned outcomes, respectively, were associated with closed projects. Since activities are not monitored after closure, it is unclear from project documentation if these outcomes have or will later be achieved or not. Consequently, the lack of monitoring, and assignment of appropriate indicators, may mask the effectiveness of the activities.

During the country missions, 45 ESMAP outcomes were assessed (Figure 4.3). Compared to information presented in the M&E portal (June 2015), 30 (67%) of the outcomes were the same, while 15 (33%) were different. Part of this was due to time lag, as country missions were conducted in September-October 2015, so in country observations have recognised some outcomes as being achieved, rather than planned. These occurrences account for 6 (13%) of the outcomes. As such, evidence suggests that 80% of the outcomes show good potential to meet their targets.

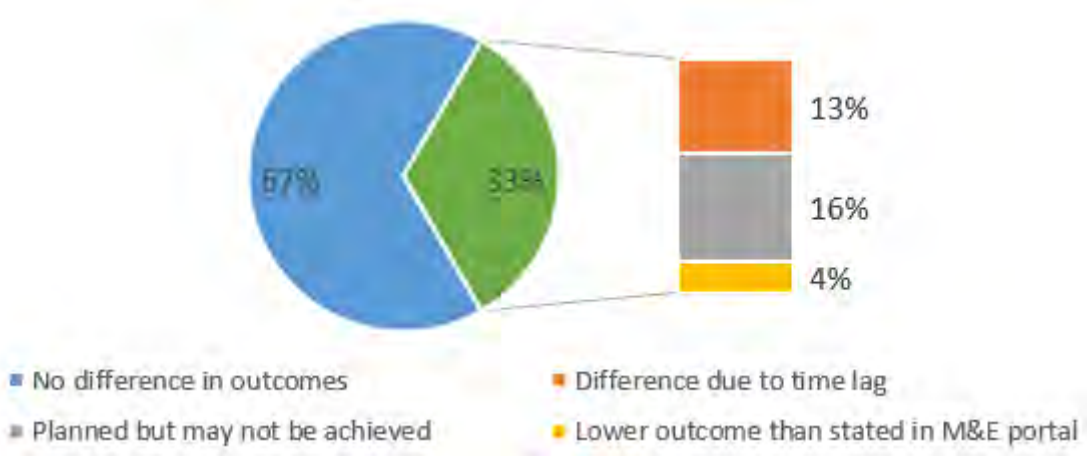
For the remaining 9 (20%) outcomes, 7 (16%) are still considered "planned" in the M&E portal, but field observations indicate that they may not be achieved. One is associated with a closed activity, while 6 of the outcomes are linked to active projects. This reiterates the point made earlier, where activity effectiveness may be hidden under a "planned" designation. Two (4%) of the outcomes were noted to have a lower outcome level than that reported in the M&E portal.

Alternately, evidence also suggests that there were 3 outcomes that were not planned, but have been achieved: 1 related to influencing policy, and 2 associated with deepening knowledge. These additional outcomes highlight the broader potential for outputs to be used and applied, and the prospect and likelihood that they are having impacts beyond those planned.

Box 4.1 Activity level Risk Management

- Seventy-five of the 77 projects in the desk review sample, or 97%, had defined risks in the M&E portal. Of these 77 projects, 47 are considered low risk (61%), with 24 deemed medium risk (31%), and the remaining marked as high risk (8%).
- More detailed review of activities in the six case study countries showed that risks were appropriately identified and managed for 38 out of 41 grants. Of the remaining three grants, one ESMAP grant failed to identify risks, and two ESMAP grants did not recognize risks associated to institutional weaknesses and capacity limitations.
- Given the technical assistance and knowledge-oriented nature of ESMAP and ASTAE activities, commonly identified risks include low government ownership or absorption of the results of studies, low government capacity and commitment, and delays in execution.

Figure 4.3 Comparison of 45 ESMAP outcomes listed on the M&E portal (June 2015) with field based observations



4.1.2 ESMAP effectiveness

ESMAPs programs reflect a broad portfolio of activities, including analytical work, technical assistance, policy dialogue, upstream business development, and the identification of new ideas. In addition to being aligned to ESMAP objectives (Section 2.3), the programs have, for the most part, been effective in achieving these objectives. As discussed below, for most programs, effectiveness has benefited from the ability to create demand locally, which ensures ownership, and is itself linked to strong outreach and coordination efforts at both World Bank and country-level; the replicability of approaches (e.g., TRACE, RE Resource Mapping); and the capture and application of lessons learned from prior engagements. Newer programs, such as RBF and Energy-Water-Food Nexus, have suffered from a lack of familiarity amongst pertinent stakeholders, and potentially too high expectations. As such, for new programs, greater consideration (and resources) should be given to creating demand, and the assignment of more appropriate targets and timeframes for outcome achievement.

- **Clean Energy** has been the most effective in achieving outcomes. The success of this focus area reflects not only the global importance of its programs (e.g., geothermal development, RE resource mapping), but also significant efforts to create demand and

find opportunities by the ESMAP team. This has included raising the visibility of the program and its initiatives within the WBG and in-country through training, conferences, shared materials, and close coordination with the practice managers within country management units who lead the strategic relationships in-country. This has been seen in Indonesia, where work on the Geothermal Development Plan and RE electrification and mapping has been demand-driven. Furthermore, the replicability of approaches, such as the geothermal activity, has benefited from lessons learned from previous ESMAP engagements. For example, the geothermal development process in Saint Lucia benefited from previous work conducted in Dominica.

- **Energy Efficient Cities** addresses a clear need, since EE provides the potential to decouple economic growth from increasing GHG emissions. EE Cities activities align with continuing challenges in the EE arena, such as a lack of awareness, investment and political will. Where results have been positive, they reflect a combination of existing interest from beneficiary governments and IFIs, lessons learned from previous ESMAP/World Bank engagements, and the use of a replicable model/approach (e.g., TRACE). With respect to the former, work on the Facilitating SME Financing for Energy Efficiency in Turkey activity has benefited from prior World Bank experience in sustainable energy financing and relationships in the financial sector,[43] while the effectiveness and associated impact of the EE Institutional Review activity was the result of broad engagement and interest across government ministries. In terms of the latter, the Inclusive Green Growth for EAP Cities activity in Surabaya, Indonesia was the replication of a similar ASTAE-funded effort in Da Nang, Vietnam.

  Evidence from country missions of EE initiatives in the transport and water sectors has highlighted the importance of an effective government counterpart, and a readiness to pilot new concepts. Furthermore, the activities are strongly dependent on effective coordination between World Bank global practices.

- The **Energy Assessment and Strategy Program (EASP)** has three key areas of focus: Energy-Water-Food Nexus; energy subsidy reform and delivery TA facility; and the Model for Electricity Technology Assessments (META). However, the majority of budget and work is focused on subsidy reform. Generally, engagement on nexus-related work is still limited, and has suffered from a lack of familiarity amongst stakeholders (see Section 4.3.2). Although subsidy reform is a topic that also covers several global practices (GP), it has benefited from being a familiar, although politically sensitive, subject. The work has been primarily demand driven, and reflects good coordination and outreach by the EASP team at GP level and in-country. Outreach efforts have included an energy subsidy reform online community; e-discussions between government officials and experts within the Bank and other IFIs; and webinars. The success of these initiatives is illustrated by the Egypt Energy Pricing and Subsidy activity, which influenced reforms that were legislated in July 2014, and the Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity, which was requested by the Bangladesh Energy Regulatory Commission (BERC).

- A substantial amount of the work for **Energy Access** has supported the SE4ALL initiative, whether directly through ground-level activities and results, and global knowledge hub work, such as the Multi-tier Measurement Framework for Access and RISE, which stakeholders note have made significant contributions to the knowledge space, or indirectly (e.g., Urban Poor Energy Access Program) by supporting the SE4ALL narrative. Energy Access work is primarily driven by demand from countries and, as such, has required good communication and coordination with the World Bank and governments to identify needs and ensure ownership. Furthermore, in the energy access space, where investments often require significant upfront work and have high transaction costs, the program has funded analytical pre-investment work that would not typically be financed by the World Bank. For example, evidence from the country

[43] In Turkey, the WB has previously provided a loan of US$500 million to two local financial institutions under the Private Sector Renewable Energy and Energy Efficiency Project.

missions notes that the SE4ALL Technical Assistance for Senegal activity is expected to mobilize non-Bank resources, including from private sector investors and other development partners, through developing an investment prospectus and funding strategy for rural electrification which will include a detailed five-year pipeline of investment and TA projects.

- The **Results Based Framework (RBF)** program represents a good example of ESMAP's ability to test new ideas (Box 4.2.). While it has generated key knowledge products on RB Funding and RB Aid, which, for example, have been extensively used by Energising Development (EnDev)[44], it has suffered from a lack of demand from RBF projects due to a lack of awareness at country-level and within organisations of the opportunities available and lack of confidence in existing monitoring, verification and evaluation (MV&E) systems.

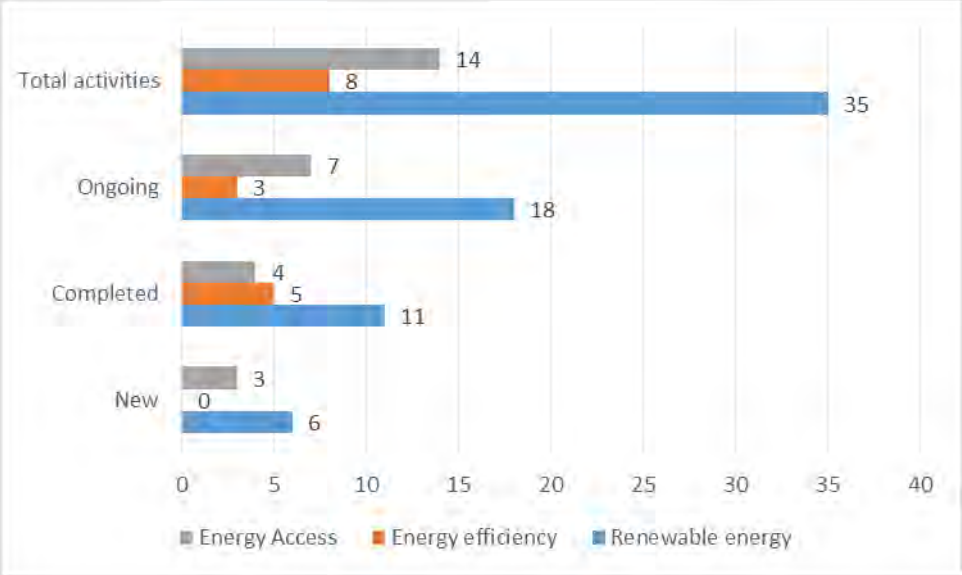
Box 4.2 Lessons learned from the RBF pilot program in Indonesia

The Indonesia Clean Cookstove Initiative (CSI) program focuses on the set-up of an RBF pilot program, followed by the design of an RBF to scale-up at the national program level. Although, evidence from the country mission suggests that it is unlikely to achieve its anticipated outcomes, many important lessons have been learned, which should be considered in the design and expectations of new ESMAP programs and initiatives. For example, significant time and effort should be allocated to program design as the concept is new for governments, and navigating procurement and financing rules is challenging. In Indonesia, setting up the RBF structure took a year. Another key lesson learned is that implementation requires resources. While significant resources had been applied to develop the testing protocols and establish and run the testing centres, insufficient resources were allotted to support the implementation of the program, including demand-stimulation activities.

4.1.3 ASTAE outputs and outcomes

Between FY2012-2015, ASTAE has financed 57 activities, with over 60% addressing RE, and 25% and 15% addressing energy access and EE, respectively (Figure 4.4). Furthermore, regionally, nearly 70% of activities occur in EAP, with the remainder in SAR.

Figure 4.4 Number of New, Completed, & Ongoing Projects, by ASTAE Pillars; FY2012-2015

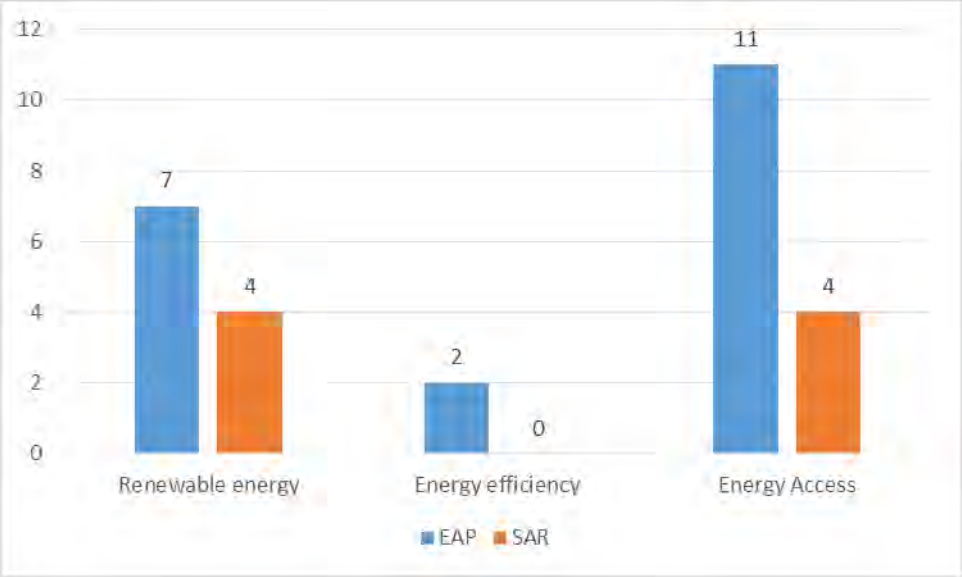


[44] An energy access partnership financed by the Netherlands, Germany, Norway, Australia, United Kingdom and Switzerland, and run by GIZ.

Source: ASTAE, November 11, 2015

In FY2015, ASTAE produced 28 outputs (AAA, and KP), of which over 50% were under the Energy Access pillar (Figure 4.5).

Figure 4.5 Number of ASTAE outputs by type and region; FY2015



Program documentation indicates that ASTAE activities and outputs have been largely successful in meeting its development outcomes.[45] Specifically, in FY2015, ASTAE exceeded its targets for indicators 1 (163% achieved)[46], 5 (190%) and 6 (140%); and is close to achieving its target for indicator 2 (new RE capacity, 91% achieved; increased RE generation, 96% achieved). For indicator 3, it has exceeded its sub target of energy savings, generation (141%), but is below its target for energy savings, capacity (35%). For indicator 4, it is significantly below its planned targets (approximately 30%), although interviews suggest that the original target for this indicator was set too high.

4.1.4 ASTAE effectiveness

Of the 16 ASTAE activities assessed in the desk review, only 8 (50%) had outcomes defined. Of these 8 activities, 6 were monitoring outcomes, while 2 had not reported any data in their GRMs. The reason for the patchy outcome reporting is discussed in Section 3.6. Due to these issues, activity effectiveness observations are based on evidence collected during the country missions. Generally, for the 11 ASTAE activities assessed in Indonesia (9) and Bangladesh (2), the majority have been successful at providing technical assistance to support the development or implementation of World Bank operations.

In Indonesia, ASTAE grants have been used concurrently or successively with ESMAP grants on the same thematic initiatives. For example, integrated work under the Indonesia CSI program has been funded by a series of ASTAE and ESMAP grants. ASTAE funded the innovative social research that helped inform the design of the results-based pilot program, the implementation of which is funded by complementary grants from ESMAP (Bank-executed) and ASTAE (recipient-executed). On renewable energy electrification, ASTAE grant funds were used to develop least cost electrification planning and investment prospectuses for three eastern Indonesia provinces, while complementary ESMAP funds were used to train PLN staff in system planning an optimization. The approach of augmenting funds for the preparation and supervision of challenging projects is observed to be contributing to the overall project meeting its development objective.

[45] See Section 1 for a list of indicators

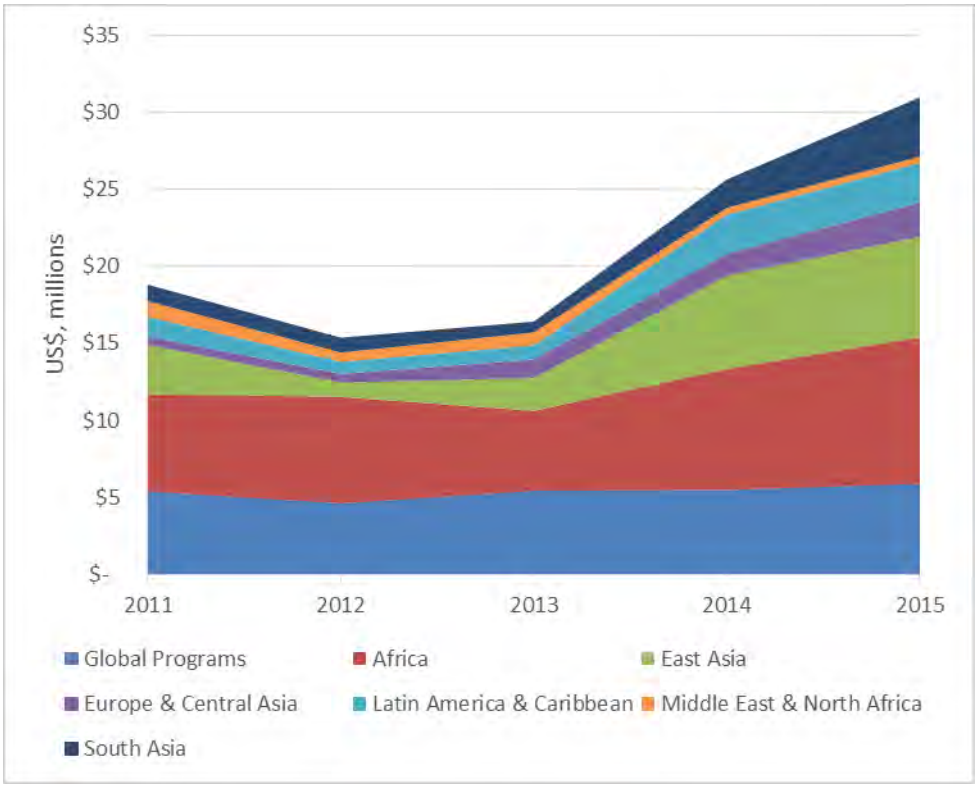
[46] See Section 4.4 for additional discussion on indicator 1

4.2 Program impacts and benefits

ESMAP and ASTAE disbursement has increased to all regions; however, program impacts may not always be immediately visible. Evidence suggests that sufficient time is required for activity outputs and outcomes to develop and gain traction within their country environments. Overall, ESMAP and ASTAE activities play an important role in incrementally improving the existing country situation, whether directly through tangible outcomes, or indirectly by opening the door for other interventions to support longer term impacts.

As noted by Figure 4.6, ESMAP and ASTAE disbursement to all regions has increased over the 2011-2015 timeframe, reflecting more ambitious targets/needs, and increasing demand. Generally, funding to global programs has remained relatively consistent; while there have been increases to all regions, except MENA, which has seen a gradual decline from US$1 million in 2011 to US$0.4 million in 2015. Disbursement to Africa has increased by 50%, and represents over 30% of disbursed funds during this period. East Asia and Latin America account for 18% and 8% of total disbursed funds, while also growing by 100% between 2011 and 2015. Contributions to South Asia and Europe and Central Asia have grown by 260% and 310%, respectively, and account for 8% and 6% of total program disbursement, respectively.

Figure 4.6 ESMAP, SIDS-DOCK and ASTAE disbursements by region, FY2011-2015



Source: ESMAP Annual Reports 2011-2015

Many, if not all, the countries supported by ESMAP and ASTAE are subject to one or more factors that are slowing down, limiting or preventing the achievement of environmentally sustainable energy solutions for poverty reduction and economic growth. These factors include policy, regulatory, institutional, and/or macroeconomic issues. In attempting to address country-specific issues, activities supported by ESMAP and ASTAE may not always lead to obvious impacts, but, as illustrated by the following examples, across ESMAP's three lower level outcome objectives, are producing incremental improvements to the existing country situation.

1. Influence development financing

- **Indonesia**: The ESMAP activity Indonesia Capacity Strengthening and Risk Mitigation for Geothermal Development provided expert advice on financial models for mitigating risk from exploratory drilling, which informed the development of a new facility with the Ministry of Energy and Mineral Resources (MEMR) and the Ministry of Finance. This facility will focus on convertible grants for government-sponsored exploratory drilling in areas of Indonesia where it is less attractive for the private sector and more challenging to do licensing arrangements. The Indonesia: Geothermal Energy Upstream Development Project is under preparation, and will be supported by a multi-donor financial package, including Clean Technology Fund (US$50 million), GEF (US$6 million), Government of New Zealand (US$3.75 million), Agence Française de Développement (US$0.5 million), and World Bank (US$300 million).
- **Saint Lucia**: The World Bank has played a key role in coordinating the efforts of the Clinton Climate Initiative and the Government of New Zealand to better advance the geothermal agenda. Under the ESMAP activity, Geothermal Resource Development in Saint Lucia, transaction support has been provided for negotiations with a qualified developer, two donor conferences have been held to begin exploring financing options for exploratory drilling, and initial stakeholder consultations have been held on environmental and social impacts. In interviews, stakeholders expressed confidence that an agreement would be reached with a well-known developer and that financing for exploratory drilling (US$20-30 million) would be secured.
- **Senegal**: The AFREA I Gender and Energy Program has focused on developing and mainstreaming best practices in gender-focused energy projects. Among the activities implemented, the program conducted a gender impact assessment on the WB's Sustainable and Participatory Energy Management Project (PROGEDE I), which helped consolidate lesson learning on the strengths and weaknesses of the project in terms of gender integration, and in doing so directly contributed to the Project Development Objective (PDO) and design of its second phase, PROGEDE II (US$19.37 million).

2. **Influence policy and strategy and increase client capacity**
   - **Egypt:** Expenditure on fuel subsidies in Egypt has increased dramatically between 2002 and 2013 with the share of fuel subsidies in the Egyptian government's budget increasing from 9% to over 30% during this period.[47] Within this context. ESMAP's Egypt Energy Pricing and Subsidy activity has provided technical support and capacity building activities to the Ministry of Petroleum that have directly informed policy and decision making in relation to energy pricing and fuel subsidy reforms. Interviews with Government stakeholders confirmed that technical analysis provided by this activity on the direct and indirect impacts of fuel subsidy reforms informed the comprehensive subsidy reforms which were announced by the Government of Egypt in July 2014. These reforms have cut fuel subsidies by 30%.[48]
   - **Indonesia:** Under the Geothermal Clean Energy Investment Project, a Geothermal Tariff Methodology Report was prepared with recommendations on pricing reform, which were adopted in the Regulation No. 17 on Geothermal Tariffs was issued by the MEMR on June 3, 2014. The regulation applies a geographically based tariff regime with the added dimension of the timing of achieving Commercial Operation Date; i.e., the tariff ceiling will increase for projects having a more distant planned Commercial Operation Date (to cater for the effects of inflation). ESMAP recommendations on tendering were also incorporated into Law No. 21 of 2014 ("Geothermal Law"). Interviews with stakeholders have also noted the influence of ESMAP's geothermal activities on the World Bank's strategy for geothermal

[47] Assessing Egypt's Energy Subsidy Reforms; International Institute for Sustainable Development, August 2014

[48] Egypt's Five Year Macroeconomic Framework and Strategy; FY14/15 – FY18/19; Egypt Economic Development Conference, March 2015

development in Indonesia, as well as the World Bank's recently approved First Indonesia Sustainable and Inclusive Energy Development Policy Loan (DPL) (US$500 million).[49]

- **Turkey**: Due to the proliferation of hydropower projects on rivers, significant negative publicity and legal challenges led to the cancelation of some impact assessments (IA), and projects. In response to this, and the high proportion of hydropower projects in the World Bank's Clean Technology Fund (CTF) renewable energy portfolio, the World Bank took up this issue with the Ministry of Environment and Urbanization. The subsequent National Watershed Management activity developed Cumulative IA Guidelines for Hydropower Projects in Turkey, which was launched officially at the International Environmental Impact Assessment (EIA) Congress in November 2013, Ankara. Interviews with Government of Turkey officials indicate that this work has led to the introduction of the "cumulative" impact assessment concept in the Turkish EIA Regulation – Annex 3 (EIA General Format); Resmi Gazete Sayı: 291186 (25.11.2014).
- **Turkey**: Within the Turkish Government there are several Ministries focused on energy, with many of them establishing their own EE mandates: the General Directorate of Renewable Energy (Ministry of Energy and Natural Resources) is responsible for EE policy; the Directorate General for Industry (Ministry of Science, Industry and Technology) is responsible for EE equipment; the Administration for Supporting and Developing SMEs (Department of Energy and Natural Resources) focuses on SMEs, and provides subsidies for EE training, study and consulting services procured by SMEs; and the Department of Climate Change (Ministry of Environment and Urbanization) has developed a climate change action plan, which includes RE and EE targets. Given the lack of coordination and visibility of EE policy within the Turkish Government, officials indicated that the Energy Efficiency Institutional Review was a useful strategic engagement as it provided an independent, critical review of the institutional setup. Government officials have since requested that recommendations from the study be considered in the upcoming National EE Action Plan[50].
- **Indonesia:** For the Renewable Energy for Electrification activity, the capacity of PT Perusahanan Listrik Negara (PLN), the state-owned electric utility, staff was increased through ESMAP-funded training events. Specifically, 120 PLN staff in three eastern Indonesian provinces were trained on system planning and optimization, and in preparing a least cost electrification plan using Network Planner software. Representatives of all 47 of the PLN branch offices and headquarters (60 PLN staff in total) were also trained in the Hybrid Optimisation Model for Electric Renewables (HOMER), which models the operation of power systems and least-cost system designs. Interviews suggest that this knowledge was used to prepare financial and operational viability assessments for 250 renewable energy hybrid systems. According to PLN staff, PLN has since extended the license for HOMER, suggesting that the capacity built will be sustained.
- **Senegal**: Interviews with World Bank and Government stakeholders suggested that the gender assessment conducted under the AFREA I Gender and Energy Program and the gender action plan developed under the AFREA II Gender and Energy Program improved gender awareness and helped mainstream gender issues into the Senegalese Agency for Rural Electrification (ASER) and the Senegal Second Sustainable and Participatory Energy Management Project (PROGEDE II), and in so doing has resulted in better development outcomes. Integration of gender

[49] World Bank. 2015. *Indonesia - Energy Sector Development Policy Loan (DPL) Project*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/2015/07/24756305/indonesia-energy-sector-development-policy-loan-dpl-project

[50] Development of the National Energy Efficiency Action Plan is being funded by the European Bank for Reconstruction and Development (EBRD)

considerations in PROGEDE II has led to an increase of women's income and status in the community. Now with training for the entire charcoal value chain supported by the project, some 1,018 women have emerged as charcoal producers, while the share of total community income going to women has risen from 3% in 2009 to 12% in 2013.[51]

3. **Deepen knowledge and generate innovative solutions**
   - **Turkey**: For the Cumulative Impact Assessment (IA) Guidelines that were developed under the National Watershed Management activity in 2012, government officials noted that the number of hydropower-related law suits has declined since its publication, which they attribute, in part, to broader stakeholder acceptance and understanding of cumulative IA concepts. This was an "unplanned" outcome.
   - **Turkey**: Stakeholder interviews indicated that the Social Compact in Electricity Privatization in Southeastern Turkey was an innovative approach to address longstanding political, economic, behavioral and technical issues surrounding high rates of electricity non-payment. These problems were reinforced by the electricity company having no strategy to engage with urban and rural communities in the region. The social compact setup stakeholder committees to initiate and maintain dialogue between the consumers and the electricity company on increased electricity payment and improved service quality. Stakeholders noted that the approach, including using the World Bank as the intermediary party, and moving discussions to an independent location (Ankara) led to positive interactions, and the development of a joint Stakeholder Committee Strategic Plan to address payment, service quality and communication issues. Lessons learned from this work have been disseminated to a broader audience through its integration in reports: *Energy Reform Milestones and Challenges* (2015), *Adapting to Higher Energy Costs: Findings from Qualitative Studies in Europe and Central Asia* (2015), and *Toward Gender-Informed Energy Subsidy Reforms: Findings from Qualitative Studies in Europe and Central Asia* (2015); and new TA activities: 1) the *Jamaica Energy Security and Efficiency Enhancement*; and 2) *Operational and Financial Sustainability of Electricity Distribution Companies in Turkey*.

Furthermore, although an ASTAE project, stakeholders have indicated that the Household Energy in South Asia Region activity in Bangladesh has been successful in deepening knowledge through various activities, including developing eligibility criteria for Partner Organizations (POs) selection for cook stove dissemination; supporting the development of a technical standards committee for ensuring the quality of cook stoves to be disseminated under the RERED II project, assessing the existing testing capacities in the country and identifying a potential candidate for hosting testing lab, and identifying cook stove design improvements that increased the efficiency of specific stoves to 40%. The effectiveness of this support has been reflected in the increasing uptake of cook stoves in RERED-II from 800 per month in September 2014 to 33,000 per month in September 2015. The objective of the program is 1 million cook stoves disseminated by 2018.

The six country missions assessed 39 ESMAP and ASTAE activities. In general, interviews suggest that results from a majority of the activities show good potential for sustainability. However, evidence suggests that the definition of sustainability within the ESMAP and ASTAE context has broad scope. For example, several ESMAP and ASTAE activities have led to tangible outcomes that suggest sustainability, such as the Cumulative Impact Assessment Guidelines[52], which is informing the development of the governments Strategic Environmental Assessment (SEA). This provides a systematic decision support process to ensure that environmental and other sustainability aspects are considered effectively in policy, plan and programme making. The success of the ASTAE activity, Household Energy in South Asia Region, has increased the interest and appetite of the implementing agency,

[51] World Bank Feature Story. June 2014. Community-Led Sustainable Forest Management Program Creates Wealth for Rural Families and New Energy Sources in Senegal.

[52] Developed under the National Watershed Management activity in Turkey

Infrastructure Development Company Limited (IDCOL), to go beyond existing cook stove targets (1 million). IDCOL is currently discussing a cook stove master plan which has a target of 5 million cook stoves.

Alternately, there are instances where planned outcomes may not been achievable, but have helped lay the groundwork or opened the door for potential long term impacts. For example, in Indonesia, support from ESMAP has contributed to a new ceiling tariff methodology that was codified in the Regulation No. 17 on Geothermal Tariffs, issued by Government of Indonesia on June 3, 2014. While interviews suggested that the government is already considering revisions to the tariff regime, returning to a feed-in tariff system, ESMAP's support laid the groundwork for broader policy engagement on geothermal.

4.3 Gender, social and environmental inclusion

ESMAP has responded to recommendations from the previous external evaluation, and there has been a visible increase in gender and social inclusion in ESMAP and ASTAE activities. There is evidence of increasing collaboration and demand for gender experts, as the understanding and value of gender and social inclusion has increased amongst TTLs. Administratively, revision of the operational manual and PSF updates have ensured better consideration of these topics during the project planning stage. However, the process would benefit further from the incorporation of gender and social components in the GFR and GRM to ensure consistency with PSF and enhance visibility during activity implementation.

There is limited visibility of Energy-Water-Food nexus projects. Although the program is still at an early stage of engagement with demand still limited, additional efforts will be required to increase awareness and coordination amongst the World Bank Water and Energy and Extractives global practices. ESMAP should ensure a model where the project team of the activity includes staff from both Global Practices. Environmental aspects are being incorporated into activities, whether directly or indirectly.

4.3.1 Gender and social issues

During the evaluation period, the incorporation of gender and social issues within ESMAP activities has increased significantly. Leading from the 2007-2011 ESMAP evaluation,[53] which recommended the systematic incorporation of gender aspects, as well as the World Development Report 2012: Gender Equality and Development, which presented the World Bank's strategy and corporate requirements for gender, ESMAP has implemented a number of improvements to ensure appropriate consideration of gender and social issues. This has included the monitoring of gender integration within ESMAP activities and the outcomes of those gender informed activities, which have been reflected in both the 2013 and 2014 Portfolio Reviews. Furthermore, the ESMAP Operational Manual was revised in 2014, and new ABG proposal summary forms (PSF) and evaluation forms issued, which introduced specific questions on gender and social issues.[54] This process ensures better consideration of these topics during the project planning stage, and aligning ESMAP's screening process with the World Bank's gender monitoring for all lending and knowledge work. Furthermore, ESMAP's 2014-2016 Business Plan incorporated a new US$1.5 million business line, which aimed to provide analytical and operational support and knowledge exchange in gender and social inclusion. Subsequently, the Gender and Social Inclusion program has undertaken several initiatives to build and disseminate evidence around this area. This has included the development and delivery of a gender and energy e-learning course in June and December

[53] Baastel, 2012; Independent Evaluation of ESMAP 2007-2011

[54] The WB considers a project to be gender informed if, at least, one of the following three areas are addressed: [1] analysis and/or consultation on gender related issues during the activity; [2] specific actions to address the distinct needs of women and girls, or men and boys, or positive impacts on gender gaps or by [3] mechanisms to facilitate monitoring and/or evaluation of gender impacts.

2015, which has had over 150 participants for each offering; an evidence building study on gender and social impacts of electricity infrastructure (due in 2016); and technical assistance (TA) support to other activities.

In 2014, the TAG noted "that the efforts to mainstream gender in the energy sector within ESMAP are systematic and efficiently coordinated resulting in good knowledge products, outputs and outcomes." Evidence from interviews and the desk review confirms that there has been a significant increase in consideration and integration of gender in ESMAP and ASTAE activities, and broader collaboration across ESMAP programs, Country Management Units (CMUs), Global Practices (GPs) and external organisations (e.g., the Climate Investment Fund's (CIF) Scaling Up Renewable Energy in Low Income Countries Program (SREP)).

Interviews indicate that ESMAP programs and TTLs have been consulting with ESMAP gender experts to understand and develop approaches to account for gender during the development of their activities. Although, part of this interaction comes from the World Bank's corporate commitment to gender and social inclusion, interviews also indicate increasing TTL demand and understanding of the value of incorporating gender. Interviews also note that part of this demand comes from the fact that the gender TA support facility is an extra funding source, and thus has been a good entry point for gender experts to work with TTLs. For example, in the EAP region, an ASTAE funded Gender and Energy TA Facility was launched in July 2014 to target the integration of gender and social inclusion into regional energy operations. The work includes a gender coordination team to provide gender screening to all projects across all GPs. Of the activities reviewed during the country missions, although not all considered gender and social inclusion relevant, there were, nonetheless, several positive examples (Box 4.3).

Box 4.3 Country missions observations on gender and social inclusion in ESMAP and ASTAE activities

The ASTAE funded Household Energy in South Asia Region activity in **Bangladesh** included a Gender Responsive Social Assessment that utilized gender-based field surveys and focus groups to provide inputs into the design of the household energy component of the second Rural Electrification and Renewable Energy Development project (RERED-II) in mid-2012. Based on the findings and recommendations from this assessment, the Infrastructure Development Company Limited (IDCOL) introduced several measures that addressed issues experienced by women, including introducing cook stove models that were suitable for women (e.g., correct height, operability during the rainy season), and developing guidelines for gender-based awareness campaigns.

To complement and inform the **Indonesian** Clean Stove Initiative (CSI), ESMAP funded research on the social and cultural context, gender issues, and user needs for the design and promotion of clean stoves in Indonesia (Sumba Island and Yogyakarta City). The team comprised a sociologist and gender specialist, an anthropologist, a statistician, and a stove engineer, and research included a survey of more than 1,400 respondents and focus group discussions (with separate groups of men and women), interviews and ethnographic research. The results of this research informed a social protocol for clean stove testing that is hoped to improve the adoption and sustained use of clean stoves in the selected CSI pilot areas.

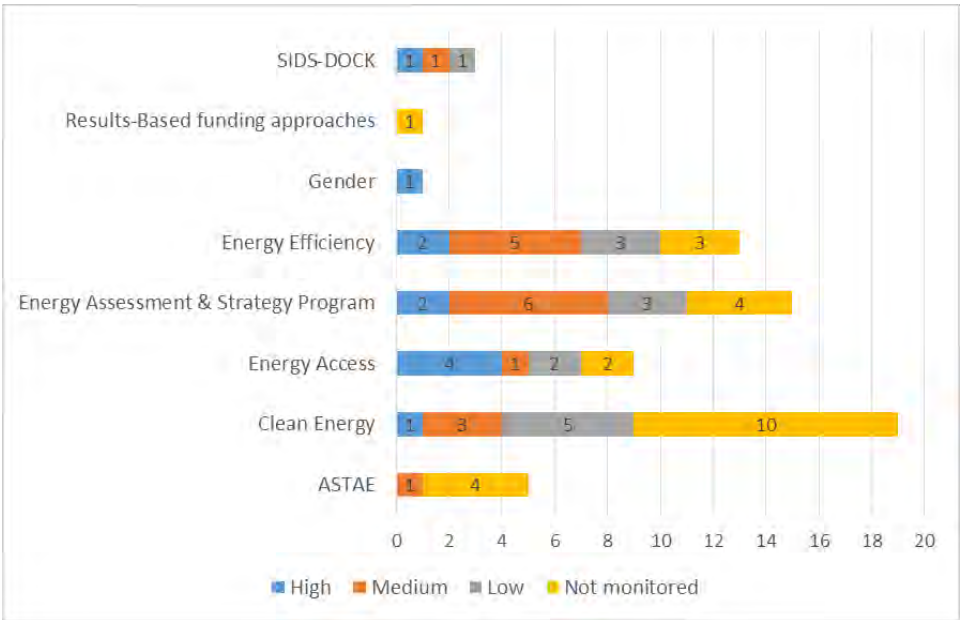
In **Senegal**, the AFREA I Gender and Energy Program, which ended in 2014, conducted a gender impact assessment of the World Bank's Sustainable and Participatory Energy Management Project (PROGEDE I), which helped consolidate lesson learning on the strengths and weaknesses of the project in terms of gender integration, and in doing so directly contributed to the Project Development Objective (PDO) and design of its second phase, PROGEDE II.

In terms of the relevance of gender and social inclusion across ESMAP programs, regions and product lines; Figure 4.7, Figure 4.8, and Figure 4.9 present a summary of desk review data. Figure 4.7 follows a similar trend to results presented in the ESMAP-ASTAE Portfolio

Review 2009-2014. That is, there is a higher proportion of medium relevant activities within the Energy Efficiency and EASP[55], but a larger number of highly relevant gender and social activities in Energy Access, which appropriately reflects the importance in how gaining access to energy meets significant practical and strategic needs for women. Figure 4.8 indicates a relatively even spread of high and medium gender and socially relevant activities across the regions. Figure 4.9 confirms comments made during interviews, which noted that demand is being driven by TA support.

A review of activity documentation indicates that the revision of the ESMAP Operational Manual in 2014, as well as updates to PSF and evaluation forms are having a positive impact on gender and social inclusion in activity design. In total, 62% of the 66 activities assessed in the desk review informed that social and/or gender matters would have a low (23%), medium (24%) or high (15%) relevance, with the remainder (38%) indicating that these issues would not be monitored. For those activities that do not monitor gender, 84% were approved before the revision of the ESMAP Operational Manual. For the remaining 16%, a review of project documentation confirms that there is no potential linkage to gender and social issues.

Figure 4.7 Gender and social relevance across programs (desk review)



[55] In subsidy reform activities, the use of energy and changes in pricing can have gender impacts. As such, there is a recognition that surveys or focus groups need to be gender informed, so the activity has more information to make relevant decisions and recommendations.

Figure 4.8 Gender and social relevance across regions (desk review)

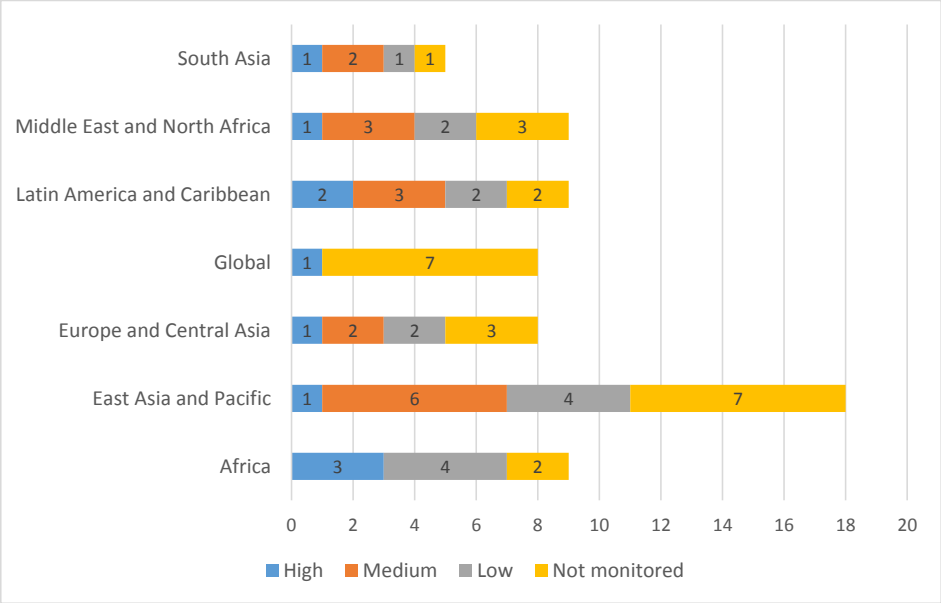
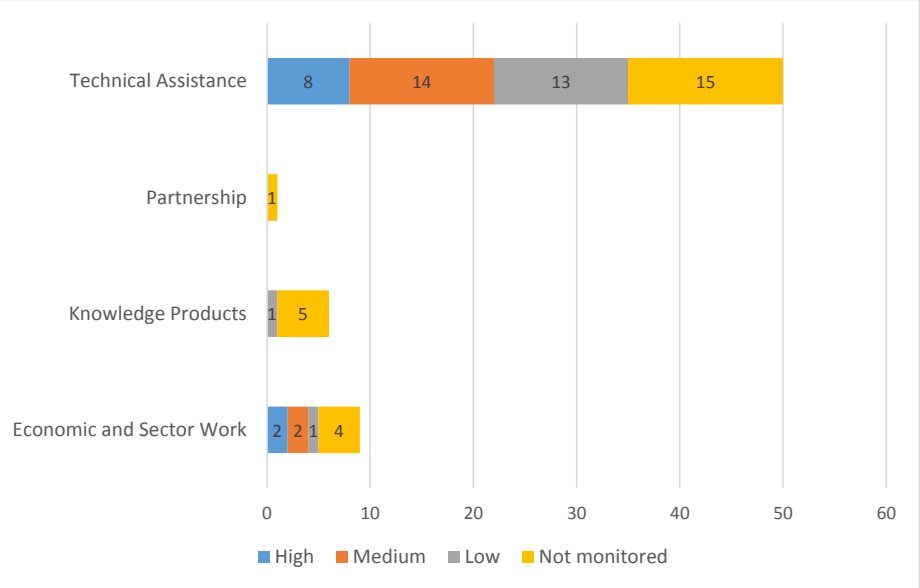


Figure 4.9 Gender and social relevance by product line (desk review)



These results represent a significant improvement from the 2007-2011 ESMAP evaluation,[56] where approximately 30% of the 50 activities in the desk review included a few sentences discussing positive social impacts, poverty reduction, or improved social and environmental safeguards, but very little reference to gender.

Nonetheless, GFR and GRM reports still do not specifically detail how gender and social issues will or are being addressed. This is to be expected for the 23% of activities that are considered as having *minimal opportunities to incorporate specific social and gender aspects*. However, for activities that consider themselves to have a medium or high social/gender relevance, accounting for 39% of desk review activities, only 60% provided some indication for how gender or social issues would be incorporated in project design and implementation. Furthermore, this indication is not always obvious, and would need to be inferred by the reviewer; i.e., surveys, workshops, and literature review conducted under the activity would have some gender or social component. For example, the GFR for the ESMAP

[56] Baastel, 2012; Independent Evaluation of ESMAP 2007-2011

funded Local Benefit Sharing for Hydropower Projects in Indonesia does not specifically state how interaction with local communities will occur to develop options for the redistribution of economic benefits from hydropower projects. However, it can be inferred that this will take place through a planned workshop, which the country mission confirmed.

It is worth noting that for medium and high relevancy activities, where gender and social inclusion can be inferred from discussion in the GFR and GRM, the majority (over 80%) are related to activities that have received approval in 2014 and beyond; i.e., after issuance of the revised Operational Manual. Nonetheless, clear indicators or specific questions referencing gender and social elements in the GFR and GRM, especially for medium or high gender relevance, would be useful to ensure consistency with the PSF, and enhance visibility during activity implementation.

4.3.2 Environment

- Interviews indicate little visibility of nexus-related projects amongst stakeholders. The information provided highlights that the program is still at an early stage of engagement, with demand currently limited. The **Energy-Water-Food Nexus program** started in 2013 with an initial budget of US$1 million to support "Thirsty Energy", which focuses on an integrated approach for planning energy and water infrastructure, and Energising Agriculture, which aimed to assess energy-water-agriculture linkages. In 2014, the TAG noted that "ESMAP work on the energy-food nexus is not coming through. Provided the vast knowledge on both sectors within the World Bank, the TAG likes to recommend ESMAP to (further) undertake work on cross-sectoral linkages including energy-adaptation linkages". In response, ESMAP indicated that resources were limiting the funding of nexus work. In 2015, the TAG further noted that there was limited client demand for nexus work, with no new activity initiated during FY14 on cross-sectoral linkages. Evidence suggests that the challenge associated with this work is related to "institutional and behavioural" issues at the country-level, and coordination within the World Bank. For example, limited capacities across government ministries with "limited or no interaction and/or interest in discussing cross sectoral linkages."

  Within the World Bank, nexus-related work has suffered from a lack of familiarity and the need for strong coordination between the Water and Energy and Extractives global practices. Where a nexus-related activity has worked, it has benefited from having two TTLs (one from water, one from energy) working together to ensure effective coordination within the World Bank and in-country. However, this was not easy to achieve. While ESMAP indicated at the 2015 CG meeting that increased allocations were likely for the nexus program, and cited a few examples of potential activities, such as "Thirsty Energy work in Morocco, South Africa, and China; collaboration with the LCR Agriculture unit on energy efficiency in the agriculture value-chain; a potential Science of Delivery Case Study on SEWA in India that looks at energy-water-food-gender nexus; and the SE4ALL Global Tracking Framework chapter on the nexus;" through June 2015, the number of nexus activities were still limited, with only three listed on the ESMAP M&E portal. Even though demand is currently limited, ESMAP believes that nexus-related activities will start to gain traction when anchored to a country engagement. However, this will only be achieved through more outreach efforts to increase familiarity on the opportunities and benefits of the work, as well greater coordination between global practices. Lessons learned also suggest that for best results, ESMAP should consider a model where the project team of the activity includes staff from both global practices.

- **Environment** as a theme is not monitored by ESMAP, but is covered by ASTAE under its CO_2 indicator. Nonetheless, whether it is referenced directly, such as the reduction of negative environmental impacts of hydropower projects through cumulative impact assessments in Vietnam and Turkey, or the reduction of hazardous air pollutants (HAP) emissions through cleaner burning cook stove use; or indirectly, through policy work supporting greater use of RE and EE technologies, it is addressed across most activities. Evidence from the country missions confirm this observation, as 8 activities (20%) included an environmental component, while the remainder (31 activities) were

considered to have an indirect influence. For example, in Indonesia, the Integrated Catchment Program for Upper Cisokan Pumped Storage Project considers the need to implement integrated land use solutions that benefit human users, deliver environmental services, and help maintain viable populations of critically endangered and endangered species. Also, the increasing use of clean cook stoves in Bangladesh reduces HAP emissions. Alternately, the Energy Efficient Cities activity in Egypt is focused on identifying feasible demand side EE measures which could be implemented in the metropolitan areas of Cairo and Alexandria. Although not specifically mentioned in project documentation, this activity could lead to a reduction in fossil fuel energy generation and associated pollutant and CO_2 combustion emissions. Generally, evidence suggests that environmental coverage in ESMAP activities is situational, and based on TTL needs. For example, the Cumulative IA Guidelines for Hydropower Projects in Turkey was the result of the high proportion of hydropower projects in the World Bank's Clean Technology Fund (CTF) renewable energy portfolio. Negative publicity and legal issues led the World Bank to take up this issue with the Ministry of Environment and Urbanization. Furthermore, interviews also indicate that they are likely to be successful only if driven by country demand, which was the case in Bangladesh and Turkey.

4.4 Influence of related investments

ESMAP and ASTAE's operational links to World Bank investment are strong, with both programs influencing several billion dollars of financing. However, ASTAE would be better served with more reasonable and consistent indicators. Evidence suggests that the catalysis relationship between activities and investments is not always strong, and in some cases tenuous. "Influence" is considered a more appropriate indicator of what is being achieved operationally.

ESMAP's influence on private sector and other non-World Bank investment is likely greater than currently reported due to potential under-reporting, and the fact that most of ESMAP's work supports the development of the enabling environment for investment. Considering the importance of private sector and other non-World Bank investment, ESMAP should consider better tracking and reporting, including appropriate indicators; especially, as it will help to highlight the broader influence of ESMAP beyond the World Bank. Furthermore, stronger links and opportunities with the IFC should be identified.

4.4.1 Influence on World Bank lending operations

Informing development financing, and catalysing World Bank lending are key outcomes for ESMAP and ASTAE, respectively. The ESMAP Business Plan (BP) FY2014-2016 logframe aims for its support to inform at least 90 World Bank and non-World Bank investment operations, while the ASTAE (FY2012-2015) Business Plan logframe targets US$3,200 million in catalysed WBG lending.

Program documentation indicates that both programs have a strong operational linkage to World Bank investment. For ESMAP, over US$3.5 billion of investment has been influenced during the current BP, and over US$6.1 billion during FY2012-2015. ASTAE, through 2015, has catalysed US$5.2 billion worth of investment, which is 63% higher than its BP target.

During the evaluation period, ESMAP (including AFREA) informed 49 World Bank investment operations, of which 26 were during the current BP. Table 4.3 presents World Bank investment influenced by ESMAP activities from FY2012 to FY2015. On average, each US$1 of ESMAP funding disbursed has influenced approximately US$75 in World Bank investment.

Table 4.3 World Bank investment influenced by ESMAP (FY2012-2015)

Year (FY)	World Bank development finance outcomes	Total ESMAP disbursement (US$ million)	World Bank lending (US$ million)	Investment influenced per US$ of ESMAP costs
2015	10	25.1	1,590	63
2014	16	20.6	1,865	90
2013	9	16.9	1,156	68
2012	14	17	1,450	85

Source: ESMAP/ASTAE portfolio review, FY2009-14; ESMAP-ASTAE Annual Report 2015

From a regional perspective (Table 4.4), the highest influence is observed in the ECA and MENA regions. In EAP, the majority of lending in 2015 ($640 million) was for the Upper Cisokan Pumped Storage Hydro-Electrical Power (1040 MW) Project in Indonesia. In ECA, 2014 lending was dominated by a District Heating Energy Efficiency Project funded by IBRD (US$332 million) and the CTF (US$50 million), while in 2013, the majority was associated with a US$200 million IBRD project, the Turkey SME Energy Efficiency Project. In MENA, investment is dominated by two projects in Egypt; a US$585 million IBRD operation (Helwan South Power Project) in 2013, and a $500 million Household Natural Gas Connection Project in 2015.

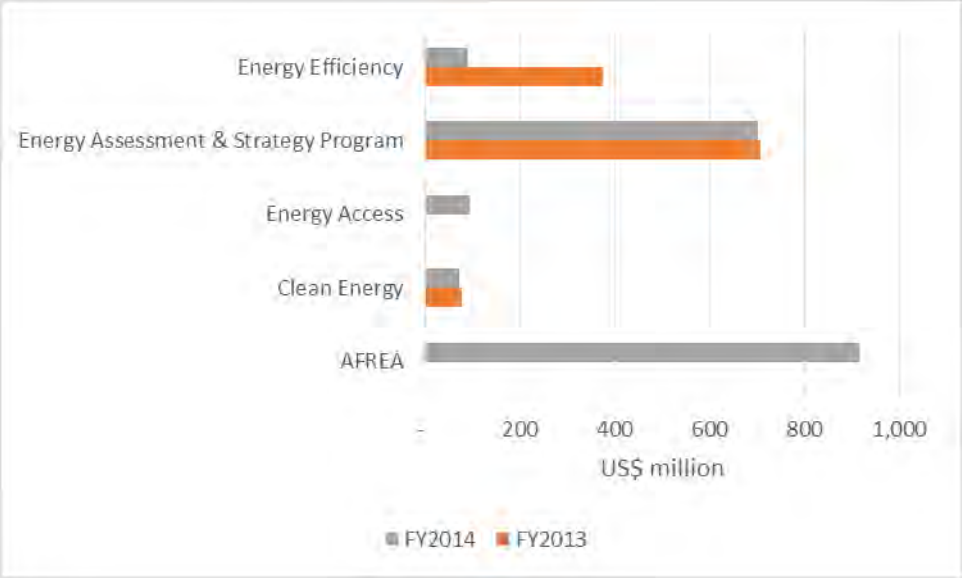
Table 4.4 ESMAP disbursement and World Bank lending by region

Region	Total ESMAP Disbursement (US$ million)			World Bank lending (US$ million)			Investment influenced per US$ of ESMAP costs		
	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015	FY2013	FY2014	FY2015
AFR	5.2	7.9	9.0	-	955	148	-	121	16
EAP	1.0	2.2	2.7	202	70	666	199	32	247
ECA	0.8	1.4	2.2	320	472	32	379	332	15
LAC	1.5	2.5	2.6	42	50	233	7	20	90
MENA	1.2	0.4	0.4	592	191	500	500	425	1,250
SAR	1.0	0.9	2.8	-	128	9.2	-	145	3
Global	6.1	5.3	5.8	-	-	-	-	-	-

Source: ESMAP/ASTAE portfolio review, FY2009-14; ESMAP-ASTAE Annual Report 2015

During the FY2013 and 2014 period, the majority of World Bank investment operations influenced by ESMAP are in the EASP and AFREA focus areas (Figure 4.10). AFREA is dominated by two investments under the Regional and Domestic Power Market Development project (US$580 million), and the Electricity Network Reinforcement and Expansion Project (US$200 million). All three were influenced by the AFREA Lighting Africa activity. For EASP, in FY2014, the previously mentioned, IBRD District Heating Energy Efficiency Project in Ukraine (US382 million) and a US$100 million CTF investment (Development Policy Loan 2 to Promote Inclusive Green Growth and Sustainable Development in Himachal Pradesh) are key contributors.

Figure 4.10 World Bank investment operations by focus area



Source: ESMAP/ASTAE portfolio review, FY2009-14

For ASTAE, during the FY2012-2015 period of the current BP, US$12.8 million of disbursed funds was considered to have catalysed over US$5.2 billion of World Bank investment operations (Table 4.5). Thus, for every US$1 of ASTAE disbursed funds, it is assumed that on average approximately US$400 of World Bank investment has been catalysed.[57] Compared to ESMAP, the high catalysis rate is linked to the downstream nature of the ASTAE activities.

Table 4.5 ASTAE disbursement and catalysed lending in 2012-2015

Year (FY)	Disbursement (US$ million)	World Bank investment (US$ million)	Investment catalysed per US$ of ASTAE disbursement
2015	4.9	1,013	206
2014	5.1	1,544	302
2012-2013	2.8	2,676	941

Source: ESMAP-ASTAE Portfolio Review FY2009-2014 (April 2015); Draft ESMAP-ASTAE Annual Report 2015

Evidence from the country missions highlight both strong and weak relationships between activities and influenced or catalysed investments. As discussed in Section 3.6, some of these issues are linked to the indicator definition. Specifically for ASTAE, and as described below, the use of "catalysis" implies too strong a linkage between the activity and investment operation. Country-level observations indicate that rather than "catalysis", "influence" better describes the linkage between activity and World Bank investment. This aligns with findings from the recent IEG evaluation, which states that "striving to demonstrate high-level impact makes the program to unnecessarily exaggerate its influence".[58]

- In **Indonesia**, it was noted that the Support to Integrated Catchment Program for Upper Cisokan Pumped Storage Project was providing effective technical assistance that

[57] In comparison, US$1 of donor funding allocated (i.e., US$21.4 million from FY2012 to 2015) has catalysed approximately US$247 of WB investment.

[58] IEG (Independent Evaluation Group). 2015. World Bank Group Support to Electricity Access, FY2000-2014: An Independent Evaluation. Volume II: Together for Energy: How Partnership Programs Support Energy Access. Washington, DC: World Bank.

supported the development of the World Bank hydro power investment operations. Limited information was available regarding the ASTAE-funded activity Building Innovation Capacity in Clean Energy in Indonesia. According to one interview, the program improved the quality and credibility of the World Bank's conversations with the Government regarding a new investment operation on Research and Innovation in Science and Technology Project (RISET) ($95 million); however, the investment program has a very different focus than the ASTAE pilot, and it is not clear from Project Appraisal Documentation how ASTAE activities influenced the design of this investment.

- In **Bangladesh**, the Household Energy in South Asia Region activity had a direct influence on RERED-II, as a *Gender Responsive Social Assessment* was used to support to RERED-II appraisal. Interviews suggest that ASTAE funding directly assisted in incorporating the household energy component into RERED-II; however, this component only accounts for US$12 million of the US $206 million investment operation.

4.4.2 Influence on private sector and other non-World Bank lending

Between FY2011 and FY2015, ESMAP has directly influenced seven private sector investments, totalling US$677 million, and ten lending operations from other non-World Bank resources, which total US$1,370 million (Figure 4.11). These investments represent approximately 11% and 22%, respectively, of total World Bank investment operations, and are dominated by clean energy projects, and an energy access project. For example, the Egypt Gas Regulator Capacity Building activity is linked to the implementation of the Household Natural Gas Connection Project (2015), which influenced US$326 million and US$650 million of private sector and other non-World Bank investment (US$78.9 million from EU; US$96 million from AFD; and US$473 million from the Government of Egypt), respectively. In Indonesia, ESMAP and ASTAE activities are supporting the design and implementation of the 1,040 MW Upper Cisokan Pumped Storage Hydro-Electrical Power project, which has sourced US$160 million of investment from the Government of Indonesia.

However, evidence from the country missions implied that the influence on private sector and non-World Bank investment is likely higher than currently reported due to 1) incomplete reporting; and 2) reporting does not take into account the fact that many countries that ESMAP is engaging with have poor regulatory frameworks, and insufficient private sector capacity, which ESMAP activities are designed to improve.

On the former point, several examples were identified during country missions that are not included in ESMAP results. For example, in Indonesia, the ESMAP-funded geospatial mapping and least cost electrification planning activity developed plans and funding prospectuses for three Eastern Indonesian provinces that resulted in an approximate US$100 million loan from KfW to PLN covering about 90 locations for solar-diesel hybrids. Also, ADB, which supported the development of the new geothermal tariff regime in Indonesia jointly with ESMAP, has approved a new Sustainable and Inclusive Energy Program (US$500 million, approved October 2015) with reforms that will continue to support the enactment of the new geothermal law and related implementing regulations.

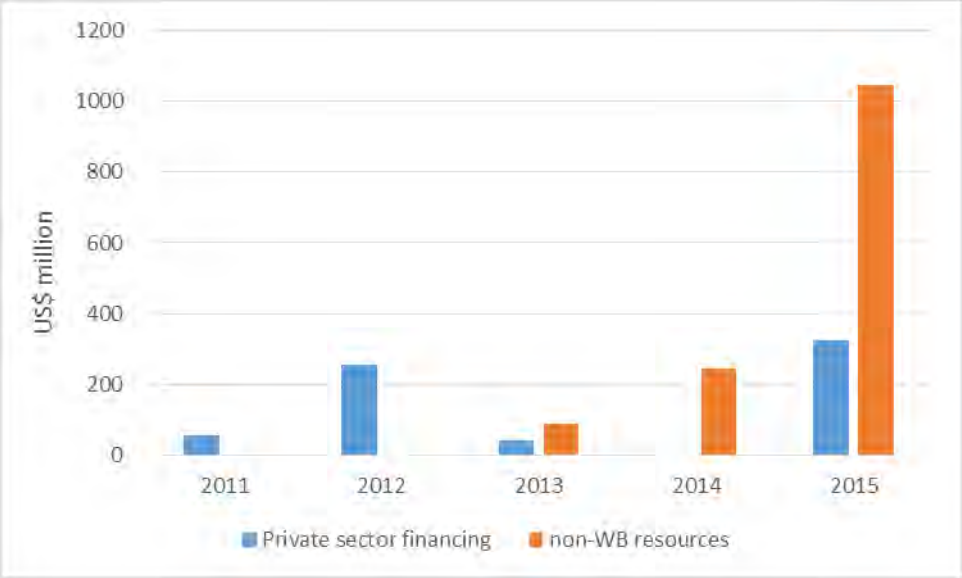
On the latter point, while not directly visible, evidence also suggests that incremental improvements in tariff reforms/subsidies, policy support for RE/EE, etc. are occurring, which should help to improve the enabling framework for private sector investments. For example, technical analysis provided by the Egypt Energy Pricing and Subsidy activity on the direct and indirect impacts of fuel subsidy reforms informed the comprehensive subsidy reforms which were announced by the Government of Egypt in July 2014. Initial observations indicate that the impact of these reforms have been positive, with government energy subsidy spending in July-September 2014 falling by 29%. Also, by September 2014, growth in output was reported, with a corresponding rise in new jobs and new orders.[59] Furthermore,

[59] Recent Developments in Egypt's Fuel Subsidy Reform Process; ; International Institute for Sustainable Development, April 2015

in October 2014, Moody's Ratings Agency changed their outlook for Egypt from negative to stable[60] to reflect the improving fiscal and economic environment.

The ability to influence non-World Bank investment is incorporated within ESMAP development financing targets. However, since there is no delineation between private sector and other non-World Bank investment (i.e., government and other multi/bi-lateral investment), as well as no specific indicator targets, its importance is potentially marginalised, as illustrated by the under reporting of associated investment. Recognising the difficulty in attributing influence, ESMAP should consider better tracking and reporting, including indicators for its influence on private sector and other non-World Bank investment; especially, as it will help to highlight the broader influence of ESMAP beyond the World Bank. Finally, stronger links and opportunities with the IFC should be considered (see Section 5.2 for additional discussion).

Figure 4.11 ESMAP influence on investments from the private sector and non-World Bank resources



Source: ESMAP-ASTAE Portfolio Review FY2009-2014 (April 2015); ESMAP-ASTAE Annual Report 2015

[60] Moody's Investor Service (2014); Moody's changes Egypt's outlook to stable from negative, affirms Caa1 rating. Retrieved from https://www.moodys.com/research/Moodys-changes-Egypts-outlook-to-stable-from-negative-affirms-Caa1--PR_310221

5 Program Sustainability

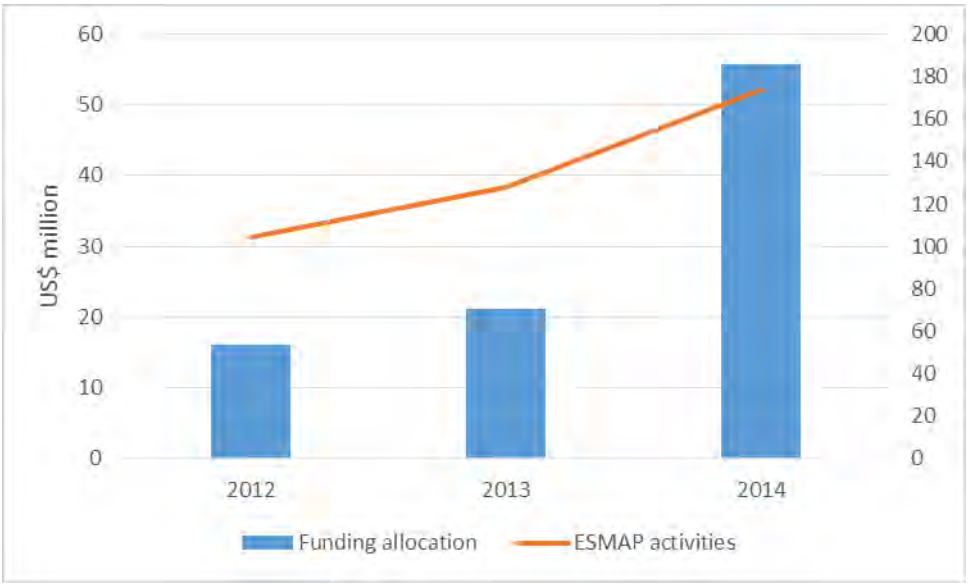
This section considers ESMAP and ASTAEs sustainability in the context of program resource levels and their role in building and developing partnerships.

5.1 Resource levels

To meet current and future demand, evidence suggests that resource levels will need to increase. The historic growth in ESMAP and ASTAE funding allocations and implemented activities mirrors the WBG's increasing energy sector financing to RE, EE and Energy Access, which accounted for 50% of commitments between 2011 and 2015. Significantly more investments in these areas will be required if SDG goals are to be met. Consequently, the role and resource requirements for ESMAP and ASTAE to support these developments will likely increase.

In 2010, the WBG's energy sector lending was US$11.9 billion, of which approximately 26% was for coal- and oil-based energy generation projects. By 2014, this area of lending had dropped to $158 million (or 1.7% of total energy sector lending), with the WBG increasing its focus towards the need for affordable, reliable and sustainable energy. This has been reflected by increased lending to energy access, energy efficiency (EE) and renewable energy (RE) projects. Between 2010 and 2014, the WBG's energy sector financing was over US$43 billion, of which energy access, EE and RE accounted for 44%.[61] During this period, demand for ESMAP-related activities and funding has mirrored the wider WBG lending trends. As illustrated in Figure 5.1, funding allocations have increased by 30% in 2013 and 245% in 2014, compared to 2012 levels. This equates to a compound annual growth rate of 85% between 2012 and 2014. Similarly, from 2012 levels, ESMAP activities have increased by 23% and 67% in 2013 and 2014, respectively.

Figure 5.1 Trend in ESMAP (excl. ASTAE) funding allocation and activities conducted between 2012 and 2014



Source: ESMAP/ASTAE portfolio review, FY2009-14

ESMAP disbursement trends also highlight increasing demand. The annual average disbursement in the FY06-08 business plan period was US$10.5 million; this increased by nearly 60% in the FY2009-2013 BP to US$16.6 million. In FY2014 and FY2015, the level of

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disbursement increased by 30% to over US$21 million, and 20% to US$26 million[62], respectively. Increasing demand for ESMAP services is also reflected in FY2014-16 BP budget revisions between March 2013 and March 2014. The original BP budget was for US$122 million. However, due to donor interest and increasing client demand a further US$33 million (27%) was added to the budget. Even with a larger budget, and the addition of new programs, such as the Green Mini-Grids Facility, significant un-met demand has been noted by ESMAP management[63] and interviews. For example:

- Renewable Energy Resource Mapping: high demand for mapping activities have been noted in a number of countries due to the high cost of carrying out detailed modelling and ground-based measurements.
- Energy Efficient Cities: An increasing number of countries and cities are beginning to seek technical assistance support for urban energy efficiency programs, which integrates renewable energy, and energy and resource efficiency issues.
- Variable Renewable Grid Integration: There is increasing demand from client countries to prepare for managing higher shares of variable renewables, such as wind and solar energy.

In addressing the larger budget, the TAG noted in its report to the Consultative Group in April 2015 that US$137 million had been raised. Although still US$18 million short of the US$155 million revised budget, the TAG recognised ESMAP's successful raising of an additional US$15 million from the original BP budget, and the donors continuing interest and responsibility in resourcing ESMAP.

Currently, ESMAP management noted that demand was typically 1.5 to 2 times the level of available resources. For example, demand for grants allocated through calls for proposal for urban energy efficiency investment programs and projects, under the City Energy Efficiency Transformation Initiative, were on average twice the available funding level (US$4.3 million). Additionally, demand for ABGs was noted to exceed supply, with specific interest noted in the EASP focus area for market structure, planning, and pricing analyses.

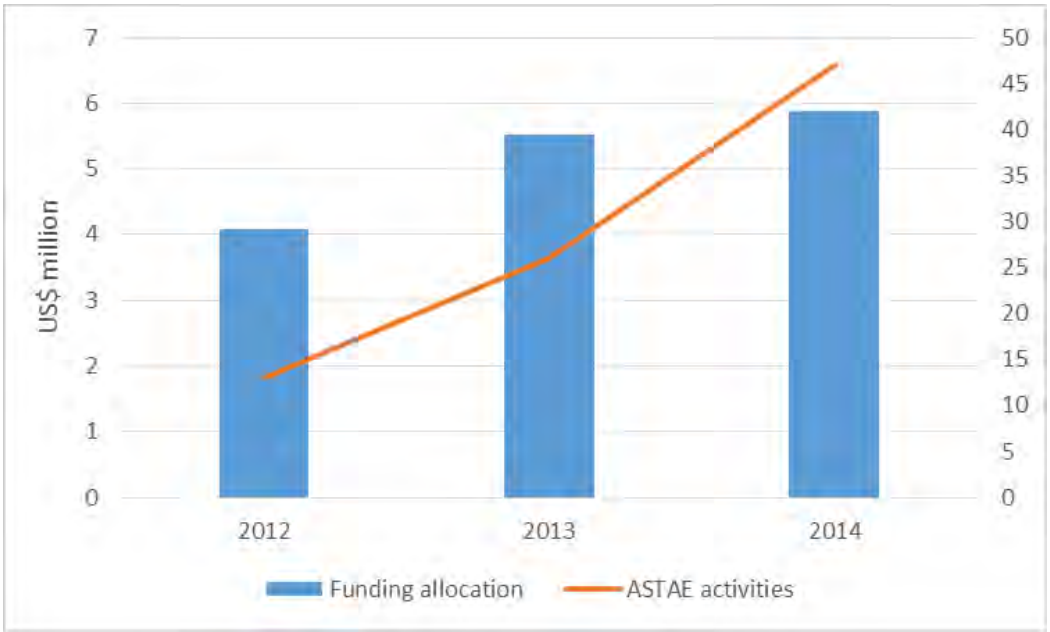
ASTAE, like ESMAP, has also seen increasing demand for services, which is reflected in a growth in funding allocation (although more modest), and number of implemented activities over the 2012 to 2014 timeframe (Figure 5.2). Funding allocations have increased by 35% and 44% above 2012 levels, in 2013 and 2014, respectively, which equates to an annual compound growth rate of 20%. However, the number of activities has increased by 100% in 2013 and 262% in 2014 from 2012 levels. Similarly to ESMAP, the ASTAE BP budget has been revised upwards due to increasing demand. The revised FY2012-2015 BP budget is US$24.2; a 21% increase from the original BP (US$20 million), noting that ASTAE's closing date was extended for two years.[64]

[62] Draft ESMAP-ASTAE Annual Report 2015.

[63] Budget note, FY2014-16 (March 2015).

[64] TAG report to the CG, April 22, 2015.

Figure 5.2 Trend in ASTAE funding allocation and activities conducted between 2012 and 2014



Source: ESMAP/ASTAE portfolio review, FY2009-14

In 2012 and 2013, ASTAE disbursement was approximately US$500,000 and US$1.8 million, respectively. In 2014 and 2015, it has increased to US$5 million per year, indicating that a successful scale up of ASTAE activities has occurred[65,66]. Since its activities are bottom-up and so primarily demand driven, interviews note that current disbursement levels (combined with ESMAP funding for EAP and SAR) reflect a potential optimum resource level.

On a broader perspective, there is still a significant investment financing gap to achieve Sustainable Development Goals (SDG): universal access to electricity and clean cooking fuels; doubling the share of renewable energy in the global energy mix, and doubling the improvement rate of energy efficiency. For example, the IEG report World Bank Group Support to Electricity Access, FY2000-2014 (2015) estimated that annual investments of US$17 billion would be required through 2030 to address energy access in low access countries. By comparison, between 2000 and 2014, the average annual investment financing was about $3.6 billion from multilateral banks, bi-lateral agencies, governments, and the private sector. Furthermore, the recent TAG report to the CG, 2015 notes that “Clean Energy area will grow in importance over the coming years and recommends having some preparedness for such growth”. Consequently, evidence suggests that demand for energy sector financing in energy access, EE and RE is likely to continue increasing over the coming years. As noted by the TAG (2015),[67] “these developments provide both opportunities and challenges and most importantly the importance of ESMAP work increases in this field.” Specifically, as there will be a need for technical and economic analyses, policy support, training and sharing of experiences and lessons learned.

Combining historic increases in disbursement and the associated number of activities being implemented in ESMAP and ASTAE, with existing demand for services, such as ABGs, being nearly twice available resources, and broader energy financing requirements to meet SDG objectives, it is likely that resource levels will need to increase.

[65] Ibid.

[66] Draft ESMAP-ASTAE Annual Report 2015.

[67] Ibid.

5.2 Partnerships

ESMAP and ASTAE are engaging and working with partners at internal and external levels. Generally, responsibility for identifying and maintaining partnerships is with the ESMAP teams and TTLs. As such, partnerships are situational, rather than the result of a formal process. Internally, there are links, but more could be done, specifically with IFC to develop private sector interaction. As such, where opportunities are strategically relevant, ESMAP should consider whether it is useful, on a program by program basis, to open up ESMAP's tender process to include not only World Bank Global Practices, but also the IFC.

Externally, while there are many organisations working in the same areas as ESMAP, evidence suggests that, where required, ESMAP is engaging with multi-/bi-lateral partners and other organisations, and that these partnerships reflect either a coordinated pooling of resources or complementary initiatives, with little noticeable overlap. As such, rather than an institutional issue, concerns about the lack of partnerships and collaboration opportunities are more likely a communication-related problem, which, as discussed in Section 3.7, could be addressed through better knowledge management. Thus, a formal process to manage these relationships would be considered difficult, unwieldy to manage, and not cost effective.

The need for strategic internal and external partnerships is considered a key program principle; a fact recognised in both the FY2008-13 and FY2014-16 ESMAP business plans (BP). In the FY2008-13 BP, ESMAP recognised the need for "*a more systematic and selective framework for building internal and external partnerships*" to strengthen implementation effectiveness. The importance of partnerships was again reiterated in the FY2014-16 BP, which stated that "*ESMAP will enhance its leverage and influence of development programs by seeking opportunities for stronger collaboration with bilateral development agencies and banks, regional development banks, and other international organizations.*"

- **Internal partnerships**

Interviews indicate that perspectives on the success of partnerships vary. For example, at the internal level, some stakeholders believe that there is insufficient collaboration between ESMAP and other World Bank Global Practices and IFC, especially on cross-cutting themes. However, there is evidence of interaction and cooperation; for example, in 2012, the TAG reported on a number of successful internal partnerships, such as Global Partnership on Output-Based Aid (GPOBA), and Public-Private Infrastructure Advisory Facility (PPIAF). Furthermore, interviews noted instances of cross-fertilisation of staff between global practices to support projects, or to provide joint screening of proposals. For example, collaboration is occurring with the Transport & ICT Global Practice on Reforming the Minibuses in Surabaya, Indonesia, and with the Water Global Practice on Thirsty Energy: The Case of China. Also, ESMAP has collaborated with the World Bank Institute (WBI) and the World Bank Social Development department to develop gender and social-related products (i.e., an e-learning module, and a report on social and gender impacts of electricity infrastructure). Interviews suggest that where ESMAP has been successful, it has played a key coordinating role in trying to build ownership across the practices. This coordination role will likely become more prevalent due to the World Banks recent organizational reform into global practices, and ESMAP's alignment with the Energy and Extractives Global Practice. As discussed in Section 3.4, the global practice structure should ensure better information flow across regional teams, and enhance collaboration opportunities with other global practices.

On global initiatives, such as Lighting Africa, RE Resource Mapping, and the IFC's EDGE Green Buildings program, both ESMAP and ASTAE are engaged with the IFC in areas that align with the IFC's strengths, such as renewable energy in developing countries, and energy efficiency solutions. However, recognising that both ESMAP (upstream) and IFC

(downstream) primarily focus on different ends of the operational spectrum, there is, nonetheless, overlap in regional focus areas and strategy[68], which could be utilised to strengthen ESMAP's engagement with the IFC. Interviews have reiterated this point, as the IFC provides a conduit to bring the private sector into relevant programs, such as Energy Access and EASP. The primary barriers to greater ESMAP and IFC engagement have been: 1) IFC's own grant resources through various trust funds managed by its advisory services group have meant limited demand for ESMAP funding; 2) incomplete reporting by IFC on activities where ESMAP funding was previously provided; and 3) different operational models, which has meant that collaboration only occurs when incentives are aligned, and there are workable modalities. For example, previously ESMAP funds could only be used for Bank-executed activities; since IFC funding was considered recipient-executed, it limited opportunities for IFC to be included in ESMAP tenders. This latter constraint has now been lifted with the 2016 WBG administration agreement.

As noted in Section 5.1, there is increasing (and un-met) demand for ESMAP initiatives; consequently, channelling ESMAP resources to IFC initiatives could potentially exacerbate this problem. However, since the IFC provides funding for policy development and project implementation, there could be strategically relevant opportunities, which would benefit from greater ESMAP and IFC coordination. As such, ESMAP should consider whether it is useful, on a program by program basis, to open up the tender process to include the IFC.

- **External partnerships**

At the external level, evidence indicates that "partnerships" within the ESMAP and ASTAE programs take many forms, including instances of co-financing, information-sharing, consultation, and implementation (e.g., policy dialogue) mandates. These different types of partnerships are motivated by diverse factors, have varying governance requirements and face activity-specific operational challenges. Stakeholders note that a key distinction of ESMAP and ASTAE is that it is housed in the World Bank and, therefore, linked to World Bank operations. Consequently, funding, staff time, technical advice and support are connected with the World Bank's country dialogue. So, although it is seen as a benefit in one sense; in another, specifically, when marrying World Bank operations, donor, and external partner priorities, there can be difficulties. For example, interviews note problems experienced with the Cities Alliance (CA), whom ESMAP planned to partner with on the urban poor energy access program. In 2014, the CA adopted a new set of governance and membership reforms, which moved it away from the structure formed by the World Bank and United Nations Centre for Human Settlements (Habitat) in 1999. Based on interviews, this has complicated the relationship with ESMAP.

Nonetheless, the 2014 TAG report notes that "ESMAP through its global programs is well connected with the relevant international actors and is cooperating with them at activity level." Furthermore, while there are many organisations working in the same areas as ESMAP, as illustrated by Box 5.1, the partnerships reflect either a coordinated pooling of resources or complementary initiatives, with little noticeable overlap.

Box 5.1 Examples of recent and ongoing partnerships

Under the Energy Subsidy Reform program, ESMAP is working with various organisations, including the International Institute for Sustainable Development (IISD), and International Energy Agency (IEA).

- Specifically, ESMAP, IEA and IISD have collaborated significantly in undertaking their complementary efforts on subsidy reform. IISD is supporting capacity development and advocacy among NGOs and civil society, and has significant experience in bringing together different stakeholders to discuss key subsidy reform issues. These strengths have been utilised in supporting ESMAP at conferences and workshops, and in citizen engagement and consultations for the successful Egypt Energy Pricing and

[68] IFC's regional strategies vary, but have a common thread which is focused on tackling climate change through catalysing private-sector involvement in addressing mitigation and adaptation issues. IFC has an institutional commitment to increase climate-related investments by 28 percent by 2020.

Subsidy activity. IEA's strengths lie in being able to track the energy sectors of OECD countries, and it has conducted a detailed assessment of the energy subsidies of two key countries, Mexico and Indonesia. ESMAP has collaborated with IEA in carrying out in-country workshops to discuss these findings.

In 2015, ESMAP partnered with the Clean Energy Ministerial to provide TA to low- and middle-income countries (e.g., Mexico, South Africa and India) on the challenges of connecting wind and solar energy to electricity grids.

- Through the Variable Renewable Energy Integration Program and CEM partnership, ESMAP is promoting CEM's "Ask an Expert" just-in-time service, which provides regulation and policy advice, to its clients. Also, in India, CEM is conducting a variety of technical support activities, while ESMAP activities are focused on investment, such the co-financing of a large grid-integration study with USAID.

The African Development Bank (AfDB) in its capacity as SE4ALL regional hub has provided review and comments on the development of the Multi-Tier Framework. Operationally, AfDB is now promoting the framework to its clients, and also through the SE4All Africa Hub, the AfDB is now supporting the development of the SE4All Country Action Agenda and Investment Prospectuses which integrates the Multi-Tier framework and ensures a unified message.

ESMAP's City Energy Efficiency Transformation Initiative is a member of the Building Efficiency Accelerator (BEA) partnership, which is being led by the World Resources Institute (WRI) Ross Center for Sustainable Cities. In this capacity, it is identifying candidate cities in its program that could make energy efficiency policy, monitoring and reporting commitments under the BEA. ESMAP is also providing feedback and advice to the WRI's upcoming World Resources Report on the challenge of creating productive, sustainable and equitable cities.

While there are numerous partnerships with different types of organisations, and evidence highlighting a broad scope of partnership experiences, the majority is bespoke with roles and objectives directly linked to situational requirements. Evidence indicates that there is no formal process to establishing and maintaining partnerships, with responsibility currently falling on ESMAP teams and TTLs. Considering the broad scope of ESMAP work and available resources, it is the evaluation team's view that a formal process would be difficult and unwieldy to manage.

The 2014 TAG report notes that there is still additional scope for cooperation at bi- and multi-lateral agency levels, which was reiterated in the 2015 TAG report. Donor interviews also reflected on the need for better country-level coordination, which reiterates points made in the 2012 TAG report (i.e., the CG "expressed an interest in more systematically linking their institutions' programs to ESMAP-supported activities, both at global and country levels"). In the ESMAP management response to TAG recommendations (April 2015), it was noted that donor coordination groups already exists, and that there was little value and resources to replicate this work. Evidence from country missions indicate that coordination is occurring at country-level with bi- and multi-lateral agencies. Specifically, the convening power of the World Bank is being used, where relevant, to engage or, at a minimum, make other bi-/multi-lateral organisations aware of the planned/ongoing activities, so they are either working together effectively, or there is no duplication of efforts. In addition to examples of investment-level cooperation presented in Section 4.4.2, the following highlights instances of ESMAP and ASTAE influence on development partners.

- In Turkey, the Energy Efficiency Institutional Review and Energy Reform Milestones and Challenges activities undertook a lengthy review process that included broad engagement across government ministries, as well as the EU Delegation to Turkey, and Agence Française de Développement (AFD).
- In Indonesia, under the Geothermal Clean Energy Investment Project there was collaboration with the Asian Development Bank (ADB), and the Government of New Zealand during 2012–2015 on policy and regulatory support work in the geothermal

subsector, which led to the issuance of a new geothermal Law in 2014 and adoption by the government of a new tariff scheme.

- ESMAP and ASTAE's work on the Indonesian Clean Stove Initiative has been financed and implemented in partnership with bi-lateral donors. The first phase was largely funded by AusAID, and the second phase was parallel financed by AFD and partially implemented by AFD's executing partner, GERES.
- In Indonesia, the feasibility of the Poko Hydropower Project and related Bakaru II Hydropower project ($360 million) is currently being studied with funding by KfW and ASTAE.
- In St Lucia, ESMAP's geothermal development activity is being supported by multiple development partners, with US$1 million in co-financing from the GEF and parallel financing from the Clinton Climate Initiative (CCI) and the Government of New Zealand. Evidence from the country mission, indicates that the World Bank has played a key role in coordinating the efforts of CCI and the Government of New Zealand, to better advance the geothermal agenda.
- In Senegal, ESMAP has played a key role in coordinating the efforts of Government of Senegal and multiple development donors (notably with the EU Delegation for Senegal) to better advance the SE4ALL agenda. Donors engaged in the energy sector meet regularly approximately every two months to share experiences and discuss the progress of their programs and projects. This forum has been used as a venue to discuss outputs of the SE4ALL TA for Senegal, as well as AFREA II Gender and Energy Program activities, to seek collaboration and to influence and leverage on investments from the World Bank and donor community in the energy sector.
- In Egypt, the World Bank, the EU Delegation for Egypt and AFD, recently agreed to hold ad-hoc meetings to sustain engagement in areas relevant to the recent energy subsidy reforms that ESMAP activities have supported. This is envisaged as a potentially route for ESMAP to influence activities of the donor community.
- In Bangladesh, the concept for the Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity was presented to other bi-/multi-lateral agencies, but there was little interest from them to contribute.

Overall, evidence suggests that ESMAP is engaging with multi-/bi-lateral partners and organisations, and that this engagement has resulted in different types of partnership frameworks, which have coordinated or complementary activities. As such, it is likely that the majority of concerns raised by donors about the lack of partnerships or coordination at the country or international level is related to a lack of visibility and, thus, a communication issue (i.e., not sufficiently documented and/or communicated) rather than an institutional problem, and could be addressed through better knowledge management (Section 3.7).

6 Conclusions and Recommendations

6.1 Conclusions

6.1.1 Relevance & Strategic Role

More than 30 years after ESMAP's establishment and 20 years after ASTAE's, ESMAP and ASTAE's objectives and programs continue to be highly relevant to global and regional challenges in the energy sector and to the needs and priorities of their client countries. ESMAP's programming is aligned to its objectives and responsive to the Consultative Group and the previous evaluation. ESMAP and ASTAE's direct links to World Bank energy sector operations and policy discussions have been critical for understanding client demand, responding quickly to client demands for assistance, and assessing when a political window of opportunity opens.

ESMAP and ASTAE are playing significant and strategic roles in the energy sector. They represent a unique intersection of global knowledge and operational experience that is valued by clients, partners, and donors. Other comparative advantages noted by stakeholders include ESMAP and ASTAE's position within the World Bank (and the associated convening power); responsiveness to client country needs and ability to quickly mobilize to meet those needs; high quality technical work and strong relevant expertise; and facilitation of policy analysis and dialogue.

6.1.2 Institutional Arrangements & Organizational Effectiveness

Overall, the evaluation finds that ESMAP and ASTAE are well-governed and well-managed. The Consultative Group is an effective governing body that is fulfilling its key functions, including providing strategic direction, management oversight, and commissioning evaluation. A manageable number of members (13-14 donor participants during the evaluation period) and accepted governance norms contribute to effective and efficient decision-making, even in the absence of clearly articulated roles and responsibilities. The Technical Advisory Group (TAG) has been effective in its role as a provider of strategic advice to the CG and ESMAP/ASTAE programming over the evaluation period.

The ESMAP Unit is widely seen as providing high quality and responsive management, with sufficient flexibility to adjust the focus and funding distribution of programs and business lines in order to respond to client and donor needs, and to achieve program goals. Soft earmarking—while a fact of life for most trust funds—affects the flexibility and transparency of funding allocations, and creates administrative challenges for management. Appropriate accountability measures are in place, although the consistency of financial reporting could be improved by using common budget categories across reports to track allocations, commitments, and disbursements.

ESMAP and ASTAE operate efficiently. In the face of significant program growth, ESMAP has maintained a lean administrative budget through economies of scale, cost sharing, drawing on existing World Bank resources and structures, and to some extent, the overburdening of staff. The new World Bank cost recovery policy will affect ESMAP and ASTAE administrative costs moving forward, and is already impacting ESMAP management's autonomy in being able to implement strategic staffing or fill key positions quickly. ESMAP management will need to adapt to manage within these new constraints.

A significant increase in ESMAP and ASTAE program resources, or an increase in the number of program initiatives, could pose a risk to the ability of ESMAP's lean administrative structure to manage them, as well as a risk to the effectiveness of those initiatives (e.g., risk of dilution). Moving into the next business planning period, maintaining a manageable and strategic number of areas of concentration will continue to be important.

ESMAP and ASTAE's position within the World Bank has been beneficial. Many donors see the hosting arrangement as an advantage of these trust-funded programs (i.e., their close proximity to operations and the familiarity of the trustee administering such funds).

Although the arrangement has a perception of a conflict of interest, this is nothing new for global and regional partnership programs hosted by the World Bank, but instead represents an ongoing monitoring issue. The evaluation found no evidence of conflicts that have arisen during the review period. The World Bank's comprehensive organization reform into Global Practices has been a positive development for ESMAP and ASTAE.

The transfer of management for ASTAE to ESMAP has been successful and supportive of program growth. Specifically, through a wider pool of resources it has enabled better quality control of products, and enhanced communications and M&E, while at the same time maintained ASTAE's ability to respond quickly to demand in Asia, and ensured support is more linked to downstream World Bank, GEF, and other funding source operations.

While ESMAP's revised M&E framework is a good practice example for activity- and program-level results reporting among World Bank-administered multi-donor trust funds, ASTAE's M&E system has been insufficient. For ASTAE, monitoring and reporting only on higher-order outcomes (such as gigawatts of renewable energy installed) reduces the program's ability to use its M&E framework as an accountability tool and increases the risk of outcomes being overstated.

Similarly, while ESMAP communication and dissemination support have significantly improved over the evaluation period, ASTAE's lack of communications support prior to FY2015 had detrimental effects on the quality of some knowledge products. ESMAP communications to donors are generally appropriate and timely, and communications to external stakeholders in client countries were effective in five of the six case study countries. While effective, the ESMAP communications strategy focuses only on the latter half of the knowledge management lifecycle. ESMAP and ASTAE support many projects and initiatives that test new ideas and offer opportunities for generation and sharing of knowledge, but the results and lessons learned from these activities are not systematically provided in a format that can inform broader learning or global knowledge.

6.1.3 Development Effectiveness

ESMAP and ASTAE programs reflect a broad portfolio of activities, which have been largely effective in achieving development objectives. For most programs, effectiveness has benefited from focused outreach and coordination at the World Bank and country-level, which has helped create demand and ownership; replicable approaches; and the capture and application of lessons learned from prior engagements. Programs that test new ideas and concepts, such as RBF and Energy-Water-Food Nexus, have suffered from a lack of familiarity and potentially too high expectations. For these programs, greater consideration and resources should be given to creating demand, and the assignment of appropriate targets and timeframes for outcome achievement. Additionally, for initiatives requiring cross global practice coordination, such as nexus-related activities, consideration should be given to a model where the project team of the activity includes staff from both global practices.

The majority of ESMAP and ASTAE activities show good potential to achieve their outcome targets, but longer term monitoring may be useful to address reporting inconsistencies, and highlight potential broader outcomes. Evidence from country missions suggests that 80% of planned outcomes have a good potential to achieve their targets, and that outputs are leading to some broader unplanned outcomes. However, in some cases, the inappropriate assignment of an outcome category (i.e., "planned"), sometimes long after an activity has closed, may mask its true effectiveness.

ESMAP and ASTAE are playing an important role in incrementally improving the existing country situation, whether directly through tangible outcomes, or indirectly by opening the door for other interventions to support longer term impacts. Program disbursements have increased across all regions; however, associated impacts may not always be immediately visible, as country-specific challenges may lead to outputs requiring longer gestation times. However, within a broad sustainability context, the majority of ESMAP and ASTAE outputs will lead to sustainable results; either, directly through tangible

outcomes, or indirectly, by laying the groundwork or opening the door for other interventions to achieve the impact.

ESMAP is successfully integrating gender and social issues into activities. There has been a visible increase in gender and social inclusion, with increasing collaboration and demand for gender experts, and improved consideration in activity design. However, the process would benefit further from the incorporation of gender and social components in the GFR and GRM to ensure consistency with PSF and enhance visibility during implementation.

ESMAP and ASTAE's operational links to World Bank investment are strong, but ASTAE would be better served with more reasonable and consistent indicators. Both ESMAP and ASTAE have influenced several US$ billions of World Bank investment, highlighting strong operational links. However, ASTAE's "catalysis" relationship between activities and investments is not always strong, and in some cases tenuous. Based on the activities implemented, "influence" is considered a more appropriate indicator of what is being achieved operationally.

ESMAP's influence on private sector and other non-World Bank investment is likely greater than currently reported. This is due to potential under-reporting, and the fact that most of ESMAP's work supports the development of the enabling environment for investment. ESMAP should consider better tracking and reporting, including appropriate indicators for its influence on private sector and other non-World Bank investment; especially, as it will help to highlight the broader influence of ESMAP beyond the World Bank.

6.1.4 Program Sustainability

Program resource levels will need to increase to meet current and future demand. The growth in ESMAP and ASTAE funding has mirrored increasing World Bank energy sector financing for RE, EE and Energy Access. Significantly more investment in these areas will be required if SDG goals are to be met. Consequently, the role and resource requirements for ESMAP and ASTAE to support these developments will likely increase.

ESMAP and ASTAE are engaging and working with partners at internal and external levels. Partnerships within the ESMAP and ASTAE programs take many forms, including instances of co-financing, information-sharing, and consultation. They are predominantly situational, rather than the result of a formal process. Internally, there are links, but more could be done, specifically with IFC to develop private sector interaction. As such, where opportunities are strategically relevant, ESMAP should consider whether it is useful, on a program by program basis, to open up ESMAP's tender process to include not only World Bank Global Practices, but also the IFC. Externally, while there are many organisations working in the same areas as ESMAP, evidence suggests that, where required, ESMAP is engaging with multi-/bi-lateral partners and other organisations, and that these partnerships reflect either a coordinated pooling of resources or complementary initiatives, with little noticeable overlap. As such, rather than an institutional issue, concerns about the lack of partnerships and collaboration opportunities are more likely a communication-related problem, which, as discussed in Section 6.1.2 could be addressed through better knowledge management. Thus, a formal process to manage these relationships would be considered difficult, unwieldy to manage, and not cost effective.

6.2 Recommendations

6.2.1 Recommendation #1: ESMAP should pursue program growth, while actively managing and monitoring threats to effectiveness associated with that growth.

- Given its relevance, comparative advantages, and the increasing demand for its services, ESMAP resources will need to grow. However, given its historic lean administrative structure, and donor funding commitments, it should be cautious about expanding its number of programs and business lines. If expansion is justified, it is also

critical to ensure that there is sufficient management capacity to implement and support growth.

- ESMAP should be careful not to let soft earmarking significantly affect its efficiency or legitimacy. Defensive strategies include increased transparency around earmarking, ensuring that soft earmarking is for activities that were already collectively agreed to, and rationalizing the number of business lines and programs.

6.2.2 Recommendation #2: To enhance effectiveness, ESMAP should strengthen outreach and coordination efforts at the WBG and country-level.

- The effectiveness of programs to achieve outcomes is strongly linked to their ability to create demand within the WBG and amongst country stakeholders, which, in part, ensures ownership. Demand creation activities that have successfully been used within the WBG and at country-level include training, webinars, conferences, and shared materials. Newer programs, such as Results-based Financing (RBF) and Energy-Water-Food Nexus, have suffered from a lack of familiarity amongst pertinent stakeholders, and potentially unrealistic expectations. As such, ESMAP should ensure appropriate resources are allocated to demand creation, and that more appropriate targets and timeframes for outcome achievement are assigned.
- For programs that require cross global practice coordination, such as nexus-related and energy efficiency initiatives in the transport and water sectors, ESMAP should ensure that a model where the project team of the activity includes staff from the relevant Global Practices.
- To further improve IFC coordination and linkage opportunities with ESMAP and ASTAE, ESMAP should assess the possibility, where strategically relevant, on a program by program basis, to open up its tendering process to include the IFC.

6.2.3 Recommendation #3: ESMAP and ASTAE should continue to support and refine the M&E framework.

- The successful implementation of ESMAP's M&E framework is driven partly by the persistent efforts of ESMAP staff. This requires continued resourcing to ensure sufficient oversight and follow-up with World Bank task team leaders to validate achievement of outputs and outcomes.
- ASTAE indicators should be revised. Given donors' interest in tangible outcomes, it may be appropriate to continue to track higher-level outcomes related to renewable energy generation, energy efficiency and energy access. However, ASTAE lower-order outcomes should also be tracked using the same indicators as are used for ESMAP (e.g., development financing informed, client capacity increased, etc.). The ASTAE indicator on "catalysing" World Bank investment should be dropped or revised to "influencing" because of its misleading and ambitious implication.
- ESMAP should consider better tracking and reporting, including appropriate indicators for its influence on private sector and other non-World Bank investment; especially, as it will help to highlight the broader influence of ESMAP beyond the World Bank.
- To reflect ESMAP's commitment to gender and social inclusion in its programming, activity-level gender considerations should be more meaningfully tracked in GRMs. For example, activities identified as "high" or "medium" level gender relevance could report on how gender considerations are being integrated during implementation.
- In order to close the loop on activity monitoring, ESMAP should consider additional follow-up on closed projects whose outcome category is still designated as "planned". This will ensure a realistic interpretation of activity outcomes, and effectiveness. ESMAP could use an intermediary designation between "achieved" and "not achieved" to reflect the sometimes long gestation times for outputs to become outcomes.
- Given the track record for evaluating ESMAP and the integration of ASTAE into ESMAP, this evaluation would recommend that ASTAE activities be evaluated in line with ESMAP moving forward, if ASTAE remains under the ESMAP management umbrella.

6.2.4 Recommendation #4: The institutional arrangements for ASTAE should be finalized.

- In this evaluation's view, a single trust fund is more administratively efficient and possibly more effective from a development standpoint, given the similar priorities of the programs. However, if a single trust fund limits the ability of donors to mobilize resources for a certain region, then the CG will need to weigh the need for those resources against the administrative and other disadvantages of a separate trust fund. If a separate trust fund is maintained, a common management structure (within ESMAP) should be utilized and operational procedures (e.g., for proposal review, implementation and financial monitoring, dissemination, and so on) should be harmonized. Already, through a wider pool of resources bringing ASTAE under ESMAP management has enabled better quality control of products, and enhanced communications and M&E, while at the same time maintained ASTAE's ability to respond quickly to demand in Asia, and ensured support is more linked to downstream World Bank, GEF, and other funding source operations.

6.2.5 Recommendation #5: ESMAP should develop a knowledge management strategy

- Knowledge is a key asset of ESMAP and ASTAE, and the intersection of that knowledge with operations is one of the programs' critical comparative advantages. However, the results and lessons learned from these activities are not systematically identified, captured or generated to inform broader learning or global knowledge for all ESMAP stakeholders. To address these gaps in knowledge capture, a knowledge management strategy should be developed, which defines a systematic process for identifying, generating, disseminating and storing/organising knowledge.

Annex 1 Terms of Reference (TOR)

Terms of Reference for the External Evaluation of ESMAP and ASTAE

January 2015

Energy Sector Management Assistance Program (ESMAP)
Asia Sustainable and Alternative Energy Program (ASTAE)

External Evaluation

1. Introduction and Background

1.1 The Energy Sector Management Assistance Program (ESMAP)

ESMAP is a global knowledge and technical assistance partnership administered by the World Bank and supported and governed by official bilateral donors (Consultative Group of Donors[1], or the CG).

ESMAP's mission is to assist low- and middle-income countries to increase know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. Under its previous (2008-2013) and current Strategic Business Plan (2014-2016), ESMAP is extending its engagement with client countries, mirroring the changing landscape of global energy challenges, to encompass the nexus of energy security, energy access, and climate change.

Since its inception in 1983, ESMAP has supported more than 800 energy-sector activities in over 100 countries. ESMAP's mandate and products (primarily economic and sector work, knowledge products, technical assistance, pre-investment studies, co-financing Bank lending) have evolved over time to meet the changing needs of its clients from low-income, emerging, and transition economies.

ESMAP has four main areas of focus:

(i) Clean Energy - including renewable energy, smart grids, and climate adaptation of energy systems;

[1] During the period to be covered by the evaluation, the following countries and organization have been, or are, members of the CG: Australia, Austria, Denmark, Finland, France, Germany, Iceland, Lithuania, the Netherlands, Norway, Sweden, the United Kingdom, Japan and the World Bank.

(ii) Energy Access - including rural electrification, clean cooking, and improving access for the urban and peri-urban poor;
(iii) Energy Efficiency – particularly as it relates to energy efficient cities, with a focus on buildings, lighting, water and waste water, power and heat, urban transport, and solid waste; and
(iv) Energy Assessments and Strategies - including sector-wide advisory services and technical assistance on energy policy, governance, and institutions.

In addition to these focus areas, ESMAP has launched special initiatives to support Small Island Developing States (SIDS) as they transition to a more sustainable energy future and to support results-based approaches to energy sector development. Starting in FY2014, ESMAP also initiated a program on social inclusion in the energy sector, with an initial focus on gender.

The core of ESMAP's work program is conducted through grants to the World Bank's regional energy units for analytical and advisory activities linked to the World Bank's country dialogue and investment lending programs. This funding includes annual block grants (ABGs) for each region (based on a funding formula) and targeted regional programs such as the second stage of the Africa Renewable Energy and Access program (AFREA) and global initiatives such as the Sustainable Energy for All (SE4ALL) technical assistance program and Renewable Energy Mapping, in which country-level activities are also implemented by the World Bank's regional teams. Additional information about ESMAP is available at www.esmap.org.

1.2 ESMAP Funding Sources and Disbursements

The previous five-year Business Plan (2008-13) is built around an estimated annual budget of $11 million. The current business plan (2014-2016) proposes a budget of US$137 million for the three year period. The actual annual disbursements for the evaluation period are as follow: US$18.3m in FY2011, US$17.0m in FY2012, US$16.9m in FY2013, and US$21.8m in FY2014[2].

For operational flexibility in accommodating the multi-year funding requirements of all core programs, a new, single multi-donor programmatic trust fund (MDTF) was established in November 2009, and all donors have agreed to make new contributions into this vehicle. This has allowed untied funding to support program administration and the core set of multi-year programs and cross-cutting initiatives endorsed by the CG, without specific restrictions.

[2] FY2011-2014 actual disbursements include disbursements made under the Clean Energy Investment Framework (CEIF) Multi Donor Trust Fund while FY2012-2013 actual disbursements include disbursements made under the SIDS DOCK Multi-Donor Trust Fund. FY2015 figure will be provided when the fiscal year ends on June 30, 2015.

1.3 Program Governance

ESMAP is governed by the CG, comprising representatives of the donor countries and the World Bank. The CG meets annually and is chaired by the Bank's Energy and Extractives Global Practice Senior Director (or his/her designee).

The CG provides guidance to ESMAP on the global thematic challenges that underpin funding priorities for each ESMAP business cycle, reviews progress in the implementation of the business plan, and approves overall budget allocations, including the program management and administration budget.

ESMAP also has a Technical Advisory Group (TAG), a three-member external body appointed by the CG. The TAG's role is to provide an independent assessment and informed recommendations about the strategic direction and priorities of the program. The TAG reports directly to the CG.

1.4 Program Management

The Program Secretariat is located within the Bank's Energy & Extractives Global Practice in Washington, DC, and headed by a Program Manager and a team of approximately 20 staff. The program reports to the Senior Director of Energy & Extractives and follows the Bank's rules, policies and procedures in executing its programs and managing human resources.

Portfolio Management

ESMAP has put in place a comprehensive portfolio monitoring and evaluation (M&E) system and a dedicated team to assess the program's effectiveness. The M&E system is designed to strengthen the focus on outcomes and results while ensuring relevance to ESMAP's mission and implementation strategy. It includes the following components:

- **Logframe and Results Chain**: As part of the preparation of the current Business Plan (FY2014-2016), ESMAP developed a logframe and results chain in alignment with its three year work program. The logframe and results chain identify the strategic elements (inputs, activities, outputs, outcomes and impacts) and their causal relationship, indicators, targets and assumptions that may influence the implementation of the ESMAP program for the period FY2014-16.

- **More Robust Definition of Key Performance Indicators at the Activity Level**: One of the most important changes introduced by the M&E system in late 2011 was

improving the quality of Grant Funding Requests (GFRs)[3] to properly identify, not only the outputs and activities funded under the grants, but also the expected outcomes to be achieved with clear baseline and target values. As a result, tracking progress toward intended outputs and outcomes under each activity has helped to measure results of recently completed activities.

- **Project Database**: ESMAP also developed a comprehensive database of activities and information from ESMAP's M&E system. The database was posted online on ESMAP's web site. The database allows users to search ESMAP activities through a map interface, by keyword, or by category.

- **Activity Tracking of Gender & Social Components:** ESMAP has taken specific actions to further integrate and mainstream the gender and social dimension to the M&E system – these include: (i) requirement to incorporate a "gender flag" for all analytical work to assess whether projects have conducted any gender assessments, actions, or M&E, consistent with the Bank's recent integration of a "gender flag" in all its analytical work as well as in lending projects; (ii) Proposal Summary Forms for Annual Block Grants now incorporate the gender dimension for all activities. FY2013 was the first year of systematically screening across ABGs and ESMAP-owned activities.

External Evaluations

In 1990, donors commissioned a review of ESMAP "to support the program to respond more effectively to the needs of developing countries while liaising more effective with donors and the co-sponsors." The review commission suggested a number of changes in program governance, most of which became effective during the year, including the establishment of a CG for ESMAP and the TAG. In addition, in 2000, the Bank's Operations Evaluation Department conducted an external review of several energy programs, including ESMAP.

The external evaluation covering FY 2007 through FY2011 was completed in June 2012. The primary objectives of the evaluation were to: (i) assess the effectiveness of ESMAP as a global technical assistance program; (ii) assess the major factors that have influenced results either positively or negatively; (iii) draw key lessons learned; and (iv) recommend how better to meet the objectives of the program. In addressing these objectives, the evaluation assessed what impact ESMAP has had in helping to achieve poverty reduction in client countries by enhancing institutional capacity in the energy sector.

[3] GFRs are mandatory internal World Bank documents required to process and approve grants supported under Trust Funds provided by donors. They articulate the description, outputs, outcomes and funding requirements of every activity financed by ESMAP.

Internal Evaluations

In November 2009, the Quality Assurance Group (QAG) of the World Bank conducted an internal review of the ESMAP program as part of quality assessment of Global & Regional Programs and Partnership (GRPPs). The purpose of the review was to assess the value for money for ESMAP's analytic and advisory services and non-lending TA focusing on relevance, quality of the analysis, and likely impact. Under the assessment, the QAG suggested recommendations aimed at enhancing the impact of ESMAP's work program and activities. While noting the overall positive conclusions, the QAG review panel proposed two key recommendations to the ESMAP Program Unit with a view to enhancing the impact of ESMAP activities as follows: (i) review the findings of ESMAP funded activities globally with a view to extracting practical lessons and ideas for dissemination; and (ii) reserve some of ESMAP funding to explore new areas not being addressed in the regional ESMAP activities, given the Bank's predominant focus on operational activities.

Other Evaluations and Reviews

For the March 2010 CG Meeting, ESMAP management commissioned a desk review of external advisory bodies of other Global Programs and Partnerships that are managed by the Bank, to identify best practice governance structures of such groups. The purpose of the review was to help inform the CG in revising the TAG's terms of reference. The review recommended that TAG membership should be limited in size and diverse in terms of professional and technical backgrounds, and that the primary role of the TAG should be to provide strategic advice and avoid micro-management.

ESMAP has also been carrying out self-evaluation of its performance through its annual reports, which provide portfolio status updates, and discusses trends and particular highlights for the reporting period. The primary audience of these reports is CG members and other partners.

The annual reports are also complemented by the TAG's independent review of ESMAP, which is prepared annually for the CG. The TAG's assessments are based on an extensive review of ESMAP activities and interviews with ESMAP staff and other stakeholders, mostly the Bank's regional operations staff carrying out ESMAP-funded activities. The TAG reports directly to the CG, and TAG findings and recommendations are typically discussed at the annual CG meeting.

The World Bank Group's Independent Evaluation Group (IEG) is currently undertaking an evaluation of World Bank energy access interventions, and this study will also cover ESMAP and ASTAE programs.

1.5 Asia Sustainable and Alternative Energy Program (ASTAE)

ASTAE grew out of the Financing Energy Services for Small Scale Energy Users (FINESSE) Project, initiated by ESMAP and bilateral donors in 1989. Following a joint request from Asian client governments and donor partners, the Bank implemented the FINESSE recommendations by creating the ASTAE in 1992 with the objective of "mainstreaming" alternative energy in Asia". Subsequently ASTAE was redefined from a unit to a program, and was until recently housed in the East Asia and Pacific Region, while continuing to provide support to South Asia.

ASTAE's original target was to increase the share of alternative energy in Bank lending to the energy sector in Asia to 10 percent of total power sector lending. This goal was achieved during the fiscal 1997–2000 business plan period. ASTAE's life was initially three years and was extended by mutual agreement among the Bank and donor countries. ASTAE's original focus areas were renewable energy and energy efficiency. Thus, the primary focus of ASTAE is direct operational support to the Bank's lending activities (preparation, implementation, supervision, monitoring and evaluation).

In 2002, ASTAE started a scale-up phase. Scaling up entailed continuing its mission of mainstreaming alternative energy, as well as expanding its reach from within the World Bank to the client countries' stakeholders themselves, and broadening its core business from alternative energy to sustainable energy by adding a third pillar—access to modern energy services—designed to address energy poverty and its impact on the environment. Alternative energy, a fringe activity when ASTAE was created, has evolved into one of the Bank's main lending themes, exceeding 40 percent of energy commitments in fiscal 2009.

In 2011, a new MDTF was established to support the current Business Plan FY2012-2015. As of October 2014, Administration Agreements for MDTF were signed by the Netherlands, Sweden and the UK.

1.6 ASTAE Funding Sources and Disbursements

The funding agreement for the FY2012–15 Business Plan period was signed in 2011 for US$12 million. ASTAE's MDTF, created in 2011 as the preferred funding instrument for the Business Plan, now exceeds its initial US$20 million target.

ASTAE used donor funds totaling US$0.96 million in FY2012, US$2.2 million in FY2013, while complementary World Bank resources for ASTAE supported projects totaled 1.03 million in FY2012 and US$1.26 million in FY2013, respectively. For FY2014, actual disbursements for ASTAE-supported activities were US$0.51 million.

1.7 ASTAE Program Governance

Since its inception, ASTAE has functioned as a financing facility (or financing vehicle) focused on Bank-executed activities using separate single-donor trust funds (TF), including indirect financing channeled through a separate trust fund. To respond rapidly to client countries' changing needs and donor demands, and to comply with EAP rules, align with recent Bank-wide practices of trust fund management, and streamline the process of ASTAE management and financed activities, changes to the governance of the ASTAE Global Partnership Program (GPP) were introduced in 2010. Major changes include (i) adding MDTF to the current single-donor trust fund arrangements, (ii) adding recipient-executed activities to the current Bank-executed activities to create a hybrid TF, and (iii) introducing requirements for GFR and grant report monitoring (GRM). ASTAE overall strategy is guided by the CG comprising representatives of donors and the World Bank with the TAG's support. The CG includes the three ASTAE donors -- the Netherlands, Sweden and the UK.

1.8 ASTAE Program Management

ASTAE was housed in the EAP Region, and a coordinator and a Manager in the EAP Region were responsible for managing the allocation of funds and for reporting to the CG until the new Global Practice for Energy and Extractive Industries became effective on July 1, 2014. In spring 2014, it was proposed and endorsed by the CG, including the ASTAE donors, to merge ASTAE's program management and administration functions (including monitoring and evaluation and communications and dissemination) with that of ESMAP. This comes in the context of the Bank's change management processes as well as in alignment with the on-going trust fund reform process undertaken by the Bank and supported by many donors. The ASTAE MDTF remains a separate trust fund under ESMAP, and the three ASTAE donors also agreed to extend the MDTF by one year to June 30, 2016.

Internal Evaluation

In FY2014, the EAP embarked on a results and compliance review of selected regional and country level trust funds to assess and verify the effectiveness and efficiency of external funds as a supplemental vehicle of delivering development assistance results to EAP clients, and inform the Regional Leadership Team on the optimal design of trust funded partnerships in the future.

That review examines the reported results of ASTAE for Phases 2 and 3. The study assessed selected regional and country level trust funds to compare the effectiveness of the use of multi and single donor funds as a supplemental vehicle to deliver development assistance to East Asia and Pacific and South Asia regions, and helped inform the Regional Leadership Teams in designing future Projects and Programs supported and/or co-financed by trust funds, e.g., MDTFs or Single Donor Trust Funds.

2. Scope and Objectives of Evaluation

2.1 Scope of the Evaluation

The evaluation will be an external review of the outcomes and achievements of ESMAP and ASTAE for the last five years (July 2011-June 2015), based on their respective business plans and results frameworks. The information and recommendations generated from the evaluation are expected to inform the CG and the ESMAP management to help improve ESMAP and ASTAE program's effectiveness as well as to provide inputs for strategic directions and lessons.

The proposed review period is July 2011-June 2015, which includes the last three years of the previous ESMAP business plan and the first two years of the current Business Plan for ESMAP (i.e. July 2013-June 2015) and four years of the current ASTAE business plan (July 2011-June 2015).

The evaluation will cover all activities funded through ESMAP TFs during the evaluation period, including those managed under the Clean Energy Investment Framework Multi-Donor Trust Fund, the SIDS DOCK MDTF, the German Single Donor Trust Fund and the Denmark Single Donor Trust Fund. The evaluation will also cover all activities funded and supported through the ASTAE. To the extent that IEG's review will assess the relevance and effectiveness of ESMAP and ASTAE's programs, their contributions to energy access, and the quality of their knowledge products, the evaluation would draw on the IEG report, avoiding duplication of effort.

2.2 Objectives of the Evaluation

The primary objectives of the evaluation are the following: (i) to assess the fulfillment of ESMAP and ASTAE's strategic objectives; (ii) assess the effectiveness and value for money of ESMAP as a global TA program; (iii) assess the effectiveness and value for money of ASTAE's program for the client region and countries; (iv) assess the major factors which have influenced results either positively or negatively including program relevance and adaptation to changing needs; (v) draw key lessons learned; and (vi) recommend how to better meet the objectives of ESMAP and ASTAE program portfolios.
The evaluation will also assess ESMAP's responsiveness to the core issues identified in the previous external evaluation.

2.3 Institutional Arrangement for the Evaluation

The evaluation is being commissioned by ESMAP and ASTAE's governing body, the CG, which has endorsed the TOR. It is proposed that two members of the CG – including one donor to ASTAE -- participate in selecting the consultant team.

ESMAP management will serve as the administrative agent of the CG, as per the normal practice for Trust Funded (TF) programs at the World Bank. Specifically, ESMAP management will be responsible for the procurement process and for signing the Consultant contract and for providing day-to-day support (sharing data, reports and arranging field visits as relevant for ESMAP and ASTAE). The consultant will report evaluation findings concurrently to both ESMAP management and the CG, following a preliminary fact-checking process with ESMAP on its draft report to ensure that full consideration is given to all relevant information and data sources available for the evaluation.

3. Evaluation Framework and Guiding Questions

3.1 The evaluation will focus on: relevance, effectiveness, and efficiency of ESMAP and ASTAE's missions and related business plans, impact of ESMAP and ASTAE's activities, overall institutional arrangements, and strategy for continued sustainability of the program including resource mobilization and financial management.[4] It is suggested that each of these aspects of ESMAP and ASTAE's operations be assessed for the period under consideration as follows:

A. *Relevance*

   a. To what extent are ESMAP and ASTAE objectives and design of the program consistent with current global/regional challenges and concerns in the energy sector, as well as international processes, and with the needs and priorities of their client countries and groups?

   b. To what extent are the business lines and program priorities in line with its three objectives for the FY2014-16 Business Plan: *Enhance Development Financing; Influence Policy and Strategy and Increase Client Capacity; and Deepen Knowledge and Generate Innovative Solutions*?

   c. How have ESMAP and ASTAE identified and responded to demand from client countries? To what extent has the ASTAE program contributed to

[4] The consultant will have flexibility on the structure of the evaluation report, provided that the evaluation criteria are taken into account. The proposed report outline will be reviewed and agreed by the CG.

promoting low-carbon, green growth[5], and scaling up supply of and access to sustainable energy on a regional basis?

d. To what extent have ESMAP's new business lines and program priorities responded to the findings and recommendations of the previous evaluation, and the appraisals, reviews, and evaluations conducted by the CG members? Is there still a need for action based on these recommendations and how should this be reflected in the upcoming business plan?

e. Do ESMAP and ASTAE have a comparative advantage in the energy sector, and if so, is it adapting to evolving knowledge and client country priorities and needs? To what extent are ESMAP and ASTAE utilizing their comparative advantages in program and product design and delivery of services to clients?

f. Are the stated objectives of ESMAP and ASTAE, consistent with these comparative advantages, clearly defined in strategy documents? Are the program results measurable? Are statements of outcomes linked to program objectives and measurable indicators?

g. In each area of the work plan, are the identified ESMAP and ASTAE's activities, outputs, and products and resources appropriate to the objectives of the programs?

h. To what extent have ESMAP and ASTAE incorporated and promoted gender and social issues under its work program?

B. *Effectiveness*

a. To what extent does ESMAP management have the flexibility to design and effectively execute the activities to achieve program goals?

b. To what extent do ESMAP and ASTAE's products, outputs, and activities achieve the intended objectives? (This aspect to be assessed across all work plans.)

c. To what extent do ESMAP and ASTAE have an effective monitoring, reporting and evaluation framework including measurable indicators, systematic and regular processes for collecting data, feedback processes to facilitate decision making and learning, and how effectively these frameworks are used?

[5] Based on the review of international literature from middle- and high-income countries, green growth is defined as sustainable development and growth with harmonization of environment and ecosystem. For additional information see the ASTAE Business Plan.

d. How have ESMAP and ASTAE fulfilled its strategic role? How can this role be made more effective in the future, and what are the related options and possibilities going forward?

e. Which ESMAP and ASTAE's activities are most effective in contributing to stated objectives, what are the characteristics of these activities and to what extent can they be replicated in other work plans (*i.e*., in other regions or thematic areas)?

f. To what extent has the transition to core and/or programmatic funding facilitated flexibility and effectiveness in program planning and management?

g. How effective are ESMAP and ASTAE's linkages to the Bank's energy sector policy dialogue and operations, and to what extent are these linkages established at the country or local levels?

h. How has ESMAP addressed the food-water-energy nexus issue as well as cross-cutting issues in terms of environment and social inclusion issues?

i. How effective has ESMAP and ASTAE's communication strategies been in reaching a wide range of target groups, including senior level decision makers and those at the operational level?

C. *Efficiency*

a. What are the most cost-effective areas of ESMAP and ASTAE operations (by country, region, or thematic area of work, including partnerships)?

b. Is the monitoring of ESMAP and ASTAE's activities linked to financial monitoring and how is efficiency being measured?

c. How do ESMAP and ASTAE mandate cost effectiveness?

D. *Impact*

a. To what extent has ESMAP achieved its objective of assisting low- and middle-income countries to increase know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth?

b. To what extent have ESMAP and ASTAE, directly or indirectly, influenced World Bank's lending operations and investments from the private sector and the donor community more broadly?

c. What is the most identifiable development impact of ESMAP and ASTAE and how are they perceived by other constituents, organizations and partners?

d. To what extent have benefits by support from ESMAP and ASTAE sustained?

e. To what extent are the impact and benefits arising from ESMAP and ASTAE's activities commensurate with the level of effort and resources expended?

E. *Institutional Arrangements and Management*

a. How appropriate and effective are ESMAP and ASTAE's organizational structure and staffing profile in realizing a relevant, effective and efficient business plan?

b. How effectively has ESMAP management's accountability been exercised, and how well is M&E built into programming and strategy to strengthen accountability?

c. How well does the CG operate as a governing body and what are the recommendations for improving the effectiveness and efficiency of the existing structure?

d. How effective is the TAG's role as an advisory body to the CG and in providing strategic advice on ESMAP and ASTAE's strategies, overall priorities and their development into practical business plans?

e. To what extent do the governance and management structures permit and facilitate the effective voice of other partners and stakeholders in the CG and TAG's deliberations?

f. Does ESMAP have a strong and complementary relationship to the World Bank and how is that affected by ESMAP's place in the new Global Practice structure?

g. How effective has the integration of AFREA and ASTAE into ESMAP been and what are the relative advantages and disadvantages of the different models of trust funds integration?

F. *Strategy for Program Sustainability*

a. To what extent have ESMAP and ASTAE managed its growth in a proactive and effective manner?

b. What is the optimum resource level for ESMAP (including ASTAE) and what needs to be done to achieve and sustain this level?

c. How effective are ESMAP and ASTAE in building and developing internal (including IFC) external and bilateral partnerships to achieve their mission objectives?

d. To what extent have ESMAP and ASTAE learned internally from their experiences?

e. How have ESMAP and ASTAE identified and managed risks?

f. To what extent have ESMAP and ASTAE demonstrated adaptability or responsiveness the changing global environment including external shocks?

g. To what extent can ESMAP- and ASTAE-initiated activities be broadened to a wider and larger beneficiary group, and be leveraged to bring about even more benefits than originally intended without higher cost implications?

3.2 Follow-up Actions

Preliminary findings and recommendations of the evaluation will be submitted to the CG in November 2015, along with a preliminary ESMAP management response, when the final draft report was completed by the consultant. This will be followed by the formal presentation of the findings, together with ESMAP's action plan at the CG meeting in spring 2016. The evaluation will be finalized soon thereafter for the CG's endorsement, and will be disseminated to partners and operational staff, as well as other stakeholders, in order to facilitate learning and transparency.

4. Evaluation Design and Methodology

The consultant will propose the design and methodological approach for conducting the evaluation based on the existing data and information, as well as through structured interviews or surveys and client country visits.[6] The consultant is also encouraged to propose one or two categories to be evaluated in detail beyond what this TOR states. It is expected that the consultant will interview a cross-section of ESMAP and ASTAE stakeholders, such as client country government officials, Bank operations staff and sector managers, representatives of bilateral development agencies, partners, CG and TAG members, in addition to ESMAP staff.

5. Budget

The budget is not specified. Bidder proposals will include both technical and financial proposals. This will also allow bidders to specify a preferred methodology, estimate its costs, and have control over their ability to provide the deliverables based on the proposed and accepted evaluation methodology.

[6] It is proposed that the consultant visit at least one country in each Bank operational region covering all of ESMAP and ASTAE strategic programs and initiatives during the evaluation period and the private sector and civil society be also interviewed. This could be also supplemented by video conferences facilitated by ESMAP.

5.1 Cost Estimate

The cost estimate should include the costs of staff/consultant time, travel and associated expenses, communications, production of all reports and other expenses.

Payment will be made on a lump sum basis upon delivery of the following reports:

Advance	10%
Inception Report	30%
Draft Evaluation	35%
Final Evaluation	25%

6. Deliverables

The Consultant will have the following deliverables:

6.1 Inception Report

The inception report will outline:

i) Proposed approach/methodology to the evaluation in the context of the global/regional energy challenges facing ESMAP and ASTAE and their client countries.

ii) List of key documents and resource people for the evaluation.

iii) Work program for the evaluation.

iv) Draft of detailed program for site visits to a sample of ESMAP and ASTAE projects in client countries and consultation meetings.

v) First draft of criteria and indicators for assessing the relevance, effectiveness, efficiency and impact of ESMAP and ASTAE operations and sustainability of the program.

vi) List of specific questions and concerns relating to the evaluation to which ESMAP management and/or the CG will respond.

6.2 Draft Evaluation Report

The draft evaluation will form the basis for more detailed consultation and will contain two distinct chapters for ESMAP and ASTAE evaluation covering:

i) Assessment of general performance against agreed results for the evaluation period July 2011-June 2015 and specific results regarding the evaluation questions outlined under section 3.

ii) Assessment of the general effectiveness, flexibility/adaptability and efficiency of the institutional arrangements.

iii) Preliminary assessment of appropriate levels of growth, funding, and staffing.

iv) Recommendations.

6.3 Final Evaluation Report

The consultant will prepare a final evaluation report based on the feedback received from ESMAP management and the CG.

6.4 Presentation of Evidence

The consultant is expected to meet the standards of a high-quality, rigorous evaluation, which at a minimum, ensures that all findings and conclusions should be based on evidence which is presented in the evaluation report. Such evidence may be in the form of tabulations of data, compilation of survey results, statistical analysis, case study reports, testimonials, objective observations of measurable data, etc. In cases where the source of information is interviews, the method of selecting those to be interviewed should be presented in the evaluation report. For case studies, site visits, or reviews of a subset of activities, the criteria and processes for selecting those cases should be presented. In the case of surveys, the questionnaire, information on the population or samples, and the response rates should be presented in the report.

7. Qualifications of the Evaluation Team

The evaluation team would consist of four-six professionals, including a team leader, exhibiting a range of skills, including the following:

- At least five years of experience in the energy sector in developing countries.
- Substantive experience in evaluation of programs or organizations (i.e. designing, conducting and leading evaluations).
- Working knowledge of social development, particularly gender, issues in developing countries.
- East Asia and Pacific and South Asia regional experience and knowledge relevant to the evaluation will be critical for the evaluation of ASTAE.

- Proven track record of experience in organizational behavior, strategic planning, institutional development, performance measurement, financial management or other related areas.
- Demonstrated ability to work with national, provincial and municipal governments, as well as public international organizations.
- Experience in engaging senior policymakers as well as a wide range of stakeholders and facilitating change management initiatives.

8. ESMAP Contributions

ESMAP will provide significant inputs to the process of the evaluation exercise. These contributions include:

- **Staff Time:** Approximately one staff week for the ESMAP Lead Economist and Operations Officer. Up to two weeks of Program Manager. Up to 1 week of Resource Management Analyst. Up to 0.5 weeks of any other ESMAP staff member as required for participation in consultation meetings as well as the Senior Monitoring and Evaluation Specialist for the Bank's Energy and Extractives Global Practice.
- Participation of World Bank ESMAP Regional Coordinators and Task Team Leaders.
- Rapid and timely input to draft reports produced by the team.
- Costs of production of final evaluation report for formal distribution to ESMAP partners and clients.

9. Management

This consultancy contract will be supervised by the ESMAP Program Manager. ESMAP will provide the necessary administrative support and data/information, and facilitate meetings with Bank staff.

All preliminary reports will be submitted simultaneously to the Program Manager and the CG.

Annex 1: Proposed Timeline

ESMAP proposes the following timeline for the evaluation exercise:

1. April 2015 – The evaluation team to meet with ESMAP management. The purpose of this visit is for the evaluation team to become familiar with ESMAP and its processes. This will also allow the team time to examine ESMAP files and documents and to identify any additional information the team will require. ESMAP staff members will plan on designating two work days each to assist the team. Additional administrative support will be available as necessary.

2. April-August 2015 – The team conducts site visits and meets with client representatives, other officials and stakeholders, as well as CG members, the TAG, and relevant Bank teams. The visits will be facilitated by the relevant TTLs.

3. September 2015 – The evaluation team prepares a draft report and transmits the draft to ESMAP for fact checking.

4. October-November 2015 – Evaluation team revises the report, and submits a final draft to the CG, ESMAP and the TAG.

5. November 2016 – ESMAP prepares preliminary management response and submits to the CG and TAG. A special session is held with the evaluation team to discuss the final draft report.

6. Spring 2016 – The CG Meeting discusses the findings of the report.

7. Summer 2016 – The CG's comments and ESMAP's final management responses are incorporated, and final version is produced.

8. Ongoing dissemination and feedback into program will continue thereafter.

Annex 2: ESMAP Outcome Indicators

ESMAP's M&E system was developed with the objective of measuring its effectiveness in supporting the World Bank Group's (WBG) engagement with client countries and the impact and influence of ESMAP activities on the WBG's lending operations, government policies, and country capacities, as well as the development community's interventions in the energy sector. With that objective, ESMAP's M&E system uses the five outcomes and their corresponding indicators developed and implemented by the World Bank under its Analytical Advisory Activities and Knowledge Products as follows:

Outcome	Indicators
• Development financing informed	• Preparation of new operation informed • Existing operations informed • Mobilization of non-Bank resources informed • Government expenditure informed
• Policy/strategy informed	• Government policy/strategy informed • Public debate stimulated/initiated • Contributed to stakeholder involvement • Dev't community/partner policy/strategy informed • Bank country strategy (CAS/CPS) informed/influenced • Bank sector strategy informed/influenced
• Client Capacity increased	• Design capacity strengthened • Implementation capacity strengthened • Monitoring & Evaluation capacity increased
• Knowledge Increased	• Facilitated exchange of best practice with clients • Facilitated exchange of best practice with partners • Disseminated best practices

Target values are contained in the ESMAP Logframe for the FY2014-2016 Business Plan. How these outcomes were achieved or observed is found on the project database and Annual Portfolio Reviews.

Annex 3: ASTAE Outcome Indicators

Below are the ASTAE indicators and outcomes achieved for FY2012-2014. Project specific information is found under Activities on the ASTAE website.

Direct Indicators	Unit	Value Pledged	Value Achieved FY12-13	Value Achieved FY14	Value Achieved FY12-14	Progress (percent)
1. Total World Bank lending catalyzed by ASTAE activities						
Project and program lending	million US$	3,200	1,982	1,312	3,294	103%
2. New capacity and increased generation of renewable electricity						
Renewable energy, capacity	MW	1,500	205	1,104	1,309	87%
Renewable energy, generation	GWh/year	3,000	1,208	1,052	2,260	75%
3. Electricity savings resulting from efficiency improvements						
Energy savings, capacity	MW equivalent	1,000	350		350	35%
Energy savings, generation	GWh/year	2,000	2,980		2,980	149%
4. Households with access to modern energy services						
Access to electricity (new)	households	2,000,000	558,000		558,000	28%
Access to electricity (improved)	households	1,000,000	0	113,150,000	113,150,000	11315%
Improved stoves for heating (cooking and space)	households	5,000,000	1,195,000		1,195,000	24%
5. Avoided greenhouse gas emissions						
Direct CO_2 avoided over 20 years	million tons	200	280	95	375	187%
6. Countries benefiting from ASTAE support						
Number of countries	Countries	15	12	16	16	107%
Note: Direct refers to values achieved, or expected to be achieved, in the course of World Bank–funded projects that benefited from ASTAE support.						

Annex 2 Matrix of TOR questions by Report Section

The following matrix presents the conceptual foundation for the evaluation and describes the grouping of the TOR questions by evaluation topic, and its location in the report.

Report Section	Topic	TOR Theme	TOR #	TOR Question
2.1	Relevance to regional and country priorities	Relevance	A	To what extent are ESMAP and ASTAE objectives and design of the program consistent with current global/regional challenges and concerns in the energy sector, as well as international processes, and with the needs and priorities of their client countries and groups?
		Relevance	C	How have ESMAP and ASTAE identified and responded to demand from client countries? To what extent has the ASTAE program contributed to promoting low-carbon, green growth, and scaling up supply of and access to sustainable energy on a regional basis?
		Effectiveness	G	How effective are ESMAP and ASTAE's linkages to the Bank's energy sector policy dialogue and operations, and to what extent are these linkages established at the country or local levels?
		Sustainability	F	To what extent have ESMAP and ASTAE demonstrated adaptability or responsiveness the changing global environment including external shocks?
2.2	Strategic role and comparative advantage	Effectiveness	D	How have ESMAP and ASTAE fulfilled its strategic role? How can this role be made more effective in the future, and what are the related options and possibilities going forward?
		Relevance	E	Do ESMAP and ASTAE have a comparative advantage in the energy sector, and if so, is it adapting to evolving knowledge and client country priorities and needs? To what extent are ESMAP and ASTAE utilizing their comparative advantages in program and product design and delivery of services to clients?
		Sustainability	G	To what extent can ESMAP- and ASTAE-initiated activities be broadened to a wider and larger beneficiary group, and be leveraged to bring about even more benefits than originally intended without higher cost implications?
2.3	Business line and program alignment	Relevance	B	To what extent are the business lines and program priorities in line with its three objectives for the FY2014-16 Business Plan*: Enhance Development Financing; Influence Policy and Strategy and Increase Client Capacity; and Deepen Knowledge and Generate Innovative Solutions*?

Report Section	Topic	TOR Theme	TOR #	TOR Question
		Relevance	D	To what extent have ESMAP's new business lines and program priorities responded to the findings and recommendations of the previous evaluation, and the appraisals, reviews, and evaluations conducted by the CG members? Is there still a need for action based on these recommendations and how should this be reflected in the upcoming business plan?
3.1	Governance	Institutional	C	How well does the CG operate as a governing body and what are the recommendations for improving the effectiveness and efficiency of the existing structure?
		Institutional	D	How effective is the TAG's role as an advisory body to the CG and in providing strategic advice on ESMAP and ASTAE's strategies, overall priorities and their development into practical business plans?
		Institutional	E	To what extent do the governance and management structures permit and facilitate the effective voice of other partners and stakeholders in the CG and TAG's deliberations?
3.2	Management	Effectiveness	A	To what extent does ESMAP management have the flexibility to design and effectively execute the activities to achieve program goals?
		Institutional	A	How appropriate and effective are ESMAP and ASTAE's organizational structure and staffing profile in realizing a relevant, effective and efficient business plan?
		Institutional	B	How effectively has ESMAP management's accountability been exercised, and how well is M&E built into programming and strategy to strengthen accountability?
		Effectiveness	F	To what extent has the transition to core and/or programmatic funding facilitated flexibility and effectiveness in program planning and management?
3.3	Efficiency and program growth	Efficiency	A	What are the most cost-effective areas of ESMAP and ASTAE operations (by country, region, or thematic area of work, including partnerships)?
		Efficiency	B	Is the monitoring of ESMAP and ASTAE's activities linked to financial monitoring and how is efficiency being measured?
		Efficiency	C	How do ESMAP and ASTAE mandate cost effectiveness?
		Sustainability	A	To what extent have ESMAP and ASTAE managed its growth in a proactive and effective manner?

Report Section	Topic	TOR Theme	TOR #	TOR Question
3.4	Relationship to the World Bank	Institutional	F	Does ESMAP have a strong and complementary relationship to the World Bank and how is that affected by ESMAP's place in the new Global Practice structure?
3.5	Trust fund structuring	Institutional	G	How effective has the integration of AFREA and ASTAE into ESMAP been and what are the relative advantages and disadvantages of the different models of trust funds integration?
3.6	Monitoring and evaluation (M&E) and learning	Relevance	F	Are the stated objectives of ESMAP and ASTAE, consistent with these comparative advantages, clearly defined in strategy documents? Are the program results measurable? Are statements of outcomes linked to program objectives and measurable indicators?
		Effectiveness	C	To what extent do ESMAP and ASTAE have an effective monitoring, reporting and evaluation framework including measurable indicators, systematic and regular processes for collecting data, feedback processes to facilitate decision making and learning, and how effectively these frameworks are used?
		Efficiency	B	Is the monitoring of ESMAP and ASTAE's activities linked to financial monitoring and how is efficiency being measured?
		Sustainability	D	To what extent have ESMAP and ASTAE learned internally from their experiences?
		Sustainability	E	How have ESMAP and ASTAE identified and managed risks?
3.7	Communications	Effectiveness	I	How effective has ESMAP and ASTAE's communication strategies been in reaching a wide range of target groups, including senior level decision makers and those at the operational level?
4.1	Results achievement: outputs and outcomes	Relevance	G	In each area of the work plan, are the identified ESMAP and ASTAE's activities, outputs, and products and resources appropriate to the objectives of the programs?
		Effectiveness	B	To what extent do ESMAP and ASTAE's products, outputs, and activities achieve the intended objectives? (This aspect to be assessed across all work plans.)
		Effectiveness	E	Which ESMAP and ASTAE's activities are most effective in contributing to stated objectives, what are the characteristics of these activities and to what extent can they be replicated in other work plans (i.e., in other regions or thematic areas)?
		Impacts	C	What is the most identifiable development impact of ESMAP and ASTAE and how are they perceived by other constituents, organizations and partners?

Report Section	Topic	TOR Theme	TOR #	TOR Question
4.2	Program impacts and benefits	Impacts	A	To what extent has ESMAP achieved its objective of assisting low- and middle-income countries to increase know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth?
		Impacts	D	To what extent have benefits by support from ESMAP and ASTAE sustained?
		Impacts	E	To what extent are the impact and benefits arising from ESMAP and ASTAE's activities commensurate with the level of effort and resources expended?
4.3	Gender, social and environmental inclusion	Relevance	H	To what extent have ESMAP and ASTAE incorporated and promoted gender and social issues under its work program?
		Effectiveness	H	How has ESMAP addressed the food-water-energy nexus issue as well as cross-cutting issues in terms of environment and social inclusion issues?
4.4	Influence on related investments	Impacts	B	To what extent have ESMAP and ASTAE, directly or indirectly, influenced World Bank's lending operations and investments from the private sector and the donor community more broadly?
5.1	Resource levels	Sustainability	B	What is the optimum resource level for ESMAP (including ASTAE) and what needs to be done to achieve and sustain this level?
5.2	Partnerships	Sustainability	C	How effective are ESMAP and ASTAE in building and developing internal (including IFC) external and bilateral partnerships to achieve their mission objectives?

Annex 3 Methodology

This appendix describes the methodology and instruments (i.e., interview protocols) used to assess the results achieved by ESMAP and ASTAE. The evaluation team originally presented this methodology in its Inception Report.

A3.1 Evaluation Scope

According to the TOR, the evaluation will cover a four year period from July 2011 to June 2015. This period covers two years of the previous (2008-2013) and current (2014-2016) ESMAP business plans, and one year of the previous ASTAE business plan and three years of the current ASTAE business plan (2012-2016). With both these business plans reaching their end date, the World Bank requires an external evaluator to review the performance of ESMAP and ASTAE against their respective business plans and investment frameworks.

The primary objectives of the evaluation are:

- To assess progress towards the intended strategic objectives of the ESMAP and ASTAE;
- To assess the effectiveness and value for money of ESMAP as a global TA program, and the ASTAE's program for the client region and countries;
- To assess the major factors which have influenced results either positively or negatively including program relevance and adaptation to changing needs;
- To provide lessons and recommendations to guide and inform the Consultative Group (CG) and the management of the programs to generate actions to improve the effectiveness of the programs; and
- To assess ESMAP's responsiveness to the core issues identified in the previous external evaluation.

A3.2 Key Roles and Responsibilities

A consulting firm, ICF International (ICF), was selected through a competitive process to conduct this evaluation of GFDRR. The team was led by the Lead Evaluator, Mr. Ravi Kantamaneni, and the Deputy Evaluator was Ms. Jessica Kyle, joined by Senior Evaluation Specialist Mr. Mark Wagner, and Mr. Nikolaos Papachristodoulou and Ms. Christine Gajewski as the other core evaluators. The ICF team was responsible for performing all information-gathering and analysis and preparing the evaluation work products. The ICF team reported directly to the ESMAP Evaluation Task Manager, Ms. Vanessa Lopes Janik.

A3.3 Evaluation Matrix

The evaluation team began by developing an evaluation matrix to guide the assessment process, as provided in the table below.

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
Relevance					
A	To what extent are ESMAP and ASTAE objectives and design of the program consistent with current global/regional challenges and concerns in the energy sector, as well as international processes, and with the needs and priorities of their client countries and groups?	■ Portfolio review of all active and completed activities for technologies, targeted sectors, themes, and markets; outputs and outcomes ■ Comparison of portfolio emphases with global/regional/national priorities ■ *Country case studies* – detailed assessment of how outputs are addressing energy issues in the region/country	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Interviews with ESMAP/ASTAE, CG, TAG ■ Country missions	Y	Y
B	To what extent are the business lines and program priorities in line with its three objectives for the FY2014-16 Business Plan*: Enhance Development Financing; Influence Policy and Strategy and Increase Client Capacity; and Deepen Knowledge and Generate Innovative Solutions*?	■ Review strategy documents to assess relationship between business lines and program priorities with Business Plan objectives ■ Comparison of portfolio emphasis with Business Plan objectives	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Program operational manuals, business plans, portfolio reviews ■ CG TAG documents ■ Interviews with ESMAP regional coordinators	Y	

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
C	How have ESMAP and ASTAE identified and responded to demand from client countries? To what extent has the ASTAE program contributed to promoting low-carbon, green growth, and scaling up supply of and access to sustainable energy on a regional basis?	■ Portfolio review of activity documentation to identify evidence of linkages/coordination between activity plans/outputs and national strategies/requirements ■ Comparison of portfolio emphases with ASTAE program priorities ■ Stakeholder perception of how program outputs have contributed to national strategies/requirements ■ *Country case studies* – review country process for identifying and selecting activities; specifically, the level to which activity design is responding to client demand	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Interviews with ESMAP/ASTAE, CG, TAG ■ Country missions	Y	Y
D	To what extent have ESMAP's new business lines and program priorities responded to the findings and recommendations of the previous evaluation, and the appraisals, reviews, and evaluations conducted by the CG members? Is there still a need for action based on these recommendations and how should this be reflected in the upcoming business plan?	■ Map prior findings/recommendations to current systems and activities to evaluate the type of response that has occurred	■ Interviews with ESMAP (including gender focal points)/ASTAE, CG, TAG ■ Program operational manuals ■ CG documents ■ Prior evaluations, TAG reports, portfolio reviews ■ Annual reports	Y	
E	Do ESMAP and ASTAE have a comparative advantage in the energy sector, and if so, is it adapting to evolving knowledge and client country priorities and needs? To what extent are ESMAP and ASTAE utilizing their comparative advantages in program and product design and delivery of services to clients?	■ *Country case studies* – in-depth interviews with stakeholders to define the advantages offered by ESMAP/ASTAE; and how it has evolved to changing client needs/priorities ■ Stakeholder perception of the specific advantages/value added offered by the programs, and how these advantages are being used.	■ Interviews with ESMAP/ASTAE, CG, TAG, WB ■ Country missions		Y

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
F	Are the stated objectives of ESMAP and ASTAE, consistent with these comparative advantages, clearly defined in strategy documents? Are the program results measurable? Are statements of outcomes linked to program objectives and measurable indicators?	■ Review strategy documents and assess level of consistency between program objectives and identified advantages ■ Review of activity-level monitoring and evaluation (M&E) reports ■ *Country case studies* – in-country assessment of activity processes	■ ESMAP operational manual, M&E documentation ■ CG documents ■ Interviews with ESMAP/ASTAE, CG, and TAG ■ Annual reports, portfolio reviews ■ Country missions	Y	Y
G	In each area of the work plan, are the identified ESMAP and ASTAE's activities, outputs, and products and resources appropriate to the objectives of the programs?	■ Portfolio review of activity documentation to identify linkages between project activities, outputs, products with program objectives ■ Comparison of portfolio emphases with program objectives	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ TAG reports, portfolio reviews ■ CG documents	Y	
H	To what extent have ESMAP and ASTAE incorporated and promoted gender and social issues under its work program?	■ Portfolio review of all activity documentation to assess the proportion that have gender and social issues incorporated in planning/implementation ■ Stakeholder perception of the extent of integration of gender and social issues in project activities ■ *Country case studies* – review country process for identifying and selecting activities; specifically, the role that gender and social issues had in activity design	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ CG documents ■ Prior evaluations, TAG reports, portfolio reviews ■ Interviews with ESMAP/ASTAE staff, TAG, ESMAP reviewers ■ Country missions	Y	Y
Effectiveness					
A	To what extent does ESMAP management have the flexibility to design and effectively execute the activities to achieve program goals?	■ Define internal procedures for developing activities/programs ■ Review evidence of changes made to approach based on new information	■ Program operational manuals, business plans ■ CG documents ■ Interviews with ESMAP/ASTAE, CG, and TAG ■ Annual reports, portfolio reviews	Y	

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
B	To what extent do ESMAP and ASTAE's products, outputs, and activities achieve the intended objectives? (This aspect to be assessed across all work plans.)	■ *Country case studies* – in-depth interviews with stakeholders to define the extent that program activities and outputs meet intended objectives ■ Map the products, outputs and activities to program objectives	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Country missions	Y	Y
C	To what extent do ESMAP and ASTAE have an effective monitoring, reporting and evaluation framework including measurable indicators, systematic and regular processes for collecting data, feedback processes to facilitate decision making and learning, and how effectively these frameworks are used?	■ Establish the history of M&E in the programs – trace history of policies on M&E; establish timeline describing the development, application, and refinement of results frameworks; ■ Describe and assess M&E strategy and policies – procedures defining M&E systems and their implementation; the M&E provisions at the activity, regional, and programmatic levels; and comprehensiveness of the M&E strategy ■ Level of streamlining of M&E into governance and management functions – the use of M&E information in governance and management decisions; and discussion of M&E at CG level	■ Program operational manuals, M&E documentation ■ CG documents ■ Interviews with ESMAP/ASTAE, CG, TAG, WB regional coordinators	Y	
D	How have ESMAP and ASTAE fulfilled its strategic role? How can this role be made more effective in the future, and what are the related options and possibilities going forward?	■ *Country case studies* – in-country interviews to obtain stakeholder perception of strategic role of programs ■ Recommendations to be based on results of evaluation	■ ESMAP regional coordinators ■ Country missions	Y	Y
E	Which ESMAP and ASTAE's activities are most effective in contributing to stated objectives, what are the characteristics of these activities and to what extent can they be replicated in other work plans (i.e., in other regions or thematic areas)?	■ Portfolio review of activities and associated outputs and outcomes – evaluate performance/achievement; compare characteristics and level of replication ■ *Country case studies* – stakeholder perception of effectiveness of activities that have been replicated	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Interviews with ESMAP/ASTAE, TAG ■ Country missions	Y	Y

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
F	To what extent has the transition to core and/or programmatic funding facilitated flexibility and effectiveness in program planning and management?	■ Stakeholder perception of the transition to core and/or programmatic funding on planning/management flexibility ■ Identify documentary evidence of impact of this change to program flexibility and effectiveness	■ Interviews with ESMAP/ASTAE, CG, TAG ■ ESMAP/ASTAE financial reports ■ CG documents	Y	
G	How effective are ESMAP and ASTAE's linkages to the Bank's energy sector policy dialogue and operations, and to what extent are these linkages established at the country or local levels?	■ Map the institutional relationships and lines of communication between programs and WB energy sector operations – describe information flows, and direction of flow; level of communication between programs, WB energy sector, and recipient countries ■ *Country case studies* – stakeholder perception of linkage between activities (historic and/or current) and WB energy sector operations; evidence/examples of ongoing linkages	■ Interviews with ESMAP/ASTAE, WB ■ Program operational manuals ■ Country missions	Y	Y
H	How has ESMAP addressed the food-water-energy nexus issue as well as cross-cutting issues in terms of environment and social inclusion issues?	■ Portfolio review of all activity documentation to assess the proportion that achieve food-water-energy nexus and include environmental/social inclusion issues ■ Stakeholder perception of the extent of integration of these issues in project activities ■ *Country case studies* – review country process for identifying and selecting activities; specifically, the role of food-water-energy nexus and environmental/social in activity design	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Annual reports, TAG reports, portfolio review ■ Interviews with ESMAP/ASTAE, TAG ■ Country missions	Y	Y
I	How effective has ESMAP and ASTAE's communication strategies been in reaching a wide range of target groups, including senior level decision makers and those at the operational level?	■ Describe program communication strategy and procedures – define type of information that flows between actors, the type of actors that are being communicated with; and how often ■ *Country case studies* – stakeholder perception of communication strategy; confirmation if anticipated target groups have been received information	■ Interviews with ESMAP/ASTAE, TAG ■ Program operational manuals ■ Country missions	Y	Y

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
Efficiency					
A	What are the most cost-effective areas of ESMAP and ASTAE operations (by country, region, or thematic area of work, including partnerships)?	■ Portfolio review of all approved activities for economic analyses and associated metrics, including cost per performance indicator (e.g., WB lending catalysed), level of disbursement, outcomes ■ Review of written comments, and meeting reports for discussion of cost-effectiveness	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Annual reports, TAG reports, portfolio review ■ Interviews with ESMAP/ASTAE, TAG	Y	
B	Is the monitoring of ESMAP and ASTAE's activities linked to financial monitoring and how is efficiency being measured?	■ Describe M&E policies – procedures for financial monitoring ■ Review financial reports to evaluate measurement of efficiency	■ ESMAP operational manual, M&E documentation ■ CG documents ■ Interviews with ESMAP/ASTAE, TAG ■ ESMAP/ASTAE financial reports	Y	
C	How do ESMAP and ASTAE mandate cost effectiveness?	■ Level of streamlining of financial monitoring into governance and management functions – the use of cost effectiveness in governance and management decisions; and discussion at CG level	■ Program operational manuals, M&E documentation ■ CG documents ■ Interviews with ESMAP/ASTAE, CG, TAG ■ ESMAP/ASTAE financial reports	Y	
Impacts					
A	To what extent has ESMAP achieved its objective of assisting low- and middle-income countries to increase know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth?	■ Assess performance measured against Results Framework indicators ■ *Country case studies* – interviews with country stakeholders to qualitatively assess if ESMAP/ASTAE have achieved objectives to increase know-how and institutional capacity.	■ Interviews with ESMAP/ASTAE, TAG ■ Program operational manuals ■ Country missions	Y	Y

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
B	To what extent have ESMAP and ASTAE, directly or indirectly, influenced World Bank's lending operations and investments from the private sector and the donor community more broadly?	■ Portfolio analysis of expected co-financing (co-financing ratio, amount co-financed by activity type, type of entity providing co-financing [e.g., public, WB, private]) ■ Stakeholder perception of leverage and whether funds have been crowded out or in ■ *Country case studies* – interview stakeholders to assess whether activities would have been able to get financing without ESMAP/ASTAE involvement; determine actual co-financing for activities under implementation	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Interviews with ESMAP/ASTAE, TAG, WB, WB regional coordinators ■ Country missions	Y	Y
C	What is the most identifiable development impact of ESMAP and ASTAE and how are they perceived by other constituents, organizations and partners?	■ Portfolio analysis of expected outcomes ■ Stakeholder perception of development impact of program activities ■ *Country case studies* – in-depth assessment of whether expected and perceived outcomes are the same, and the reason for any differences	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Interviews with ESMAP/ASTAE, TAG, WB regional coordinators ■ Country missions	Y	Y
D	To what extent have benefits by support from ESMAP and ASTAE sustained?	■ Establish program-level expectations or criteria related to sustainability; review logic models for assumptions and elements related to sustainability ■ Portfolio review of activity documents for plans for sustainability; determine if assumptions have been explicitly stated, and what they are. ■ *Country case studies* – deeper assessment of plausibility of sustainability; such as, broad-based stakeholder support for the project; the presence of financing gaps after program funds are disbursed; and potential risk of reversal or change due to government policies.	■ Review of activity documentation, including project summary documents, grant funding requests, project concept notes; products, results frameworks ■ Program operational manuals ■ Annual reports, TAG reports ■ Interviews with ESMAP/ASTAE, TAG ■ Country missions	Y	Y
E	To what extent are the impact and benefits arising from ESMAP and ASTAE's activities commensurate with the level of effort and resources expended?	■ Recommendations to be based on results of evaluation	■ All information sources used in the evaluation	–	–

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
Institutional Arrangements and Management					
A	How appropriate and effective are ESMAP and ASTAE's organizational structure and staffing profile in realizing a relevant, effective and efficient business plan?	■ Describe program organisational structure – linkage/contribution to realisation of business plan, including staff roles and responsibilities, characterisation of responsibilities and actions along spectrum from administration to management ■ Analysis of actual administrative/operating costs, including staff costs, consultants, travel, publications and outreach, costs of meetings, and other general operations costs ■ Determine cost of program delivery and efficiency ratio (ratio of program delivery costs to total expenditures) ■ To the extent feasible, benchmarking administrative cost ratios with other global programs	■ ESMAP/ASTAE financial reports, business plans ■ Program operational manuals ■ Interviews with ESMAP/ASTAE ■ Secondary literature review of other global programs	Y	
B	How effectively has ESMAP management's accountability been exercised, and how well is M&E built into programming and strategy to strengthen accountability?	■ Describe the agreed/stated responsibilities of ESMAP management, and accountability systems ■ Assess performance of ESMAP management relative to these responsibilities – identify areas where accountability has been exercised, associated outcomes ■ Describe M&E policies and procedures – evidence of integration into program decision making and strategy	■ Interviews with ESMAP/ASTAE, CG, TAG ■ Program operational manuals, M&E documentation ■ CG documents	Y	
C	How well does the CG operate as a governing body and what are the recommendations for improving the effectiveness and efficiency of the existing structure?	■ Describe the agreed/stated responsibilities of the CG ■ Assess performance of the CG relative to these responsibilities ■ Review proportion of CG decisions that are integrated into program design/strategy	■ Interviews with ESMAP/ASTAE, CG, TAG ■ Program operational manuals ■ CG documents	Y	

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
D	How effective is the TAG's role as an advisory body to the CG and in providing strategic advice on ESMAP and ASTAE's strategies, overall priorities and their development into practical business plans?	■ Describe the agreed/stated responsibilities of the TAG ■ Assess performance of the TAG relative to these responsibilities – stakeholder perceptions on quality of reports and advice ■ Review proportion of TAG advice that are integrated into CG decisions	■ Interviews with ESMAP/ASTAE, CG ■ Program operational manuals, TAG reports, TAG terms of reference ■ CG documents	Y	
E	To what extent do the governance and management structures permit and facilitate the effective voice of other partners and stakeholders in the CG and TAG's deliberations?	■ Describe governance/management structure – identify areas where stakeholder comments can be integrated; assess and identify evidence of integration, and their outcomes ■ *Country case studies* – stakeholder perceptions of alignment/integration of country/regional level priorities in CG and TAG deliberations	■ Interviews with ESMAP/ASTAE, TAG ■ Program operational manuals, TAG reports ■ CG documents ■ Country missions	Y	Y
F	Does ESMAP have a strong and complementary relationship to the World Bank and how is that affected by ESMAP's place in the new Global Practice structure?	■ Describe organisational structure of WB ■ Map the institutional and operational relationship between ESMAP and WB – describe information sharing mechanisms, staff coordination, complimentary objectives	■ Interviews with ESMAP/ASTAE, WB ■ Program operational manuals	Y	
G	How effective has the integration of AFREA and ASTAE into ESMAP been and what are the relative advantages and disadvantages of the different models of trust funds integration?	■ Stakeholder perception of AFREA/ASTAE integration ■ Analysis of administrative/operational costs to quantify program delivery and efficiency ratio ■ Portfolio review to assess how program funding, activities and outputs compare before and after integration	■ Interviews with ESMAP/ASTAE, WB regional coordinators ■ ESMAP/ASTAE financial reports ■ Review of activity documentation ■ Annual reports, portfolio review	Y	
Strategy for Program Sustainability					

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
A	To what extent have ESMAP and ASTAE managed its growth in a proactive and effective manner?	■ Compare staffing levels and administrative expenditure against overall program budget during evaluation period ■ Compare the change in disbursement rates across focus areas against business plan targets ■ Stakeholder perceptions of how management has responded to larger budgetary commitments and targets	■ Interviews with ESMAP/ASTAE, CG, TAG ■ ESMAP/ASTAE financial reports ■ Program operational manuals	Y	
B	What is the optimum resource level for ESMAP (including ASTAE) and what needs to be done to achieve and sustain this level?	■ Recommendations to be based on results of evaluation	■ N/A	–	–
C	How effective are ESMAP and ASTAE in building and developing internal (including IFC) external and bilateral partnerships to achieve their mission objectives?	■ Stakeholder perception of extent of cooperation ■ Review evidence of cooperation – identify joint meetings between ESMAP and other organisations ■ Portfolio review for specific mention of linkages/coordination with internal/external and bilateral organisations ■ Country case studies – national level assessment of coordination	■ Interviews with ESMAP/ASTAE, CG, TAG, WB, WB regional coordinators ■ Program operational manuals ■ Review of activity documentation ■ Annual reports ■ Country missions	Y	Y
D	To what extent have ESMAP and ASTAE learned internally from their experiences?	■ Describe learning strategy and/or guidance on learning activities ■ Identify evidence of lessons learned impacting decision making ■ Benchmark against comparator organisations	■ Interviews with ESMAP/ASTAE, TAG ■ Program operational manuals, TAG reports ■ Secondary literature review of other global programs	Y	

#	Key Questions	Approach/Indicators	Information Sources	Desk Review	Country Mission
E	How have ESMAP and ASTAE identified and managed risks?	■ Identify major risks faced by the programs ■ Describe what information is currently gathered to assess and manage those risks, and how risks are managed ■ Portfolio review of project documents for characterization of project riskiness (i.e., risk ratings) and provision of risk management plans ■ Stakeholder perceptions on risk sensitivities and adequacy of current risk management ■ *Country case studies* – assess due diligence with in-country project developers	■ Interviews with ESMAP/ASTAE, TAG ■ Program operational manuals, TAG reports ■ Review of activity documentation ■ Country missions	Y	Y
F	To what extent have ESMAP and ASTAE demonstrated adaptability or responsiveness the changing global environment including external shocks?	■ Stakeholder perceptions of ESMAP/ASTAE response to global environment and external shocks ■ Identify evidence of responsiveness to global environment and external shocks, including type of response, and timeliness	■ Interviews with ESMAP/ASTAE, CG, TAG, WB, WB regional coordinators ■ Annual reports, financial reports, business plans ■ CG documents, TAG reports	Y	

A3.4 Data Collection Methods

The evaluation collected information from desk review and stakeholder consultation.

A3.4.1 Desk Review

The evaluation team reviewed both internal and external documents relevant to ESMAP and ASTAE interventions, including:

- Documents and data produced by ESMAP and ASTAE, including grant proposals (GFR, PSF) and ToRs, project progress reports and completion reports (GRM), financial reports, strategic documents, business plans, operational manuals, program annual reports, and stories of impact.
- Consultative Group (CG) briefings and documents, TAG reports
- ESMAP monitoring information available through the M&E System.
- Documentation related to World Bank development policy lending and investment operations that are directly or indirectly linked to ESMAP.
- Reports and other documents produced by donor countries, private sector, and other entities related to the Programs.
- Previous evaluations of ESMAP and ASTAE.

A full list of documents consulted for this evaluation is provided in Annex 5.

A3.4.2 Activities selection

The activities assessed by means of desk review and/or site visits covered over 25% of ESMAP's Portfolio during the 2011-2015 period (77 out of 286 activities listed on M&E portal; June 2015). A total of 40 activities were in the specific countries selected for visits, while the remainder (37) were assessed solely on desk review.

The sampling method used for the selection of activities considered the following:

- **Program representation**. The selected activities provided coverage across the main focus areas.
- **Geographical representation**. The selection covered all six operational regions, as well as Regional and Global activities, and provided balance across the focus areas.
- **Project status**. In order to ensure that sufficient evidence would be available, active and recently closed activities were prioritized during the evaluation period (2011-2015).

Table A3.1 summarizes the projects assessed per region.

Table A3.1 List of activities assessed during desk review and country missions

ProjectID	Activity Title	Country	Status	Program	SubProgram	Approach
Africa						
P151162	Unlocking Nigeria's Potential for Gas	Nigeria	Active	EASP		Desktop review
P147397	AFREA II Nigeria: Electrification Access Program Development - TA	Nigeria	Active	Energy Access	AFREA	Desktop review
P132093	CFL and Incandescent Lamp recycling Operation Framework	Ethiopia	Active	Energy efficiency		Desktop review
PIFC001	Renewable Energy Resource Mapping Initiative: Lesotho	Lesotho	Active	Clean Energy	Renewable Energy	Desktop review
P118439	Catalyzing New Renewable Energy in Rural Liberia - Phase 2	Liberia	Active	Energy access	AFREA	Desktop review
P127726	Africa Clean Cooking Energy Solutions	Region	Closed	Energy access		Desktop review
P149119	AFREA 2 Gender and Energy Program	Region	Active	Gender	AFREA	Desktop review
P145845	SE4ALL TA for Senegal	Senegal	Active	Energy access		Site visit | Desktop review
P143254	Seychelles RE Feed-in Tariff and Grid Co	Seychelles	Active	SIDS-DOCK		Desktop review
East Asia Pacific						
P145283	Financing Options with Private Sector Participation for a Medium Hydro Power Project in Outer Islands Indonesia	Indonesia	Active	Clean Energy		Site visit
P145283	Financing Options with PPP for a Medium Hydro Power Project in outer Islands	Indonesia	Active	Clean Energy		Site visit
P121842	Building Innovation Capacity in Clean Energy in Indonesia	Indonesia	Closed	ASTAE	Renewable Energy	Site visit | Desktop review
P129829	Support to the design of an RBF mechanism for the implementation of the Indonesia Clean Stove Initiative	Indonesia	Active	Energy Access		Site visit
P146316	Reforming the Minibuses in Surabaya	Indonesia	Active	Energy Efficiency		Site visit | Desktop review
P128568	Indonesia - Renewable Energy Access Improvement	Indonesia	Active	ASTAE	Renewable Energy	Site visit | Desktop review
P113078	Geothermal Power Development Program II	Indonesia	Active	ASTAE	Renewable Energy	Site visit
P144091	Integration of Social Dimension in Energy Access Projects	Indonesia	Active	ASTAE	Energy Access	Site visit
P129829	Clean Stove Initiative, Support to the Emergence of Scalable Biomass Stoves Markets	Indonesia	Active	ASTAE	Energy Access	Site visit | Desktop review
P128568	Geospatial Mapping and Least Cost Electrification Planning	Indonesia	Closed	Clean Energy	Renewable Energy	Site visit
P130999	Renewable Energy for Electrification - PLN Capacity Building in HOMER	Indonesia	Closed	Clean Energy		Site visit
P113078	Geothermal Clean Energy Investment Project	Indonesia	Closed	Clean Energy		Site visit
P148620	Large Enterprises Energy Efficiency Project	Indonesia	Active	ASTAE	Energy Efficiency	Site visit
P143753	Indonesia Capacity Strengthening and Risk Mitigation for Geothermal Development	Indonesia	Active	Clean Energy		Site visit
P145273	Renewable Energy Resource Mapping and Geospatial Planning: Indonesia	Indonesia	Active	Clean Energy	Renewable Energy	Site visit
P149098	Support for Preparation of Indonesia Hydropower Project	Indonesia	Active	ASTAE	Renewable Energy	Site visit
P146777	Inclusive Green Growth for EAP Cities	Indonesia	Active	Energy Efficiency		Site visit
P149098	Local Benefit Sharing for Hydropower Projects in Indonesia	Indonesia	Active	EASP		Site visit
P144213	Indonesia Clean Stove Initiative - Piloting Biomass Cookstove Markets, RBF and MEMR Component	Indonesia	Active	ASTAE	Energy Access	Site visit
P112158	Support to Integrated Catchment Program for Upper Cisokan Pumped Storage Project	Indonesia	Active	ASTAE	Renewable Energy	Site visit
To be confirmed	*To be confirmed*	Indonesia	*To be confirmed*	RB Funding Approach		Site visit
P123636	Philippines Rural Electricity Cooperatives: Reform and Restructuring	Philippines	Closed	Energy access		Desktop review
P143390	Greenhouse Gas Emission Mitigation in Road Transport: Toolkit Implementation and Life-Cycle Analysis	Region	Active	ASTAE	Energy Efficiency	Desktop review
P131250	Implementation Support for the Tonga TERM-IU	Tonga	Active	ASTAE	Renewable Energy	Desktop review
P103238	Cumulative Impact Assessment on Small Hydropower Projects on River Cascades	Vietnam	Closed	ASTAE	Renewable Energy	Desktop review
Europe and Central Asia						
P146501	Turkey: Energy Efficiency Institutional Review	Turkey	Active	Energy Efficiency		Site visit
P149638	Energy Reform Milestones and Challenges	Turkey	Active	EASP		Site visit | Desktop review
P147492	Social Compact in Electricity Privatization in Southeastern Turkey	Turkey	Active	EASP		Site visit
P129244	National Watershed Management	Turkey	Closed	Clean Energy		Site visit
P130578	Facilitating Small and Medium Enterprise Financing for Energy Efficiency in Turkey	Turkey	Closed	Energy Efficiency		Site visit
P133200	Energy Efficiency Scale-Up Plan in Buildings	Region	Closed	Energy efficiency		Desktop review
P133217	Strategic Analysis of Water Resources Development Options in the Upper Amu Darya Basin	Region	Closed	EASP		Desktop review
P129900	Facilitating commercial municipal energy efficiency finance in Ukraine	Ukraine	Closed	EASP		Desktop review

ProjectID	Activity Title	Country	Status	Program	SubProgram	Approach
Latin America and Caribbean						
P143708	ECERA Eastern Caribbean Energy Regulation Authority	St. Lucia [Region]	Active	SIDS-DOCK		Site visit | Desktop review
P132646	Geothermal Resource Development in Saint Lucia	St. Lucia	Active	SIDS-DOCK		Site visit | Desktop review
P133060	TRACE Model in Pilot Cities in Latin America	Colombia, Mexico	Closed	Energy efficiency		Desktop review
P117864	Peru Second Rural Electrification	Peru	Closed	Energy access		Desktop review
P127837	Deploying new solar technologies for isolated rural areas: supporting their adoption in LAC	Argentina, Bolivia	Active	Clean Energy		Desktop review
P128535	Impacts of High Oil Prices in Latin America	Region	Closed	EASP		Desktop review
P143848	Introduction of LNG in Central America and the Caribbean	Region	Active	EASP		Desktop review
P144262	Achieving Energy Efficient Urban Transport in Cities in Latin America	Region	Active	Energy efficiency		Desktop review
P144569	Assessment of Geothermal Potential in Latin America & Caribbean	Region	Active	Clean Energy		Desktop review
Middle East and North Africa						
P117407	Policy Note on Social Accountability in the Egypt Energy Sector	Egypt	Active	EASP		Site visit
P129680	Egypt Energy Pricing and Subsidy	Egypt	Active	EASP		Site visit | Desktop review
P146007	Egypt Gas Regulator Capacity Building	Egypt	Active	EASP		Site visit
P148192	Data analytics for urban transport to mitigate climate change ? Cairo	Egypt	Closed	Energy Efficiency		Site visit
P155336	Egypt: Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility	Egypt	Active	EASP		Site visit
P146656	Benchmarking Electricity Utilities performance in the MENA Region	Egypt, Jordan, Lebanon	Active	EASP		Desktop review
P113684	North Africa Regional CSP Scale-Up Initiative	Region	Active	Clean Energy		Desktop review
P121039	Low Carbon Action Plan for Transport Sector	Tunisia	Closed	Clean Energy		Desktop review
P129821	Tunisia -Low Carbon Energy Strategy	Tunisia	Closed	Clean Energy		Desktop review
South Asia						
P131263	Household Energy in South Asia Region	Bangladesh	Active	ASTAE	Renewable Energy	Site visit | Desktop review
P150086	Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh	Bangladesh	Active	EASP		Site visit
P151756	Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka	Bangladesh	Active	Energy Efficiency		Site visit
P071794	Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification	Bangladesh	Closed	ASTAE	Renewable Energy	Site visit
P127974	Institutional Strengthening of Power Utilities in North-East Region (NER)	India	Active	EASP		Desktop review
P145887	Access to Electricity solutions in south asia	India	Closed	ASTAE	Energy Access	Desktop review
P146140	Renewable Energy Resource Mapping and Geospatial Planning: Pakistan	Pakistan	Active	Clean Energy		Desktop review
P132250	Colombo Low Carbon Urban Transport TA	Sri Lanka	Active	Energy efficiency		Desktop review
P146366	Mitigation Options for Short-Lived Climate Pollutants in South Asia	Region	Active	Energy efficiency		Desktop review
Global						
2073410	Energy Sector Low Carbon Development Operational Support	Global	Active	EASP	Renewable Energy	Desktop review
2073725	Tool for Rapid Assessment of City Energy (TRACE): Deployment and Dissemination	Global	Active	Energy efficiency		Desktop review
P127532	Results-Based Funding for Energy Sector Development	Global	Active	RB Funding Approach	Results Based Funding	Desktop review
P127938	Smart Grids Knowledge Exchange Platform	Global	Active	Clean Energy	Renewable Energy	Desktop review
P128961	Integration of Renewable Energy Technologies in Sustainable Infrastructure	Global	Closed	Clean Energy	Renewable Energy	Desktop review
P128995	International Experience with Private Sector Participation and Open Access in Power Grids	Global	Closed	EASP		Desktop review
P147443	Gender and Large Energy Infrastructure	Global	Active	Energy access		Desktop review
P148200	State of Access Report	Global	Active	Energy access	Renewable Energy	Desktop review
77						

A3.5 Country visits

A3.5.1 Country Selection

Choosing suitable countries for this study is an important part of ensuring that the overall objectives of this scoping study are met. The main parameters used to identify the six countries that would be the basis for additional assessment are presented in the following:

- **Program representation**. The six selected countries should provide coverage across the main focus areas,[69] including AFREA and ASTAE.
- **Geographical representation**. The selection should cover all six operational regions and should provide balance across the focus areas. In addition, those countries in each region with a higher share of activities and fund allocation/disbursement should be prioritized.
- **Project status**. In order to get a preliminary idea of the results and the transformative nature of ESMAP projects on-the-ground and to ensure that sufficient evidence will be available, all active and closed activities during the evaluation period (i.e., over 280 projects between 2011-2015) should be included in the selection. Global and regional activities, i.e., non-country specific activities, will also be qualitatively noted in the selection process.
- **Adjustments for balance across sectors, themes and other notable areas of evaluative interest**. Considering that ESMAP's objectives include replicating lessons in responding to challenges, through different thematic areas as well as incorporating and promoting gender and social issues under the program, where possible, adjustments should be made to the country selection to gain balance across areas of interest (e.g. income level, targeted sectors, etc.). When country selection was not constrained by the above-mentioned criteria, these adjustments were applied.

External circumstances that could potentially affect the effectiveness or the visits were also taken into consideration for the selection.

Table A3.2 presents the countries meeting the criteria defined above in each of the six ESMAP/ASTAE operational regions.

[69] ASTAE, Clean Energy, Energy Access, Energy Assessments & Strategy Program (EASP), Energy Efficiency, Gender, AFREA, Results-Based Funding Approaches and SIDS-DOCK.

Table A3.2 Activities per focus area for countries meeting the selection criteria

Region | Country	ASTAE	Clean Energy	Energy Access	EASP	Energy Efficiency	SIDS-DOCK	RBF	Total
Africa	-	**1**	**7**	**4**	-	-	-	**12**
Liberia			2					2
Niger			1	2				3
Nigeria			1	1				2
Sudan			1					1
Tanzania			1	1				2
Senegal		1	1					2
East Asia Pacific	**17**	**12**	**2**	**7**	**8**	-	**1**	**47**
China		3		4	5			12
Indonesia	9	7	1	1	2		1	21
Philippines	3	1	1	1	1			7
Vietnam	5	1		1				7
Europe and Central Asia	-	**1**	-	**6**	**10**	-	-	**17**
Belarus					3			3
Kyrgyz Republic				2	2			4
Tajikistan				1				1
Turkey		1		2	2			5
Ukraine				1	3			4
Latin America and Caribbean	-	**1**	-	-	**3**	**3**	-	**7**
Dominica						1		1
Mexico		1			3			4
St. Lucia						2		2
Middle East and North Africa	-	**2**	-	**6**	**2**	-	-	**10**
Egypt Arab Republic of				4	2			6
Tunisia		2		1				3
Yemen				1				1
South Asia	**7**	**2**	**1**	**2**	**2**	-	-	**14**
Bangladesh	2			1	1			4
India	2		1	1	1			5
Maldives	1	1						2
Pakistan	2	1						3
Total	**24**	**19**	**10**	**25**	**25**	**3**	**1**	**107**

Source: data compiled from the ESMAP M&E portal as of June 26, 2015 and ESMAP-ASTAE Portfolio Review, FY2009-14.

Using data from the M&E portal, as well as other additional sources, six out of 52 countries were chosen.

Table A3.3 Countries selected for country missions

Region	Country
Africa	Senegal
East Asia Pacific (EAP)	Indonesia
Europe and Central Asia (ECA)	Turkey
Latin America and Caribbean (LAC)	St. Lucia

Region	Country
Middle East and North Africa (MENA)	Egypt
South Asia	Bangladesh

The selected countries cover a total of 40 active and closed activities; a detailed list of these activities in the selected countries is shown in Table A3.1. Some adjustments were made in the selection process to account for logistical and other factors. For instance, considering that Tanzania and India were visited during the external evaluation completed in 2012; these two countries were disregarded from the selection for Africa and South Asia. Similarly, in MENA, Nigeria, which was initially selected for a visit, was substituted by Senegal due to agenda constraints (i.e., the government standstill after the 2015 elections).

Table A3.4 presents the variety of focus areas, region, income level, sectors and other thematic areas for the selected countries.

The selection covers the majority of focus areas; however, “gender” is not covered as a specific project activity in the selected countries, as it is primarily focused at Global and Regional levels. However, as noted in Table A3.4, most of the selected countries incorporate gender and social themes. The selection also ensures coverage across a broad variety of sectors and themes, and includes economies in different income ranges eligible for the benefit: lower-middle and upper-middle, including two least developed country (LDC), Bangladesh and Senegal.

Table A3.4 Sectors and Themes per Country and Region

Region	Country	Income level				Product Line				Sector								Theme											
		Lower middle income	Upper middle income	Least Developed Country	Social & Gender	Economic and Sector Work (ESW)	Technical Assistance (TA) (non-lending)	Knowledge Product (KP)	Partnership (PT)	General Energy	Oil and Gas	Hydropower	Other Renewable Energy	Urban Transport	Transmission and Distribution of Electricity	Energy Efficiency in the Power Sector	Other[1]	Urban Services and Housing for the Poor	Infr. Services for Private Sector Development	Rural development	Climate Change	Gender	Environment and natural resources management	Environmental Policies and Institutions	Regulation and Competition Policy	Othr public sector governance	Pollution Management and Environmental Health	Other[2]
Africa	Senegal	x		x	x		x			x					x			x	x						x			x
East Asia Pacific	Indonesia	x			x		x		x	x		x	x	x			x		x	x	x	x	x				x	x
Europe and Central Asia	Turkey		x		x	x	x			x					x	x	x		x		x				x	x	x		x
Latin America and Caribbean	St Lucia		x		x		x						x				x									x			x
Middle East and North Africa	Egypt Arab Republic of	x			x	x	x			x	x		x	x		x	x	x	x	x	x				x				x
South Asia	Bangladesh	x		x						x			x			x	x			x	x		x				x	x	x

Source: data compiled from the ESMAP M&E portal as of June 26, 2015 and World Bank, 2015.

[1]Coal Mining, Flood Protection, General Transport, Other Mining and Extractive Industries , Ports Waterways and Shipping, Railways, Rural and Inter-urban Roads and Highways, Sanitation, Thermal Power Generation, Solid Waste Management, Wastewater Collection and Transportation , Wastewater Treatment and Disposal, Water Supply, Aviation and other Sector, Water Sanitation and Flood Protection.

[2]Social development gender and inclusion, Social protection and risk management, Trade and integration, Corporate Governance, Export Development and Competitiveness, Land Administration and Management, Legal Institutions for a Market Economy, Managing for Development Results, Micro, Small and Medium Enterprise Support, Municipal Finance, Municipal Governance and Institution Building, Other Accountability/Anti-Corruption, Other Urban Development, Participation and Civic Engagement, Regional Integration, Rural Non-Farm Income Generation, State-Owned Enterprise Restructuring and Privatization, Urban development, Pollution Management and Environmental Health, Other Theme.

A3.6 Stakeholder Input

Stakeholder input was gathered primarily via key informant interviews, in-person in Washington, DC, and during country visits, and via Skype or telephone when in-person interviews were not possible. Email inquiries were also made to supplement interviews or to facilitate follow up questions.

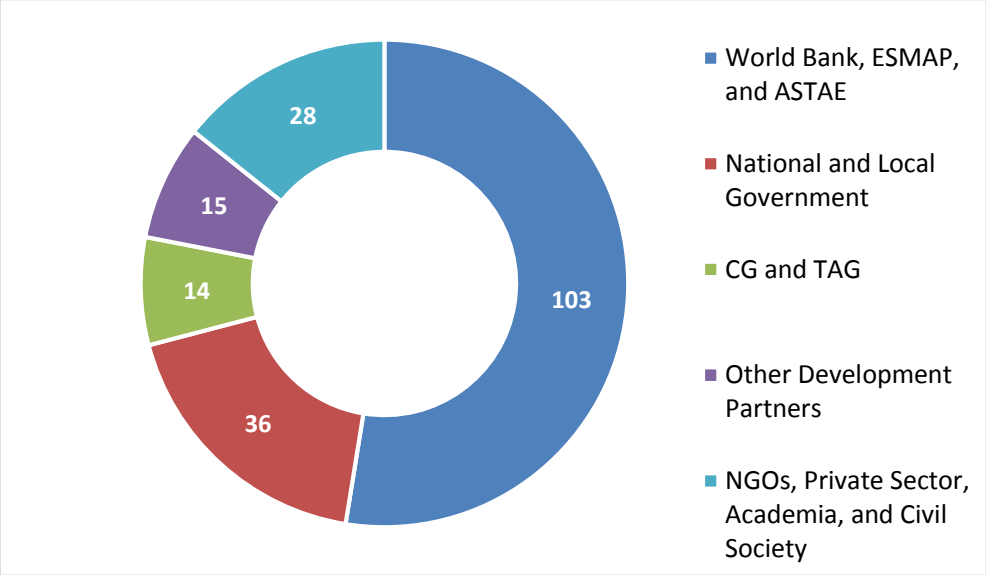
A list of priority informants was developed by the ESMAP Evaluation Task Manager (in consultation with ESMAP staff) and provided to the evaluation team. To ensure that a range of perspectives are represented, the evaluation team reviewed and supplemented this list through a number of channels including: reviewing ESMAP grant documentation (e.g., GFR, GRM) to identify stakeholder names, making inquiries with TTLs or other project staff, and coordinating with our local consultants.

Key informant interviews were conducted using a semi-structured interview format. The protocols that guided the interviews for each group of informants (ESMAP, ASTATE and World Bank staff; host country governments and other beneficiaries; and partners) are provided in Section A3.8 below.

Country visits were conducted by one-person teams during September and November 2015: St Lucia (September 14-17); Indonesia (September 28 to October 5); Egypt (October 11-13); Turkey (October 19-23); Senegal (October 28-30) and Bangladesh (November 3-5). The evaluation team was accompanied by national consultants in St Lucia (Dr. Vasantha Chase), Indonesia (Mr. Shalahuddin Hasan), Egypt (Dr Hamed Korkor), Turkey (Mr. Murat Cevik), Senegal (Mr. Nicolas W. Etoyi), and Bangladesh (Mr. Mohammad Syful Hoque).

Nearly 200 stakeholders were consulted, as summarized in the table below; a full list of stakeholders consulted is provided in Annex 4.

Figure A3.1 Summary of Stakeholders Consulted for the Evaluation



A3.7 Methods of Analysis

Methods of analysis include hypothesis building and testing; portfolio analysis; timeline creation; analysis of stakeholder consultation and survey information using modified grounded theory. Building on the completion of these analyses, and nearing the end of the evaluation analysis phase, triangulation will be used to synthesize and identify findings

across methods. Feedback analysis will also be conducted during the evaluation period, after input is received on evaluation work products from key reviewers.

A3.7.1 Hypothesis building and testing

Throughout the evaluation, the ICF Team will engage in an iterative process of building and testing hypotheses. Working hypotheses may be developed through interview feedback or desk review, for instance, and then tested through additional evidence collection, including follow-up interviews and documentary review. This ongoing process will continue through to the analytical phase of the evaluation, where specific analysis methods, such as triangulation, will help to finalize our conclusions.

A3.7.2 Portfolio analysis

Portfolio analysis will be conducted using the following:

1. The program operational databases, as maintained by ESMAP; and
2. The desk review database, as developed according to the method presented above, including data collected from project summary documents, grant funding requests, portfolio reviews, regional coordinator/ project reviewer reports, etc.

The ICF Team will link these distinct databases to identify and explore trends in the programs, as described in the evaluation matrix. These trends will include, for example, relationships between various factors such as the financial, temporal, and descriptive content of the projects and investment plans.

A3.7.3 Timeline creation

This analysis will involve the development of a coherent, time-ordered sequence of ESMAP/ASTAE actions at the program and country level. Much of this information will be gathered through desk review, and in-depth interviews with ESMAP management and staff, WB regional teams, and recipient country stakeholders. Visualizing actions in a timeline can allow us to make inferences about the contribution of ESMAP/ASTAE to the achievement of its expected outputs and outcomes. These inferences can be further validated through other analytical methodologies, including triangulation.

A3.7.4 Analysis of stakeholder consultation and survey information

The ICF Team will use data capture spreadsheets to organize information gathered through interviews and group discussions. Information will be systematically entered into the data capture spreadsheets, along with key identifying information, such as the name of the interviewee, the type of stakeholder group they represent, and their contact information. The information entered into the data capture spreadsheets will allow for sorting in different ways—by stakeholder group, focus area or region, for instance—to support qualitative analysis.

ICF will use a modified approach to grounded theory to allow themes and hypotheses to emerge from the consultation data. This modified approach entails reading and re-reading the data to identify themes and patterns, and iteratively testing those patterns for disconfirming evidence.

Similar analytical methods can be applied to the survey information, which will be quantitatively and qualitatively assessed to inform specific evaluation questions. When assessing the survey results a variety of factors will be considered, including the sample size, response rate, and consistency of the results with findings from other evaluation instruments on the same topics. These factors will be weighed to interpret the validity of the results.

A3.7.5 Triangulation

Near the end of the data analysis phase, ICF will conduct a group working session with all members of our team that have played a critical role in collecting and analyzing empirical

evidence. Team members that have conducted multiple interviews; analyzed survey data; and led desk review and analysis will participate. This session will be led by our Team Leader in London, UK, with participation by our team members in London and the U.S.

At the group working session, staff will be asked to offer up preliminary findings for each evaluation question based on the evidence they have collected by each method in the three research areas: perceptions, validation, and documentation. Key findings can then be identified for each evaluation question by looking, in part, at which findings are confirmed by more than one research area or method. This "working group" process allows for cross-checking and minimizes the likelihood that anecdotes will factor in to the key findings. The triangulation analysis also highlights which findings require further research for confirmation. Once key findings are confirmed, overall evaluation conclusions and recommendations—flowing logically from the findings—will be identified through a second working group process.

A3.7.6 Feedback analysis

The evaluation processes allows for multiple opportunities for the ICF team to receive feedback, including substantive comments from the ESMAP evaluation project manager, Miki Endo, and ESMAP management. ICF will use these opportunities to improve the evaluation report, correcting any errors and seeking new data to challenge or confirm findings.

A3.8 Interview Protocols

PROTOCOL FOR KEY INFORMANT INTERVIEWS: ESMAP AND WORLD BANK STAFF

External Evaluation of ESMAP/ASTAE

Date: _____

Name: _____

Title: _____

Interviewer(s): _____

Introduction

- Inform the interviewee of the overall aim of the interview, the time allotted, and that their comments will not be attributed.

- If appropriate, ask the interviewee to begin with a brief description of their involvement with ESMAP/ASTAE.

Guiding Research Questions for Interviews

1. What do you see as the value-added of the program, and how it has contributed to national strategies/requirements and/or global knowledge/initiatives?
   a. What activities have contributed the most and why?
   b. How sustainable are the related outcomes?

2. What is the extent of ownership by and coordination with national and/or local governments and other partners?
   a. Please describe the type of communication among ESMAP stakeholders to meet program/activity objectives.

3. How much flexibility do you have in the design and execution of program activities?
   a. What obstacles or problems have been encountered in the delivery of the program, and how have you addressed them?
   b. What are the reasons for faster or slower disbursement/progress across activities?

4. To what extent have ESMAP activities crowded in or out additional funds?
   a. Have the activities led to an expansion of resources available at the national level?
   b. If so, what is the source of these additional resources?

5. To what extent have ESMAP/ASTAE activities informed or influenced World Bank country policy dialogue and lending?
6. To what extent are programs promoting and achieving gender and social co-benefits?
   a. What evidence can you provide of these impacts?
   b. How and to what extent will the activity's impacts be sustained in the future?

7. How effective are the activity-level M&E systems in capturing the overall results of the program?
   a. How are program indicators translated into M&E at the project level?

8. Please describe the program's governance arrangements; in particular, the role of the CG and TAG, and the extent to which governance has supported the effective participation and voice of different categories of stakeholders.

9. Please describe the program's risk management procedures. How does this translate to the project activity-level?
10. Please describe the program's learning approach; specifically, how lessons from activities are assembled and disseminated.
    a. How are the M&E systems incorporated into this feedback process?

PROTOCOL FOR KEY INFORMANT INTERVIEWS: CG

External Evaluation of the ESMAP/ASTAE

Date: _____

Name: _____

Title: _____

Donor country: _____

Interviewer(s): _____

Introduction

- Inform the interviewee of the overall aim of the interview, the time allotted, and that their comments will not be attributed.

Guiding Research Questions for Interviews

1. Are you satisfied with the activities to which ESMAP/ASTAE contributes? If not, why not?
2. What changes have you observed as a result of the activities to which ESMAP/ASTAE contributed?
   a. What do you expect to be the long-term effects of [the output to which ESMAP/ASTAE contributes?
   b. What other future outcomes do you anticipate? What is the likelihood of achieving those?
3. Are you satisfied with the program's disbursement rates?
4. Please describe the program's governance arrangements; specifically:
   a. How effective are the recommendations of the TAG? Please provide examples of how they have been incorporated into business plans?
   b. How are the contributions/opinions of other stakeholders incorporated into deliberations?
5. How effective do you think the program has been in identifying lessons and disseminating learning from the activities it has supported?
6. Are the results frameworks for the programs adequate to capture the overall results of the activities?

PROTOCOL FOR KEY INFORMANT INTERVIEWS: BILATERAL ORGANISATIONS, NGOS, AND OTHER PARTNERS

External Evaluation of the ESMAP/ASTAE

Date: _____

Name: _____

Title: _____

Country: _____

Organization: _____

Interviewer(s): _____

Introduction

- Inform the interviewee of the overall aim of the interview, the time allotted, and that their comments will not be attributed.

Guiding Research Questions for Interviews

1. Are you satisfied with how activity objectives and design fit with global/regional energy issues?
2. How effective have program/activities been in contributing to national strategies/ requirements
3. What do you see as the value added of the program/activities at the country-level?
4. How effective has communication and coordination been amongst with institutional actors?
5. To what extent have ESMAP/ASTAE activities crowded in or out additional funds?
    a. Have the activities led to an expansion of resources available at the national level?
    b. If so, what is the source of these additional resources?
6. Are you satisfied in your ability to participate and voice opinions/issues about activities the CG and TAG?

PROTOCOL FOR KEY INFORMANT INTERVIEWS: HOST COUNTRY GOVERNMENTS AND OTHER BENEFICIARIES

External Evaluation of the ESMAP/ASTAE

Date: _____

Name: _____

Title: _____

Country: _____

Organization: _____

Interviewer(s): _____

Introduction

- Inform the interviewee of the overall aim of the interview, the time allotted, and that their comments will not be attributed.

Guiding Research Questions for Interviews

1. Were you satisfied with [*the activity to which ESMAP/ASTAE contributed*]? If not, why not?
2. Did [*the activity to which ESMAP/ASTAE contributed*] address a specific priority for your government [*or community/country*]?
3. What changes have you observed in your [*institution, organization, community, etc.*] as a result of [*the activity to which ESMAP/ASTAE contributed*]?
    a. *Prompts: For example, if ESMAP contributed to a study, has the study changed the evolution or development of an existing or a new project? Or, if ESMAP helped bring stakeholders together, what effects do you observe as a result? Has ESMAP support to your [institution, organization, community, etc.] influenced other projects or stakeholders? If so, how?*
    b. What evidence can you provide of these changes?
    c. What do you expect to be the long-term effects of [*the output to which ESMAP/ASTAE contributed*]?
    d. What other future outcomes do you anticipate? What is the likelihood of achieving those?
4. Were any obstacles or problems encountered in the delivery of [*the output to which ESMAP contributed*]? How were these addressed?
5. To date, has there been any impact on environment and social inclusion or gender, as a result of [*the activity to which ESMAP contributed*]?
    a. If so, what evidence can you provide of these impacts?
    b. If not, what is the likelihood that this impact may be achieved in the future? What else needs to happen to deliver this intended impact?
6. How and to what extent will the activity's impacts be sustained in the future? (e.g., have strategies or plans been developed? What support is there to implement those strategies or plans?)
7. What lessons have you learned from [the output to which ESMAP contributed]? How can activities be improved in future?

Annex 4 List of stakeholders consulted

A4.1 Bangladesh Country Visit

Organization	Name
Energy Regulatory Commission	Dr. Salim Mahmud
	Mr. Rahman Murshed
University of Engineering and Technology, Department of Petroleum and Mineral Resources Engineering	Prof. Mohammad Tamin
Dhaka Transport Co-ordination Board (DTCB), Clean Air and Sustainable Environment Project	Mr. Md. Anisur Rahman
IDCOL, Department of Renewable Energy	Mr. Md. Wahidur Rahman
Infrastructure Development Company Limited (IDCOL), Department of Renewable Energy	Mr. Md. Enamul Karim Pavel
Insight School of Learning	Prof. Enamul Haque
Prokaushali Sangsad Ltd, Consulting Engineers and Planners	Asma Huque
South Asian Network on Economic Modelling (SANEM)	Dr. Selim Raihan
World Bank	Ke Feng
	Sheoli Pargal
	Christine Kimes
	Zubair K.M. Sadeque

A4.2 Egypt Country Visit

Organization	Name
Cairo University	Prof. Hany M. Amin Elghazaly
Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA)	Marwa Mostafa Mohamed
	Sherif Mohamed Zoheir
Egyptian Natural Gas Holding Company (EGAS)	Eng. Moustafa Alsammany
	Eng. Sahar El-Behairy
	Ahmed Mostafa Fahim
	Hisham Hamed Awieda
European Commission	Ahmed El Baltegy
Ministry of Petroleum	Eng. Osama M. Mubarez
	Amr Brekaa
Ministry of Social Solidarity	Nevine El Kabbag
	Raafat Shafeek
Unknown	Dr. Eng. Anhar Ibrahim Hegazi
World Bank	Dr. Mohab Hallouda
	Ashish Khanna
	Gustavo Demarco
	Waleed Saleh I. Alsuraih
	Sudeshna Ghosh Banerjee
	Isabelle Huynh
	Pedzi Makumbe

A4.3 Indonesia Country Visit

Organization	Name
Apex	Simon Bell
Asian Development Bank	Pradeep Tharakan
Badan Pengeloloa Dana Perkebunan; Ministry of Energy and Mineral Resources, Directorate General of Bioenergy (former)	Dadan Kusidiana
Bappeko Surabaya	Pak Dwija
Business Innovation Center	Kristanto Santosa
GERES / Stove +	Marina Dubois
	Pak Iwan
Kopernik	Ewa Wojkowska
Ministry of Energy and Mineral Resources, Directorate General of New, Renewable Energy and Energy Conservation	Husin Setia Nugraha
New Zealand Foreign Affairs & Trade Aid Programme	Indirawati
PT Bank Rakyat Indonesia (BRI)	Agus Firmansyah
	Maria Dita Prasanti
	Agnia Nabila Risto
PT Pertamina Geothermal Energy	Rahindradi Punthos DS
	Aris Hendra Wijaya
PT Perusahaan Listrik Negara (former)	I Made Ro Sabya
PT Perushahaan Listrik Negara (PLN)	Kamia Handayani
	Pak Siswanto
	Bu Leli
World Bank	Peter Johansen
	Yabei Zhang
	Laurent Dourix
	Ranjan Bose
	Gailius J. Draugelis
	Olivia Tanujaya
	Muchsin Qadir
	Amilia Aldian
	Anh Nguyet Pham
	Ratna Kesuma
	Dhruva Sahai
	Jean-Louis Racine
	Veronica Mendizabal Joffre
Yayasan Dian Desa	Christina Aristanti

A4.4 Senegal Country Visit

Organization	Name
European Union Delegation for Senegal	Boubacar Draba
Ministry of Energy	Fatou Thiam Sow
	Mariama Ndong
Senegal Second Sustainable and Participatory Energy Management Project (PROGEDE 2)	Alassane Ngom
	Amadou Moustapha Diop
	Assaitou Ka
	Ousmane Faye
	Dieynaba Sakho
Senegalese Agency for Rural Electrification (ASER)	Dr Amadou Sow
	Rokhaya Diao Gueye
World Bank	Dan Murphy
	Ian David Muir
	Awa Seck
	Inka Ivette Schomer
	Dr Alioune Fall
	Olivier
	Amadou Mamadou Watt
World Bank ESMAP Results Based Funding	Niki Angelou
World Bank ESMAP Gender & Social Team	Vanessa Lopes Janik

A4.5 St Lucia Country Visit

Organization	Name
Caribbean Electric Utility Services Corporation (CARILEC)	Andrew Thorington
Eastern Caribbean Telecommunications Authority (ECTEL)	Alvin Augustin
Ministry of Finance and Economic Development, Department of Planning & National Development	Tracy Polius
Ministry of Finance and Economic Development, Project Coordination Unit	Cheryl Mathurin
Ministry of Sustainable Development, Energy, Science, and Technology	Barrymore Felicien
	Sallyane Cotter
	Caroline Eugene
	Al Barthelmy
	Sylvester Clauzel
OECS Commission	Judith Ephraim
	Maxine Nestor
Saint Lucia Electricity Services Limited (LUCELEC)	Cornelius Edmund
World Bank	Mark Lambrides
	Migara Jayawardena
	Maite Lasa Garcia

A4.6 Turkey Country Visit

Organization	Name
Delegation of the EU to Turkey, Trade, Economy and Agriculture Section	Hasan Ozkoc
	Laura Zampetti
EKSIM, Institutional Relations Office	Tolga İkiz
EMRA, Department of LPG	Barış Sanlı
EMRA, Department of Strategy Development	Gulefsan Demirbas
	Fakir Huseyin Erdogan
Energy Market Regulatory Authority (EMRA)	Dr. Dr. Vedat Gun
General Directorate of EIA, Permit and Inspection	Nihan Sahin Hamaci
Halkbank, International Banking & Structured Finance Team	Seda Guden
IDEMA	Ali Ercan Ozgur
	Güler Altınsoy
Market Transformation of Energy Efficiency Appliances in Turkey Project, UNDP	Necmettin Tokur
Ministry of Energy and Natural Resources (MENR) General Directorate of Renewable Energy	Erdal Calikoglu
Ministry of Energy and Natural Resources (MENR), General Directorate for EU and Foreign Relations	Ali Murat Bercerikli
Ministry of Development, Department of Transport, Energy and Logistics	Serdinc Yilmaz
Ministry of Energy and Natural Resources (MENR), Department of Energy Policy and Strategies	Sinem Gaynak
Vakifbank, SME Banking Product Management	Metin Alimli
	Kerem Can Gokkutuk
World Bank	Zeynep Darendeliler
	Jas Singh
	Yasemin Orucu
	Yesim Akcollu Oguz
	Esra Arikan
	Mustafa Ugur Alver
Ziraat Bankasi, Funding Management Department	Kadir Sari
	Keremcan Koknar

A4.7 World Bank, ESMAP, and ASTAE Stakeholders

Responsibility	Name
ESMAP Program Manager	Rohit Khanna
ESMAP Management, and Energy Access Team	Wendy Hughes
ESMAP Clean Energy Team	Almudena Mateos
	Martin Schroeder
	Pierre Audinet
	Nate Blair
	Silvia Martinez Romero
	Thrainn Fridriksson
	Xavier Daudey
ESMAP Clean Energy Team and Results Based Funding	Oliver Knight
ESMAP Clean Energy and Energy Access	Johannes Exel
ESMAP Communications	Heather Austin
	Marjorie Araya
	Nicholas Keyes
ESMAP Energy Access Team	Alain Ouedraogo
	Besnik Hyseni
	Dana Rysankova
	Elisa Portale
	Xiaoping Wang
	Venkata Putti
ESMAP Energy Assessment and Strategy Team	Bipul Singh
	Sameer Shukla
	Thomas Flochel
	Victor B. Loksha
ESMAP Energy Efficiency Team	Christian Mahler
	Ivan Jaques
	Martina Bosi
	Pedzi Makumbe
ESMAP Gender & Social Team	Vanessa Janik, Niki Angelou
ESMAP M&E	Miki Endo
ESMAP Regional Coordinator and PM	Roger Coma Cunil
ESMAP Regional Coordinator	Richard H. Hosier
	Siet Meijer

Responsibility	Name
ESMAP Regional EAP and ASTAE Coordinator ESMAP PM EAP	Emmanuel Py Julia Fraser
Former ASTAE Program Manager	Charles Feinstein
ESMAP Regional Coordinator and PM ECA	Kathrin Hofer Ranjit Lamech
ESMAP Regional Coordinator and PM LAC	Antonio Barballo Koffi Ekouevi
ESMAP Regional Coordinator and PM MENA	Charles Cormier
ESMAP Regional Coordinator and PM, SAR	Defne Gencer Julia Bucknall

A4.8 CG and TAG Stakeholders

Country	Organization	Name
Austria	Federal Ministry of Finance	Ms. Seena Garcia
Denmark	Ministry of Foreign Affairs	Mr. Jakob Rogild Jakobsen Mr. Jens Lorentzen
France	Agence Française de Développement	Ms. Manelle Ait Sahlia
Germany	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)	Mr. Marco Schiewe
Iceland	Ministry for Foreign Affairs	Ms. Pálína Björk Matthíasdótti
India	World Bank	Dr Veena Joshi
Japan	Ministry of Finance	Mr. Masaaki Iizuka
		Mr. Masanori Matsuo
		Mr. Taro Kimura
Netherlands	SNV Netherlands Development Organization	Mr. Wim van Nes
Sweden	Embassy of Sweden, Bangkok	Mr. Kriangkrai Thitimakorn
	Energimarknadsinspektionen	Dr Therese Persson
	Swedish International Development Cooperation Agency	Ms. Sara Stenhammar

Annex 5 List of documents

ESMAP Consolidated FY2015 Updates

- ESMAP. 2015. ESMAP SAR Consolidated FY15-Q3 – June 3 Update.
- ESMAP. 2015. ESMAP EAP Consolidated FY15-Q3.
- ESMAP. 2015. ESMAP Africa Consolidated FY15-Siet inputs.
- ESMAP. 2015. ESMAP LCR Consolidated FY15-Q3 Revised May 22.
- ESMAP. 2015. ESMAP Global Own-Managed Activities: FY15 Fourth Quarter Update.
- ESMAP. 2015. ESMAP ECA Copy of Consolidated FY15 – Quarter 3.
- EMSAP. 2015. ESMAP MNA Consolidated FY15- Quarter 3.

SAR

- Access to Electricity Solutions in South Asia.
- Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh
- Clean Cooking in South Asia (India): Options and Strategies.
- Colombo Low Carbon Urban Transport TA.
- Household Energy in South Asia Region.
- Institutional Strengthening of Power Utilities in North-East Region (NER).
- Mitigation Options for Short-Lived Climate Pollutants in South Asia.
- Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka.
- Renewable Energy Resource Mapping.
- Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification.

EAP

- Building Innovation Capacity in Clean Energy in Indonesia.
- Capacity Strengthening and Risk Mitigation for Geothermal Development – Indonesia.
- Clean Stove Initiative – Piloting Biomass Cookstove Markets – MEMR Component.
- Clean Stove Initiative – Piloting Biomass Cookstove Markets – RBF Component.
- Clean Stove Initiative, Support to the emergence of scalable biomass stoves markets.
- Cumulative Impact Assessment on Small Hydropower Projects on River Cascades
- Financing Options with Private Sector Participation for a Medium Hydro Power Project in Outer Islands, Indonesia.
- Geospatial Mapping & Least Cost Electrification Planning TA.
- Geothermal Power Development Program II
- Geothermal Clean Energy Investment Project.
- Greenhouse Gas Emission Mitigation in Road Transport: Toolkit Implementation and Life-Cycle Analysis.
- Inclusive Green Growth for EAP Cities.
- Implementation Support for the Tonga TERM-IU.
- Integration of Social Dimension in Energy Access Project.

- Large Enterprises Energy Efficiency Project.
- Local Benefit Sharing for Hydropower Projects in Indonesia
- Philippines Rural Electricity Cooperatives: Reform and Restructuring.
- Reforming the Minibuses (Angkots) in Surabaya.
- Renewable Energy Resource Mapping and Geospatial Planning: Indonesia.
- Renewable Energy for Electrification – PLN Capacity Building in HOMER.
- Renewable Energy Access Improvement - Indonesia
- Support for Preparation of Indonesia Hydropower Project
- Support to Integrated Catchment Program for Upper Cisokan Pumped Storage Project.
- Supporting the Design of an RBF Mechanism for Implementation of a Clean Stove Initiative in Indonesia.

AFR

- AFREA II Gender and Energy Program.
- AFREA II Nigeria: Electrification Access Program Development TA.
- Africa Renewable Energy and Access Program (AFREA)
- Catalyzing New Renewable Energy in Rural Liberia – Phase 2.
- CFL and Incandescent Lamp Recycling Operation Framework.
- Clean Cooking Initiative for Africa.
- Renewable Energy Resource Mapping Initiative: Lesotho
- Seychelles RE Feed-in Tariff and Grid Co.
- Sustainable Energy for All
- Unlocking Nigeria's Gas Potential.

LCR

- 6L Impacts of High Oil Prices in LCR
- Achieving Energy Efficient Urban Transport in Cities in Latin America.
- Assessment of Geothermal Potential in Latin America and the Caribbean.
- Deploying New Solar Technologies for Isolated Rural Areas: Supporting their Adoption in the LAC Region.
- ECRA Eastern Caribbean Energy Regulatory Authority.
- Geothermal Resource Development in Saint Lucia SIDS DOCK RETF.
- Impacts of High Oil Prices in Latin America.
- Introduction of LNG in Central America and the Caribbean.
- Peru Second Rural Electrification Project.
- TRACE Model in Pilot Cities in Latin America.

Global

- Development of Toolkit for Power Sector Planning with Low Carbon Growth.
- Energy Sector Low Carbon Development Operational Support.
- Gender and Large Energy Infrastructure.

- Integration of RE into Low Carbon Infrastructure.
- Integration of Renewable Energy Technologies in Sustainable Infrastructure.
- International Experience with Private Sector Participation and Open Access in Power Grids.
- Results-Based Funding for Energy Sector Development.
- Smart Grids Knowledge/Experience Exchange.
- State of Access Report.
- Tool for Rapid Assessment of City Energy (TRACE)

ECA

- Cumulative Environmental Impacts of Hydroelectric Power Plants.
- Energy Efficiency Scale-Up Plan in Buildings.
- Energy Reform Milestones and Challenges.
- Facilitating Municipal Energy Efficiency Finance in Ukraine.
- Facilitating Small and Medium Energy Efficiency Finance in Turkey.
- Institutional Review of Energy Efficiency.
- National Watershed Management.
- Social Compact in Electricity Privatization in Southeastern Turkey.
- Strategic Analysis of Water Resources Development Options in the Amu Darya Basin.
- Turkey: Energy Reform Milestones and Challenges.

MNA

- Benchmarking Electricity Utilities Performance in the MENA Region.
- Data Analytics for Urban Transport to Mitigate Climate Change – Cairo.
- Egypt Energy Pricing and Subsidy TA.
- Egypt Gas Regulator Capacity Building.
- MENA Region Regional Concentrated Solar Power (CSP) Scale-up Initiative.
- Low Carbon Action Plan for Transport Sector.
- Low Carbon Power Sector Strategy.
- Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility.
- Policy Note on Social Accountability in the Egypt Energy Sector.
- 5M-Regional Solar Power Initiative.
- Social Accountability in the Egypt Energy Sector.
- Tunisia – Low Carbon Energy Strategy.

Meeting Documents

- Annual Reports
- Budget Notes
- Business Plans
- Consultative Group Briefings
- Consultative Group Documents

- External Evaluation Documents
- Portfolio Reviews
- SIDS DOCK Support Program Documents
- TAG Reports
- Other Paper/Reports

SAR

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ASTAE. ASTAE Proposal: Access to Electricity Solutions in South Asia.

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ESMAP. 2014. Annual Block Grants – Proposal Summary Form: Analysis of Economy-Wide Impact of Energy Sector Reforms in Bangladesh.

ESMAP. 2015. Project at a Glance: Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh.

World Bank. 2015. Grant Funding Request (GFR): Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh.

Clean Cooking in South Asia (India): Options and Strategies.

ASTAE. 2015. ASTAE Proposal: Clean Cooking in South Asia (with focus on India): Options and Strategies.

World Bank. 2015. Grant Funding Request (GFR): Clean Cooking in South Asia (India): Options and Strategies.

Colombo Low Carbon Urban Transport TA.

ESMAP. Proposal Summary Form: ESMAP/Transport Sector Board Grants for Energy Efficient Urban Transport: Colombo Low Carbon Urban Transport TA.

ESMAP. 2015. Project at a Glance: Colombo Low Carbon Urban Transport TA.

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Household Energy in South Asia Region.

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World Bank. 2015. Grant Funding Request (GFR): Household Energy in South Asia Region.

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World Bank. 2012. Grant Reporting and Monitoring (GRM) Report: Household Energy in South Asia Region.

Institutional Strengthening of Power Utilities in North-East Region (NER).

ESMAP. 2012. Annual Block Grants – Proposal Summary Form: Institutional Strengthening of Power Utilities in NER.

ESMAP. 2015. Project at a Glance: Institutional Strengthening of Power Utilities in North-East Region (NER).

World Bank. 2015. Grant Funding Request (GFR): Institutional Strengthening of Power Utilities in North-East Region (NER).

Mitigation Options for Short-Lived Climate Pollutants in South Asia.

World Bank. 2015. Grant Reporting and Monitoring (GRM) Report: Mitigation Options for Short-Lived Climate Pollutants in South Asia.

Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka.

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Energy Sector Management Assistance Program (ESMAP). 2015. Project at a Glance: Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka.

World Bank. 2015. Grant Funding Request (GFR): Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka.

Renewable Energy Resource Mapping.

ESMAP. 2015. Proposal Summary Form: Renewable Energy Resource Mapping.

ESMAP. 2015. Project at a Glance: Renewable Energy Resource Mapping and Geospatial Planning: Pakistan.

World Bank. 2015. Grant Funding Request (GFR): Renewable Energy Resource Mapping and Geospatial Planning: Pakistan.

Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification.

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Annex 6 Status of recommendations from the External Evaluation of ESMAP 2007-2011

No.	Recommendations from External Evaluation of ESMAP 2007-2011; Baastel, 2012	Current Status
1	While continuing to adapt to changing global and regional concerns (for example, steady high oil prices, new opportunities offered by natural gas, gender issues), ESMAP should maintain a clear and well-delineated area of concentration in order to avoid overextending resources, including funding and expertise. ESMAP should reinforce its position in those areas with greatest gain relative to need and its comparative advantage, such as with global cross-sectoral work and well-targeted innovative tools and models.	**COMPLETE** This evaluation has noted that soft earmarking is occurring, which affects the flexibility and transparency of funding allocations, and creates administrative challenges for management. This runs counter to the recommendations of the previous evaluation to streamline the number of program areas. However, the FY2014-16 Business Plan reflects a rationalization of ESMAP's programs and business lines, and budget revisions have primarily focused on concentrating more resources in business areas with strong demand (e.g., renewable energy resource mapping, energy subsidy reforms, and the SE4ALL knowledge hub). As such, although an ongoing threat to the program, it is one that is being effectively managed. This evaluation finds that the new "core principles" appear to be partly designed to reflect ESMAP's comparative advantages in shaping how ESMAP operates. Furthermore, an allocation of $1.5 million for updating and maintenance of energy planning tools (e.g., TRACE, EFFECT, META) is responsive to the previous evaluation's recommendations for "well-targeted innovating tools".
2	In order to keep a stronger orientation on strategic-level focus, ESMAP program objectives should be more clearly and systematically referred to in project planning documents and products/outputs. Clarity and consistency are especially important to integrating new programs in the Business Plan, in particular through relevant wording in the names of the new programs and well-identified positioning within the program and result framework.	**COMPLETE** In 2014, the ESMAP Operational Manual and associated Proposal Summary Forms (PSFs) were revised. The PSF updates articulate linkage between activity and ESMAP's global themes. Also, the PSF defines the outcome(s) and related indicator(s) for each activity. ESMAP M&E portal includes development goals/ high-level objective the activity is contributing to.
3	ESMAP should pursue and reinforce efforts to mainstream gender and social aspects into project planning and implementation, for example, by integrating social and gender issues in project templates (Project Concept Note, Project Summary Form), and implementing the follow-on recommendations from the workshop(s) under the Gender & Energy Development Strategies Program. M&E reporting should include gender-disaggregated and social indicators at project level, in order to monitor actual results	**COMPLETE** The incorporation of gender and social issues within ESMAP activities has increased significantly during the current evaluation period. Specifically, ESMAP has implemented a number of improvements to ensure appropriate consideration of gender and social issues. This has included the monitoring of gender integration within ESMAP activities and the outcomes of those gender informed activities, which have been reflected in both the 2013 and 2014 Portfolio Reviews. Furthermore, the ESMAP Operational Manual was revised in 2014, and new proposal summary forms (PSF) and evaluation forms issued, which

No.	Recommendations from External Evaluation of ESMAP 2007-2011; Baastel, 2012	Current Status
		introduced specific questions on gender and social issues.
4	ESMAP continues to need a comprehensive communications and knowledge management plan and dissemination protocol for papers, reports, and other activities. Implementation of such a plan will not only improve visibility, it will also advance the reach of outputs and outcomes by engaging a wider audience.	**COMPLETE** ESMAP communication and dissemination support have significantly improved. Beginning in FY2012, ESMAP developed a new comprehensive communications strategy (including a dissemination strategy) and assembled an integrated communications team that included a communications officer, publications associate, website coordinator, and writer. The ESMAP Operational Manual also includes guidelines related to ESMAP-funded publications and peer-reviewed research.
5	In order to account for and track progress along key ESMAP high-level objectives, management must either devote further resources to identifying a standard methodology for assessing the quality and potential of upstream activities and products, or increase the depth and frequency of impact-assessments of follow-on results long after project closing, or both.	**OPEN** ESMAP has updated its logframe to better reflect impacts (or goals) at a global level. ESMAP has revised its annual Portfolio Review to enable the representation of trends of results and outcomes by program area, region, implementing unit, as well as key lessons learned. However, this evaluation notes that there are instances where the inappropriate assignment of an outcome as "planned," sometimes long after the activity has closed, masks its true effectiveness. As such, although ESMAP prepares impact stories to highlight how project have evolved after closing, it is recommended that longer term monitoring of activity outcomes be conducted to assess whether outcomes have been achieved or not, and potentially highlight broader outcomes.
6	In order to collect and assess meaningful results on efficiency of ESMAP operations and management, ESMAP should improve project-level reporting on outputs, costs, and outcomes and link this improved reporting to expected and actual cost data.	**COMPLETE** Outputs, outcomes and financial data for each project are incorporated in the M&E portal.
7	Building on the work that has already been done over the current Business Plan period to streamline and ensure a more coordinated approach to business and work planning, the CG meeting structure and agenda should be adjusted. It should accommodate the need for more donor interaction to discuss strategic issues among donors themselves as a first step during meetings, and to allow for a consolidated discussion of such issues with ESMAP management as a second step.	**REJECTED** The CG rejected the recommendation to adjust the CG meeting structure and to provide a separate forum for donors-only interaction
8	ESMAP should expand the representation on its CG, not only to emerging donors, but also to integrate recipient country representation. This would ensure that their views are carried directly	**REJECTED** The CG rejected the recommendation to include non-donor representation on ESMAP governing body, and instead suggested that ESMAP address enhancing

No.	Recommendations from External Evaluation of ESMAP 2007-2011; Baastel, 2012	Current Status
	into the strategic-level discussions and decisions on the future of the program and into an enhanced North-South dialogue framework. Furthermore, ESMAP should consider the need to continue to integrate recipient country perspectives from different categories of stakeholder's directly in TAG assessments and provide the TAG with the resources required to ensure this.	North-south dialogue through improved knowledge exchange and dissemination activities. (See recommendations 4 and 11).
9	The Evaluation Team echoes concerns already expressed by the TAG in 2011 and recommends that a more predictable pledging and contribution system by donors under a multiyear framework be instituted. It would go a long way in making human resources, business, and activity planning more in line with evolving and emerging needs in the energy sector	**REJECTED** The CG acknowledged the importance of a predictable funding cycle for ESMAP; however donors also noted that it is not feasible to operationalize the recommendation, since multiple factors impact donors' respective ODA funding decisions and timing of contributions.
10	ESMAP should strengthen its process of risk identification and management through its new M&E system.	**COMPLETE** Feedback processes to facilitate learning and improved decision-making have improved since the last evaluation. The identification, description and rating (low or negligible, modest, substantial, or high) of potential risks related to activities and description of the measures and mechanisms to be used/or be in place to manage, mitigate, and monitor such risk(s) has been included in GFRs. Furthermore, risks are tracked and monitored in the M&E Portal. A review of activities in the six country missions indicated that risks were appropriately identified and managed.
11	Two key areas are identified for broadening the beneficiary group. One is to increase and improve on the dissemination and knowledge-sharing activities of ESMAP at the country and regional levels, and second to improve knowledge sharing with the donor group. ESMAP can make improvements by making more information publicly available, through translations into local languages, through South-South exchange, by extending the reach of dissemination workshops, and finally by promoting ESMAP's website. Knowledge sharing with donors could include regular workshops and advice provision to bring more dynamism to the donor knowledge-sharing platform.	**COMPLETE** Interviews suggested that communications to donors are generally seen as appropriate and timely. Fieldwork also suggested that communications to external stakeholders (such as policy- and technical-level decision-makers in client countries) have been appropriately tailored to the nature and scope of the activity and are reaching the target audiences. Furthermore, a review of ESMAP's recent communications achievements indicates that the team has been effective at disseminating ESMAP-produced knowledge. Specifically, substantial progress has been made with the update and improvement of ESMAP's website, E-Bulletin, brochures, and other collateral; establishing a new series of technical reports; streamlining processes for production of reports and other knowledge products; and substantially expand the format of ESMAP's Knowledge Exchange Forum.

Annex 7 Supporting evidence

Contents	
A6.1	Back-to-Office Report – Bangladesh
A6.2	Back-to-Office Report – Egypt
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A7.1 Back-to-Office Report – Bangladesh

A7.1.1 Introduction

ICF International (ICF) was commissioned by the World Bank (WBG) in May 2015 to conduct an external evaluation of the Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy (ASTAE) program. The external evaluation is informed, in part, by field visits to six countries participating in ESMAP and/or ASTAE activities, including Bangladesh.

A five-day country visit to Bangladesh was undertaken from November 3-5, 2015. Ravi Kantamaneni served as the ICF field evaluator and was accompanied by national consultant, Mr. Mohammad Syful Hoque.

The purpose of the country visit was to collect evidence related to key evaluation questions at the country- and project-levels:

- **Relevance**—including the extent to which activities are in line with the needs, priorities, and demands of Bangladesh; perceptions of ESMAP's comparative advantages and strategic role in Bangladesh, and the extent to which they are utilized and evolving to respond to demands from Bangladesh; and the extent of gender and social issue inclusion in ESMAP activities.
- **Effectiveness**—including the extent to which ESMAP activities are achieving the intended objectives and can be replicated; extent of linkages between ESMAP and World Bank energy sector operations; consideration of the food-water-energy nexus and environmental/social inclusion in activity design; and effectiveness of ESMAP communications in reaching relevant stakeholders in Bangladesh.
- **Impacts**—including the extent to which ESMAP activities have increased know-how and institutional capacity; extent of ESMAP's influence on investments from the World Bank, private sector, and donor community; perceptions on expected development outcomes; and the plausibility of sustained results.
- **Sustainability**—including the effectiveness of ESMAP partnerships in Bangladesh; and the extent to which ESMAP has properly identified and managed risks.

The evaluation team focused on the planning and implementation of ESMAP and ASTAE grants in Bangladesh from July 2011 through June 2015. The evaluation team met with representatives from the World Bank, Government of Bangladesh (GoB), and national partners, including academia.

The remainder of this report is divided into three main parts. Section 2 briefly describes the country context and background. Section 3 provides significant observations from the country visit related to the evaluation's key questions. Section 4 includes the final itinerary for the country visit.

A7.1.2 Background

Energy Sector in Bangladesh

According to the Bureau of Statistics, Bangladesh has 150 million people, with over 70% of the population living in rural areas. Nonetheless, Bangladesh's GDP has been increasing at greater than 6% per year since 2000. With this economic growth, Bangladesh has experienced rapidly rising energy consumption. This trend is expected to continue as Bangladesh strives to become a middle-income country by 2021.[70]

Bangladesh imports most of the petroleum products consumed in the country, with transport being the primary user. However, electricity is the most widely used form of energy, but Bangladesh has struggled to generate adequate electricity to meet demand (25% of the

[70] Perspective Plan of Bangladesh: 2010-2021 – Making Vision 2021 a Reality

population has no access to electricity); consequently, it is reliant on biomass supply/demand, which accounts for nearly 70% of primary energy consumption (and the majority of household energy needs).[71] Household air pollution affects 138 million people in Bangladesh.[72]

The off-taker Bangladesh Power Development Board (BPDB) suffers from large deficits due to poor pricing policies. As such, the sector also failed to attract adequate investment. To improve the situation, the government has adopted a comprehensive energy development strategy to explore supply-side options along with demand management that conserves energy and discourages inefficient use. A key policy reform for the government is to ensure proper pricing of electricity and power based on international best practices.

ESMAP and ASTAE Activities

From 2011 through 2015, ESMAP/ASTAE has supported four projects in Bangladesh:

- **ESMAP: Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh (P150086)** — this technical assistance (TA) activity was approved in mid-2014 (FY2015) with an allocation of $100,000. As of August 6th, 2015, approximately $53,470 had been disbursed.[73]

  The grant aims to finance the development and use of a Computable General Equilibrium (CGE) model, which will use national accounts data from the Bangladesh Bureau of Statistics, to assess economy-wide (GDP, inflation) and sector-wise (output, prices) impact of different scenarios of changes to power tariffs and related policies. The activity also includes training for staff at the Bangladesh Energy Regulatory Commission (and other interested government officials) to understand the model and to use it.

- **ASTAE: Household Energy in South Asia Region (TF011458)** — this ASTAE activity was approved in December 2011 (FY2012) with an allocation of $300,000 for the two components discussed below. However, in FY2013, component 1 was dropped and the budget reduced to $120,000. As of June 2015, total grant funding was $141,176[74], with disbursements of $115,644.

  The original proposal for this ASTAE activity was to develop: 1) South Asia Sustainable Development Energy framework household fuels strategy and action plan; and 2) Prepare a household fuels component for at least one South Asian Country. However, task 1 was dropped, before it was started, in FY2013 due to overlap from an umbrella initiative for South Asia energy access being initiated that will prepare an Energy Access strategy. The unused funds ($180,000) were cancelled. For task 2, funds have been used to provide technical assistance to the implementation of the household energy component to the second Rural Electrification and Renewable Energy Development project (RERED-II).

- **ESMAP: Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka (P151756)** — this TA activity was approved in September 2014 (FY2015) with an allocation of approximately $125,000. As of August, 7th, 2015, approximately $57,234 had been disbursed.

  This TA activity aims to assist policy makers in visualizing land use and transport accessibility, through a pilot ICT-supported accessibility planning exercise which focuses on analyzing how different areas within a specific metropolitan area compare against each other in terms of accessibility of urban residents, particularly women, to jobs and urban services, and how future development of urban transport infrastructure, such as

[71] Bangladesh Country Action Plan for Clean Cook stoves, Ministry of Power, Energy and Mineral Resources, Government of Bangladesh, 2013

[72] Ibid

[73] Project at a Glance, P150086, dated 08/06/2015

[74] Includes an additional 15% on the $120,000 grant funding to cover staff costs.

metro or bus rapid transit (BRT), or new master planned areas may enhance or hinder the accessibility.

- **ASTAE: Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification (TF011533)** — this ASTAE activity was approved in early 2011 with an allocation of $5,000, and was fully disbursed by June 2012. The activity is now closed.

  The grant provided funding to the development of a video that showcased the successful impact on the beneficiaries of the Solar Home Systems (SHS) program of Bangladesh.

A7.1.3 Key Observations

Relevance

Relevance vis-à-vis the country's needs, priorities, and demands. Bangladesh continues to suffer from increasing energy consumption coupled with limited fuel resources and inadequate infrastructure. With the GoB committing to ensuring access to affordable and reliable electricity for all citizens by 2021[75], the government has adopted an energy development strategy in its Sixth Five Year Plan 2011-2015,[76] which aims to assess supply-side options and improve demand-side management. Within this context, the use of electricity subsidies[77] to support energy access for the poor has created an environment where existing electricity tariffs are inadequate for introducing alternative fuels such as liquefied natural gas or for attracting private investors to the sector. Low tariffs have also contributed to poor maintenance, causing power losses and frequent breakdowns.[78] The Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh was requested by the Bangladesh Energy Regulatory Commission (BERC), who were in search of a tool to help them understand the broader impact of changes in tariffs. The WBG proposed the use of a CGE model, as an appropriate tool for this purpose.

The National Policy for the Advancement of Women was first formulated in 1997, with subsequent revisions in 2004 and 2011. The policy aims to promote and protect women's rights across a number of areas such as health, employment and poverty reduction. As women serve as the primary cooks in Bangladesh households, and can spend a significant amount of time each day focused on cooking and food preparation, health is a major concern as over 138 million people are estimated to be impacted to exposure to Household Air Pollution (HAP).[79] In 2013, the Government of Bangladesh released a Country Action Plan for Clean Cook stoves,[80] which targets a number of interventions during the 2013-2018 period. The Household Energy in South Asia Region activity is linked to RERED-II, which includes a GoB requested household energy component focused on the dissemination of improved cook stoves.

Dhaka suffers from significant traffic and related environmental problems due to increasing urbanization, high vehicular population growth and that of the mobility, inadequate transport facilities and policies, varied traffic mix with over concentration of non-motorized vehicles (bus, cycle rickshaw and walking together account for 86% of the total trips made daily[81]), absence of dependable public transport system and inadequate traffic management

[75] Perspective Plan of Bangladesh: 2010-2021 – Making Vision 2021 a Reality

[76] Ministry of Energy and Mineral Resources Division, Government of Bangladesh

[77] Two categories of electricity subsidies In Bangladesh: 1) lowers production cost through subsidized fuel in electricity generation; and 2) offers electricity tariffs for groups of consumers (including residential customers and farmers) that are lower than production costs.

[78] Country Partnership Strategy: Bangladesh, 2011–2015; Sector Assessment (Summary): Energy; ADB

[79] Bangladesh Country Action Plan for Clean Cook stoves, Ministry of Power, Energy and Mineral Resources, Government of Bangladesh, 2013

[80] Ibid

[81] Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka, Proposal Summary Form, April 2014

practices and parking facilities. Although GoB's Strategic Transport Plan for Dhaka[82] puts an emphasis on public transport development, the government's transport investments continue to focus on infrastructure projects, such as roads and flyovers. Demand for the Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka activity grew out of discussions between the WBG and DTCA about the potential development of the BRT Line 3 project, for which the WBG's Clean Air and Sustainable Environment (CASE) project supports feasibility studies.

The Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification activity developed a video, which WBG stakeholders indicated was widely disseminated. They also considered it to be relevant as it showcased the impact on the beneficiaries of the Bangladesh Solar Home Systems (SHS) program, which resulted in more than 1,000,000 households installing SHS.

ESMAP and ASTAE's comparative advantages and strategic role. Interviews with the World Bank's country management unit (CMU) indicated that ESMAP's strengths in the energy sector stemmed from its long track record and, consequently, deep understanding of energy sector issues, significant resources (i.e., network of practitioners), and quality of work. Currently, energy sector lending accounts for 12% of WBG lending portfolio in Bangladesh. There is interest in increasing this amount considering the importance of energy in Bangladesh's economic development. In this context, ESMAP, with its energy sector focus, provides an important role.

The CMU noted that both ESMAP and ASTAE were complementary, with ESMAP addressing policy/strategy and ASTAE supporting implementation, and both, together, enhancing the quality of the package offered by the CMU to its clients. Furthermore, the evaluation and processing of funding requests were considered quick and efficient. For example, the task team leader (TTL) for the Household Energy in South Asia Region activity noted that the speed of ASTAE proposal review was important to ensuring the incorporation of the household energy component in RERED-II, without delaying its application.

GoB stakeholders also complimented the quality of the technical analysis, and highlighted the responsiveness and flexibility of the World Bank (and by extension ESMAP/ASTAE), even to unplanned demands. For example, for the Household Energy in South Asia Region activity, as of 2014, no testing laboratory had been identified; consequently, ASTAE funding was used to conduct a rapid assessment of testing laboratories in Bangladesh. For the Energy Sector Reforms activity, interviews noted that the WBG staff (as the representative of ESMAP) were flexible and adaptable to the learning process, as the initial design proposed a comparative static CGE model. However, since BERC wanted a dynamic CGE, the design was adapted to accommodate their requirements.

Gender and social issue inclusion in ESMAP/ASTAE activities. The Household Energy in South Asia Region activity included a *Gender Responsive Social Assessment*, which was carried out during appraisal of RERED-II in mid-2012. The gender assessment design was based on lessons learned from RERED I, and focused on the impacts, problems and opportunities for women living in remote rural areas. Based on the findings and recommendations from this assessment, the Infrastructure Development Company Limited (IDCOL) introduced several measures that addressed issues experienced by women, including introducing cook stove models that were suitable for women (i.e., correct height, operability during the rainy season).

For the Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka activity, transport data was disaggregated to specifically identify the travel needs and patterns of women along the proposed BRT Line 3 route in Dhaka.

The output of the Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification was a video, which presented positive social impacts on rural people due to the Bangladesh Solar Home Systems (SHS) program. Stakeholders indicated that

[82] http://lib.pmo.gov.bd/legalms/pdf/draft-urban_transport_policy.pdf

social and gender aspects were not relevant for the Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity.

Effectiveness

Extent to which ESMAP/ASTAE activities are achieving the intended objectives. ESMAP and ASTAE activities have focused on different, non-overlapping country priorities. The two ESMAP activities focused on the objectives: influence policy and strategy and increase client capacity, and to deepen knowledge and generate innovative solutions. The discussion below focuses first on the achievement of ESMAP development objectives, followed by a discussion of ASTAE objectives.

- **Influence policy and strategy and increase client capacity.** At the time of the mission, the Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity was ongoing. The beneficiary, BERC, had been involved in reviews/consultations, to ensure their specific requirements were captured in the model design. Initial results had been presented to BERC, who were pleased, so far, but were still awaiting the final results and report. When complete, BERC believe the model has the potential to support their review of tariff applications and the provision of policy advice to government, as well as more broadly; for example, by the Ministry of Power, Energy and Mineral Resources in the development of the new Power System Master Plan. However, concerns have been raised by stakeholders about whether BERC has the capacity and skills to maintain the model. A point highlighted by BERC indicating that the model was currently too complicated and that to be effective they would need a more simplified tool. As such, questions still remain about where the model will be housed and who will run it (and update it). Addressing these questions are key to understanding the success and sustainability of this technical assistance, although the objective of developing a tool that would permit an analysis of the broad impact of tariff adjustments has been met.

  Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka aims to influence policy on accessibility needs, especially of women, in Dhaka. Based on discussions with DTCA, the activity has led to two outputs: 1) a Dropbox™ database, where previously dispersed data and information has been compiled and organised; and 2) accessibility maps, and associated training on the mapping tools. Although the activities in the project scope to be undertaken in Dhaka have been completed, such as capacity building trainings, DTCA has not received the final report. Based on discussions with DTCA, although the database is considered useful, the accessibility maps and tools will not be used. The reasons include: Lack of resource, and capacity and skill of permanent staff in the DTCA to use the tools; lack of funds to maintain the online tool license subscriptions; and a revised focus. On the latter, previously, it was envisaged that this work would support the development and implementation of BRT Line 3, which the bank started preparation, building on the feasibility studies supported by the WBG's Clean Air and Sustainable Environment (CASE) project. However, this has recently been dropped from the WBG project pipeline; consequently, DTCA noted that unless this project is started again, the accessibility maps and training will not be useful. As such, the activity is unlikely to meet its influencing policy objective under current situation.

- **Deepen knowledge and generate innovative solutions.** In addition to increasing capacity, the Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity also aims to deepen knowledge. Currently, there is a lack of clear understanding of the impacts of tariff changes on the Bangladesh economy. BERC consider that the dynamic CGE model being developed under this activity to be unique, a point confirmed by other non-government stakeholders who noted that there was no dynamic CGE model currently in use in Bangladesh for modelling the economic impacts of tariff changes on different sectors.

DTCA indicated that the training provided as part of the Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka activity was useful, but due to institutional weakness, and a lack sufficient and skilled resources, they lack the capability to sustain their

learning. Consequently, at this time, this activity is unlikely to meet its objective of deepening knowledge.

The table below summarizes expected and achieved outcomes for ESMAP activities in Bangladesh.

Table A7.1 Expected Outcomes for ESMAP Activities in Bangladesh

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh (P150086)	Not applicable		
Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka (P151756)	Not applicable		

Note: Green: planned and achieved; Green with Diagonal: planned but too early to tell; Orange with Diagonal: planned but evidence suggests may not be fully achieved.

Stakeholders have indicated that the Household Energy in South Asia Region activity has been successful, with it supporting various activities, including developing eligibility criteria for Partner Organizations (POs) selection for cook stove dissemination; and supporting the development of a technical standards committee for ensuring quality of cook stoves to be disseminated under the RERED II project, assessing the existing testing capacities in the country and identifying potential candidate for hosting testing lab. The effectiveness of this support has been reflected in the increasing uptake of cook stoves in RERED-II (800 per month in September 2014 to 33,000 per month in September 2015)[83]. However, no outcome indicators have been identified or reported in project documentation for the revised scope.[84] As such, it is not possible to evaluate whether completed activities have met anticipated outcomes. Similarly, project documentation associated with the Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification activity does not include outcome indicators. However, the ASTAE grant did support the development of a video, which WBG stakeholders indicated was widely disseminated and seen. No data is available on the breadth of dissemination, including number of views or downloads.

Extent to which ESMAP/ASTAE activities can be replicated. Interviews with stakeholders indicated that there is significant potential to apply lessons learned from the Household Energy in South Asia Region activity to other cook stove programs. Since there are various cook stove dissemination models being implemented globally by bi-/multi-laterals, the aim is to achieve program targets (1 million ICS)[85], and thus have a significant scale of implementation, before disseminating information.

The likelihood for replicability within Bangladesh of the outputs from the Open Accessibility Planning activity is low. Stakeholder interviews have indicated that it is unlikely that this WBG-led activity will gain traction with the DTCA due to institutional problems, which have led to a lack of internal resources, and sufficient skills to maintain and use the accessibility planning tools provided. Furthermore, replicability is likely to be impacted by the lack of communication across the various agencies within the GoB.

The CGE model developed under the Energy Sector Reforms activity was not prepared with the explicit intention of replication; however, WBG stakeholders noted that there is potential

[83] Source IDCOL

[84] Cancelation and return of unused funds associated with task 1 (South Asia Sustainable Development Energy framework household fuels strategy and action plan)

[85] Rural Electrification and Renewable Energy Development II (RERED II) Project, Implementation and Status Report, June 2015

for lessons learned to be transferred beyond Bangladesh. However, at this time, no specific countries or regions have been defined. The video developed under the Showcasing Results activity has scope for replication. Project documents indicate that a more extensive results story was planned to disseminate lessons learned in other countries; however, at this time no video has been produced. Nonetheless, in Bangladesh, the SHS program received additional funding in RERED-II to support scale-up.

Linkages between ESMAP/ASTAE and World Bank energy sector operations. The Household Energy in South Asia Region activity is linked to a $12 million household energy component of RERED II ($206 million). The activity aims to install 1 million improved cook stoves by 2018. As discussed previously, the Open Accessibility Planning activity was linked to the WBG's Clean Air and Sustainable Environment (CASE) project ($62 million), which included studies for a bus rapid transit (BRT) in a pilot corridor. However, DTCA noted during interviews that the proposed BRT Line 3, which runs over 22 km from the airport in the north of Dhaka to the south side of the city has recently been dropped from the project pipeline. While the ESMAP activity was designed to build capacity of DTCA in planning transport project, using this proposed BRT route as a pilot case, they do not believe the activity outputs, i.e., the scenario analyses of BRT will be useful in light of the drop of the project form pipeline.

The Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity was not linked to an ongoing or planned WBG energy sector program.

Consideration of the food-water-energy nexus and environmental/social inclusion in activity design. The food-water-energy nexus is not relevant to funded activities in Bangladesh. However, environmental and social inclusion are pertinent themes in the Household Energy in South Asia Region and Open Accessibility Planning for Integrated and Inclusive Transport in Dhaka activities. The former activity included a *Gender Responsive Social Assessment* that utilized gender-based field surveys and focus groups to provide inputs into the design of the household energy component of RERED-II. Furthermore, ASTAE funding was used to engage a consultant who identified a design improvement to the cook stoves, which not only improves the burn efficiency but reduces HAP. For the latter activity, as well as Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh and Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification, see the section above on "Gender and social issue inclusion in ESMAP activities."

Effectiveness of ESMAP/ASTAE communications in reaching relevant stakeholders. The CGE model that is being developed for the Analysis of Economy-wide Impact of Energy Sector Reforms in Bangladesh activity has to a large extent been internalized within BERC. Since the project is not complete, no communication of results has been conducted so far. For the Open Accessibility Planning study, training workshops were conducted in February, April and July 2015, which was attended by DTCA staff, RAJUK (Dhaka Metropolitan Development Authority) and the Road Transport and Highway Division of the Ministry of Road Transport and Bridges. WBG stakeholders noted that the video produced for the Showcasing Results in World Bank Supported Intervention was presented at a number of internal and external World Bank events, and was featured at the Green Energy Expo-2013 in Bangladesh that celebrated the installation of two million SHSs nationwide. For the Household Energy in South Asia Region activity, ASTAE funding has focused on technical assistance to IDCOL's Improved Cook Stove (ICS) program, such as assessing cook stove testing facilities, and providing recommendations to improve cook stove efficiency. Broader communications were not within the scope of the activity.

Impacts

Extent to which ESMAP/ASTAE activities have increased know-how and institutional capacity. The Household Energy in South Asia Region activity has been successful in enhancing know-how and institutional capacity. Interviews noted that technical assistance has led to important results that have benefited various stakeholders within IDCOL's ICS program. For example, not only was funding used to conduct a *Gender Responsive Social*

Assessment and rapid assessment of Bangladesh testing laboratories, but also identified cook stove design improvements that increased efficiency of specific stoves to 40%.[86]

Interviews suggest that ESMAP activities have not increased institutional capacity on Open Accessibility Planning, as DTCA staff noted the lack of skilled manpower and funding to effectively implement lessons learned from training supplied. The only element of the activity that they found immediately useful was the development of a Dropbox™ database, which has compiled and organized previously dispersed information and data.

Although the activity is not complete and training has not been conducted yet, various stakeholders have raised concerns about whether BERC, the primary beneficiary of the Energy Sector Reforms activity, has the capacity and skills to maintain, implement and update the CGE model. BERC officials have stated that they believe the current model to be too complex, and have requested a simplified version. As such, questions still remain about where the model will be housed and run on completion of the activity. For example, interviews with the WBG and other stakeholders suggest that the team has been exploring various options including the University of Dhaka or the General Economics Division of the Planning Commission as potential owners of the model who could run simulations at the request of BERC.

ESMAP's influence on investments from the World Bank, private sector, and donor community. The Household Energy in South Asia Region activity had a direct influence on RERED-II, as a *Gender Responsive Social Assessment* was conducted and findings incorporated into program design prior to RERED-II appraisal. Interviews suggest that ASTAE funding directly assisted in incorporating the household energy component into RERED-II.

There is no evidence to date to suggest that the remaining activities are directly influencing new investments.

Expected development outcomes. As presented in Table 1, the Energy Sector Reforms activity has, so far, not sufficiently developed capacity in the beneficiary. The activity is still ongoing, so there is still potential for this outcome to be achieved. However, it can be considered to have deepened knowledge, as evidence from fieldwork suggests that there is no dynamic CGE model currently in use in the Bangladesh government.

Based on interviews, the expected development outcomes from the Open Accessibility Planning activity are not as significant as originally envisaged. Although training was provided to staff, DTCA indicate that it is unlikely that they will carry forward their learnings due to a lack of resource, and capacity and skill of permanent staff as the BRT project has not been implemented.

The Household Energy in South Asia Region activity was revised in 2013 with the cancellation of Task 1, which aimed to develop a South Asia Sustainable Development Energy framework household fuels strategy and action plan. However, at this time the original outcome indicators defined in the Grant Funding Request (GFR) were not revised and; consequently, no reporting against outcome indicators has occurred in Grant Report and Monitoring (GRM) completion reports. Nonetheless, the activity has contributed to several critical tasks, such as designing the cook stove component, and selecting improved cook stove models that are being disseminated under RERED II (P131263) towards a project target of 1 million. Project documentation associated with the Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification activity does not include outcome indicators. However, as discussed earlier, stakeholders indicate that the video developed under this activity was widely disseminated.

Plausibility of sustained results. The objective of the IDCOL ICS program is 1 million cook stoves disseminated by 2018. Interviews with IDCOL suggests that there is significant interest and appetite to go beyond current targets. That is, IDCOL is currently discussing a

[86] IDCOL technical committee approved ICS models, 2nd phase, June 2015

cook stove master plan which has a target of 5 million cook stoves. As such, contributions from the Household Energy in South Asia Region activity are likely to see sustained results.

Although initial observations from BERC officials on the Energy Sector Reforms activity are positive, it is still too early to tell whether results will be sustained through adoption and utilization of the dynamic CGE model. Better insights will be gained as the activity concludes, with associated training conducted, and questions addressed regarding the future housing, maintenance and running of the model.

As discussed earlier, sustained results are unlikely with the Open Accessibility Planning activity under the current situation.

Direct linkage between the video developed under the Showcasing Results in World Bank Supported Intervention in Bangladesh Rural Electrification activity and the continued success of the SHS program is difficult. However, the aim of the video was to showcase positive impacts of the SHS program, which interviewees suggested was achieved through wide dissemination.

Sustainability

Effectiveness of ESMAP partnerships. Desk review and interviews with stakeholders in Bangladesh indicate that partnerships have been limited, so far. This reflects the fact that the ESMAP and ASTAE funded activities were pieces of broader sector initiatives so have not warranted the involvement of multiple partners. Other than the direct beneficiaries, partnerships have been limited on the Open Accessibility Planning and Energy Sector Reforms activities. On the latter, the concept was presented to other bi-/multi-laterals, but there was little interest from them to contribute. Similarly, for the Household Energy in South Asia Region activity limited partnerships have been forged so far, but interviews indicate that this will change as the number of cook stoves disseminated reaches sufficient scale. At this point, results will be disseminated to other organisations.

Identification and management of risks. For two of the four projects, risks appear to have been appropriately identified. For the Household Energy activity, identified risks related to client ownership, which was managed through the World Banks strong coordinating role. For Open Accessibility Planning, client capacity risk was identified, which project documentation indicated would be addressed by involving staff from key agencies such as DTCA into the project, and providing training. However, this has failed to recognize potential institutional weaknesses in the beneficiary agency, particularly as the expected investment project to supplement the work did not take place. Project documentation for the Energy Sector Reforms activity indicated that the project had low risk due strong client buy-in. However, it failed to recognize the potential capacity limitations of the client to maintain and utilize the final output. This has now been identified and a solution is being considered.

A7.2 Back-to-Office Report - Egypt

ICF International (ICF) was commissioned by the World Bank in May 2015 to conduct an external evaluation of the Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy (ASTAE) program. The external evaluation is informed, in part, by field visits to six countries participating in ESMAP and/or ASTAE activities, including Egypt.

A three-day country visit to Egypt was undertaken from October 11-13, 2015. Nikolaos Papachristodoulou served as the ICF International field evaluator and was accompanied by national consultant, Dr Hamed Korkor, formerly Vice Chairman for Energy Planning and Conservation Studies Affairs at the Egyptian Natural Gas Holding Company (EGAS).

The purpose of the country visit was to collect evidence related to key evaluation questions at the country- and project-levels:

- **Relevance**—including the extent to which activities are in line with the needs, priorities, and demands of Egypt; perceptions of ESMAP's comparative advantages and strategic role in Egypt, and the extent to which they are utilized and evolving to respond to demands from Egypt; and the extent of gender and social issue inclusion in ESMAP activities.
- **Effectiveness**—including the extent to which ESMAP activities are achieving the intended objectives and can be replicated; extent of linkages between ESMAP and World Bank energy sector operations; consideration of the food-water-energy nexus and environmental/social inclusion in activity design; and effectiveness of ESMAP communications in reaching relevant stakeholders in Egypt.
- **Impacts**—including the extent to which ESMAP activities have increased know-how and institutional capacity; extent of ESMAP's influence on investments from the World Bank, private sector, and donor community; perceptions on expected development outcomes; and the plausibility of sustained results.
- **Sustainability**—including the effectiveness of ESMAP partnerships in Egypt; and the extent to which ESMAP has properly identified and managed risks.

The evaluation team focused on the planning and implementation of ESMAP grants in Egypt from 2012 through 2015. The evaluation team met with representatives from the World Bank, Government of Egypt (GoE) (Ministry of Petroleum, and Ministry of Social Solidarity), regulatory authorities (Egyptian Natural Gas Holding Company, and Egyptian Electric Utility and Consumer Protection Regulatory Agency) and involved international and national partners (European Union, Cairo University, and individual experts and advisers).

The remainder of this report is divided into three main parts. Section 2 briefly describes the country context and background. Section 3 provides significant observations from the country visit related to the evaluation's key questions. Section 4 includes the final itinerary for the country visit.

A7.2.1 Background

Energy Sector in Egypt

The energy sector in Egypt relies mainly on oil and natural gas for satisfying social and economic development needs. The sector is facing several vital challenges among which are the following:

- A high escalating energy demand growth, which accounts for about 5 percent for oil, more than 10 percent for natural gas and 7 percent for electricity, on average, annually.
- The stagnation and stability of energy prices at low levels for long periods of time with subsidies for fuel accounting for 18-20 percent of budget expenditures in recent years, and 5-7 percent of Gross Domestic Product (GDP). This in turn, sends the wrong signal to energy consumers about the real value of different energy commodities and contributes to inefficient energy consumption across sectors.

- The huge investments needed to harness available energy resources (mainly oil, natural gas and renewable) in addition to the development of different energy sector activities and infrastructure.

Egypt's energy sector operation and management is divided between the Ministry of Petroleum (MoP), which oversees upstream and downstream oil and gas activities, and the Ministry of Electricity and Energy (MoEE), which is responsible for electricity generation, transmission and distribution. During the last decade, the country witnessed fundamental changes in the energy sector, and has formulated energy sector policies and reform programs that include, but not limited to, the following:

- Energy supply diversification, including the utilization of clean fuels and renewable energy.
- The restructure of the energy sector. Examples in this regard include the establishment of the Egyptian Electricity Holding Company (EEHC), the Egyptian Natural Gas Holding Company (EGAS), the Egyptian Electricity Regulator Agency (EgyptERA) and the start of establishing the Gas Regulator.
- Energy prices and subsidy reforms.
- Energy efficiency initiatives and activities.

The World Bank has provided significant support over the years in the energy sector through the implementation of different programs and projects, including Energy Sector Management Assistance Program (ESMAP)-funded projects.

ESMAP Activities

ESMAP from 2012 through 2015 has supported six projects in Egypt:

- **Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility (P155336)**—This TA activity was approved in 2015 (FY2015) with an allocation of $400,000. As of August 12, 2015, approximately $86,930 (22%) had disbursed.[87]

  This activity is supporting the Government of Egypt in establishing a consistent system to manage the process of fuel subsidy reforms in the next five years through: (1) conducting a backward-looking analysis of the recent reforms, including detailed distillation of key lessons and policy enhancements that can be made in the short-term to augment future reform efforts; and (2) preparing a forward-looking plan for pricing, impact management and communications that sets out policy development options for each of these areas which might be implemented to best achieve inclusive subsidy reduction over the medium-term.

- **Egypt Gas Regulator Capacity Building (P146007)**—This TA activity was approved in 2014 (FY2014) with an allocation of $140,000. As of June 30, 2015, approximately $55,505 (40%) had disbursed.

  This activity is expected to build the capacity of staff members in the new Egyptian gas regulator agency through specialized training programs. The training programs are organized by the Public Utility Research Center (PURC) at the University of Florida in partnership with the World Bank. This activity is complementing and supporting an ongoing European Union (EU) TA activity to establish a gas regulator in Egypt.

- **Energy Efficient Cities (P154867)**—This activity is expected to identify feasible demand side energy efficiency (EE) measures which could be implemented in the metropolitan areas of Cairo and Alexandria in order to achieve EE improvements that contribute towards alleviating energy shortages in Egypt. The focus is on electricity consumption in Cairo and Alexandria, the two largest energy demand centers in the country. The activity will conduct broad energy efficiency assessments across several sectors, conduct pre-

[87] Project at a Glance, P155336, dated 08/12/2015

feasibility/feasibility studies for selected measures and provide technical assistance for the implementation of some of the measures.

- **Egypt Energy Pricing and Subsidy (P129680)**—This TA activity was approved in 2014 (FY2014) with an allocation of $250,000. This activity is now closed.

  The activity was a just-in-time support to the Ministry of Petroleum in Egypt on fuel subsidies. It was expected to: (1) Update the analysis of (a) the targeting incidence of subsidies, (b) fiscal impact of subsidies, (c) alternative scenarios for price changes and their impact on various sectors of the economy, and on various population groups, (d) social protection measures for mitigating impacts; and (2) Prepare a communications and consultation strategy to support the Government of Egypt in its efforts at building consensus around the proposed reforms and obtaining the opinions of various key stakeholders.

- **Data Analytics for Urban Transport to Mitigate Climate Change - Cairo (P148192)**—This TA activity was approved in 2013 (FY2014) with an allocation of $80,000. This activity is now closed. Cumulative disbursements to end 2014 amounted $54,006, as not all planned activities were delivered.

  This activity was expected to: (1) raise awareness around the use of big data analytics to inform urban mobility issues; and (2) run a real case exercise of big data analytics on urban mobility in Cairo, using mobility information derived from the cellphone data records via a PPP involving the Ministry of Transportation, the city of Cairo, and private sector stakeholders.

- **Policy Note on Social Accountability in the Egypt Energy Sector (P117407)**—This TA activity was approved in 2012 (FY2013) with an allocation of $111,450. This activity is now closed.

  This grant financed a diagnostic study on the systems and practices in the areas of transparency and social accountability of the power sector, with particular attention to the mandate of the Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA) and performance of electricity distribution companies.

A7.2.2 Key Observations

Relevance

Relevance vis-à-vis the country's needs, priorities, and demands. ESMAP activities are assessed to be highly relevant to the Egyptian context, and to addressing key country needs and priorities. The fact that several of these have been primarily demand driven, also suggests that ESMAP is well integrated with GoE sectoral policy documents and other initiatives in the energy sector. The GoE has embarked on a comprehensive reform process in the energy sector with an announced price reform trajectory in electricity markets and a similar intention for liquid fuels. The World Bank has had close dialog with the GoE since 2011. ESMAP's Egypt Energy Pricing and Subsidy activity started at a critical time because the government was considering reforms in relation to energy pricing and fuel subsidies. In parallel, ESMAP supported social safety net programs which are necessary for mitigation against adverse impacts of fuel subsidy reforms. The relevance and positioning of this activity is also demonstrated by the fact that the ESMAP team was invited to present their analysis to the Minister of Petroleum, as well as to the Prime Minister and his Economic Council of Ministers in May 2014, one month ahead of the Government announcement of the fuel subsidy reforms. Support to the GoE in establishing a consistent system to manage the process of fuel subsidy reforms is now continuing through Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility.

ESMAP is also supporting the gas sector reforms, and is complementing a European Union (EU) activity to establish a gas regulator. Transparency and social accountability in Egypt's electricity and petroleum sectors is weak, and thus ESMAP's Policy Note on Social Accountability in the Egyptian Energy Sector had been particularly relevant. More recently, ESMAP has been supporting activities with an urban/city focus, which Government officials

and other partners also view as relevant (and useful) to national priorities and needs. In particular, the GoE made a national commitment to energy efficiency by establishing an Energy Efficiency Unit (EEU) at the General Secretariat of the Egyptian Cabinet in 2009, and GoE's interest in the Energy Efficient Cities project which responds to on the demand side of energy efficiency was confirmed by the EEU. Given that the transportation sector accounts for more than 20 percent of the Egypt's greenhouse gas (GHG) emissions, and large metropolitan areas experience congestion and air pollution, and traffic management is not fully effective, ESMAP's Data Analytics for Urban Transport to Mitigate Climate Change – Cairo activity is also viewed as relevant to the country's needs as it had the potential to build capacity in data-driven transport decision-making and planning in Cairo.

ESMAP's comparative advantages and strategic role. Interviews with Government officials and other partners suggested that ESMAP has played an instrumental role in the recent energy sector reforms in the country. Stakeholders indicated that ESMAP's ability to respond quickly and effectively to client demands is a core strength of the program. ESMAP has provided "just-in-time" support to the GoE on energy pricing and subsidy reforms (through the Egypt Energy Pricing and Subsidy activity, and subsequent Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility), at a time when the World Bank's Transition Fund Support on Energy/Social Sectors (2013-16, $6.5 million), which would strengthen the GoE's capacity to (i) design a comprehensive fuel subsidy reform strategy, (ii) establish concrete measures for improved financial viability of key energy sector actors, and (iii) identify households that would be most vulnerable to the impacts of the reform, although in place, was moving very slowly. "Just-in-time" support became critical because this meant that activities could be led by political opportunities.

The ability to quickly access and mobilize good quality national and international technical resources across a wide range of skills and sectors that clients need is another comparative advantage of ESMAP, according to interviews with the World Bank and Government stakeholders. For example, ESMAP activities have significantly contributed to broadening the perception of the social aspects in energy sector reforms when it was able to strengthen projects in relation to social protection and communications efforts (see Energy Pricing and Subsidy activity, and subsequent Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility activities), and more generally, when it was able to provide international knowledge exchange, either through specialized training programs such as the one organized at PURC (funded by the Gas Regulator Capacity Building activity), or through incorporating regional and international comparative aspects in diagnostic and analytical studies on the areas of transparency and social accountability (Policy Note on Social Accountability in the Egyptian Energy Sector) and the use of data analytics to inform urban transportation issues (Data Analytics for Urban Transport to Mitigate Climate Change – Cairo activity).

Gender and social issue inclusion in ESMAP activities. In interviews with the World Bank and government counterparts, gender and social inclusion issues were often considered as not relevant to the ESMAP activities. One exception is the work on social protection mechanisms for Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility, which is expected to improve the targeting of social programs, in particular the cash transfer programs launched by the Ministry of Social Solidarity (Takaful and Karama). As pointed out by one stakeholder better targeting will allow the programs to reach segments of the population with no access to any benefits so far. Moreover, the cash transfer programs are designed with consideration of gender issues as cash benefits are primarily paid to women.

Effectiveness

Extent to which ESMAP activities are achieving the intended objectives. ESMAP activities in Egypt are focused on all three of ESMAP's overall objectives: to enhance development financing, influence policy and strategy and increase client capacity, and to deepen knowledge and generate innovative solutions (see Table 1).

The extent to which ESMAP activities are expected to achieve these intended objectives varies from activity to activity, as discussed below. For the Energy Efficient Cities—which is

still being prepared—and the Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility, it is too early to speculate on their potential to achieve planned results, although the evaluation team found evidence that activities are well positioned to achieve results.

- **Enhance development financing.** The Energy Efficient Cities activity is expected to conduct pre-feasibility and feasibility studies for selected energy efficiency (EE) investments which will feed directly into the upcoming Egypt Energy Systems Improvement Project (P151539). The investments will largely depend on broad energy efficiency assessments that the ESMAP activity will be conducting across several sectors for selected measures, clients' strategic interests and the needs of the World Bank team.
- **Influence policy and strategy and increase client capacity.** Interviews with Government stakeholders confirmed that technical analysis provided by the Egypt Energy Pricing and Subsidy activity on the direct and indirect impacts of fuel subsidy reforms informed the comprehensive subsidy reforms which were announced by the GoE in July 2014. In parallel, the project provided technical training on basics of macroeconomics and computable general equilibrium modelling to the staff of Ministry of Petroleum and EGAS. ESMAP is continuing its support in establishing a consistent system to manage the process of fuel subsidy reforms through Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility, and in doing so ESMAP continues to be well-positioned to achieve further results.

  ESMAP's Egypt Gas Regulator Capacity Building project has increased client capacity through funding the participation of five members of the proposed Egyptian Gas Regulator working team to the PURC international training course on utility regulations and strategy in Gainesville, Florida, USA. The activity was recently extended to include study tours to selected countries (countries yet to be determined). The Policy Note on Social Accountability in the Egypt Energy Sector helped build EgyptERA's capacity to scale up web-based quality-of-service system, improve customer service interface for EgyptERA and power sector companies, using various IT technologies (internet, mobile phones, customer service centres, etc.), and conduct customer service surveys.

Deepen knowledge and generate innovative solutions. The Data analytics for urban transport to mitigate climate change - Cairo activity deepened knowledge on the use of big data analytics by facilitating exchange of best practice with a range of stakeholders (government, private sector and academic). In particular, stakeholders learnt about the use—elsewhere in the world—of call data records (CDRs) on analytics and predictive aspects of urban mobility. The Egypt Gas Regulator Capacity Building activity facilitated exchange of best practice with other regulators from around the world (80 people from 34 countries participated in June's 2014 course), and after each training course, awareness sessions were conducted in Egypt, where the participants shared their experiences with the rest of gas regulatory staff.

Table A7.2 Expected Outcomes for ESMAP Activities in Egypt

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
Egypt Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility (P155336)			Not applicable
Egypt Gas Regulator Capacity Building (P146007)			Not applicable

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
Egypt Energy Efficient Cities (P154867)			
Egypt Energy Pricing and Subsidy (P129680)	Not applicable		Not applicable
Data Analytics for Urban Transport to Mitigate Climate Change - Cairo (P148192)			
Policy Note on Social Accountability in the Egypt Energy Sector (P117407)			Not applicable

Note: Green: planned and achieved; Lt Up Diagonal: planned but too early to tell; Red: planned but not achieved.

The evaluation team identified several factors that are contributing to results. As mentioned above, ESMAP's ability to respond quickly and effectively to client demands is a core strength of the different activities, as well as the ability to quickly access and mobilize good quality national and international technical resources across a wide range of skills and sectors that clients need. In addition, ESMAP activities have been particularly successful where it has been able to link to World Bank lending operations (see Linkages between ESMAP and World Bank energy sector operations) and broader initiatives, and in doing so benefit from the World Bank's local presence, convening power, and access to national ministries and government stakeholders.

In contrast, ESMAP activities have experienced slow progress, or have only partially achieved their objectives, due to the following issues:

- **Lack of government counterpart.** ESMAP is still in the process of identifying the most suitable government counterpart for the Energy Efficient Cities activity, and interviews with the World Bank and involved national partners suggested that lack of government counterpart could undermine the potential of the activity to both influence and shape decision-making in relation to demand side energy efficiency measures. Similarly, a lack of effective government counterpart appears to have been one of the reasons the Data Analytics for Urban Transport to Mitigate Climate Change – Cairo activity did not fully achieve its objectives.
- **Low capacity of counterpart**. The Egypt Energy Pricing and Subsidy activity included a communications component that was never fully implemented due to low client capacity in this area despite the fact that the World Bank provided relevant material to the GoE. The Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility now puts more emphasis on the design and implementation of a communications implementation plan as a follow-up of the communications strategy in the first phase. However, the low capacity and limited number of staff of the counterpart involved in the implementation of the social safety nets technical support component poses some challenges.
- **Lack of readiness for ESMAP-piloted technologies**. The Data Analytics for Urban Transport to Mitigate Climate Change – Cairo activity did not achieve its main objective to run a real case exercise of big data analytics on urban mobility in Cairo because the team was unable to get permission from the National Telecom Regulatory Authority and the Ministry of Interior to release CDRs. CDRs are nowadays regularly used for research

purposes internationally but regulatory authorities are often concerned by potential privacy issues when CDRs are released, even when anonymized.

Extent to which ESMAP activities can be replicated. None of the ESMAP activities in Egypt have been prepared with the explicit intention of replication in other contexts, although there are applicable lessons to be learned from them. The results of ESMAP's two activities on energy pricing and fuel subsidy reforms (Energy Pricing and Subsidy activity, and subsequent Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility) provide learnings that may be applicable to other countries in the MENA region (and internationally) considering fuel subsidy reforms. In addition, the Energy Efficient Cities activity has the potential to be replicated to other cities in Egypt, and possibly expand to other countries in the region.

Linkages between ESMAP and World Bank energy sector operations. ESMAP activities in Egypt have been laying the early groundwork for new lending operations by providing direct support during project preparation, and at the same time have been supporting delivery and implementation of ongoing energy projects. As mentioned above, the Energy Efficient Cities provides technical assistance that feeds directly into the design of the upcoming Egypt Energy Systems Improvement Project (P151539). The Egypt Gas Regulator Capacity Building activity is linked to the implementation of the Household Natural Gas Connection Project (P146007, FY2015, IBRD $500 million, AFD co-financing of $96 million) and the Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility is linked to the Transition Fund Support on Energy/Social Sectors Reform TA (P144305, 2013-16, $6.5 million) and a new $400 million IBRD operation currently under preparation. The Policy Note on Social accountability in the Egyptian Energy Sector was associated with the currently on-going Helwan South Power Project (P117407, 2013-19, $2,404 million), which includes a TA component that covers sector structural/governance reforms and social accountability strengthening in the power sector.

Consideration of the food-water-energy nexus and environmental/social inclusion in activity design. Only in Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility activity social inclusion and gender have been considered directly relevant, and have been incorporated in its design.

In general, opportunities to demonstrate gender and social inclusion impacts may have been missed because activities have not directly considered these aspects, or at least have not had sufficient high level expertise in these aspect to maximize gender and social inclusion impacts.

Effectiveness of ESMAP communications in reaching relevant stakeholders. In general, not all stakeholders interviewed in Egypt received regular communications and electronic delivery of work products from ESMAP-funded activities. The overlapping of ESMAP objectives and approaches of implementing some of its activities with other projects and programs appears sometimes to be one of the reasons that some stakeholders cannot differentiate between them, and grasp the results of ESMAP activities. For example, the main report which was produced by the Policy Note on Social Accountability in the Egypt Energy Sector activity was not known to EgyptERA staff interviewed for the evaluation, despite the fact that the recommendations of the report have been taken on board and are currently implemented by EgyptERA. A dedicated webpage was created for the Data Analytics for Urban Transport to Mitigate Climate Change – Cairo for the dissemination of information and analytical products, but there is little evidence on the effectiveness of this communications strategy.

Impacts

Extent to which ESMAP activities have increased know-how and institutional capacity. Early evidence from fieldwork suggests that ESMAP activities have already increased institutional capacity by providing technical support and capacity building activities that are directly informing policy and decision making in relation to energy pricing and fuel subsidy reforms.

Key challenges remain however in the pathway to achieving outcome level targets and translating these into impacts. For example, while in general terms feedback from EGAS on the Egypt Gas Regulator Capacity Building activity was positive, participants stressed the fact that the training was too generic, and pointed out that they would benefit more if the training was more advanced and tailored to their specific needs and priorities. The main reason for this is that the PURC training program is focusing mainly on electricity regulation with minor attention to the gas sector. Moreover, in gas regulation the issues can differ significantly from country to country, and the PURC training has to appeal to participants from a range of sectors and countries. The Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility activity has demonstrated good progress on modernizing the management information system (MIS) system at the Ministry of Social Solidarity, but the task was outsourced to a private sector company, which means that Ministry of Social Solidarity relies on outsourcing systems with implications on their ability to increasing their know-how and institutional capacity.

ESMAP's influence on investments from the World Bank, private sector, and donor community. ESMAP activities have the potential to directly influence World Bank operations. For example, the technical assistance provided under the Energy Efficient Cities is considered critical for the the design of the upcoming Egypt Energy Systems Improvement Project (P151539), as it will complement ongoing efforts on the supply side energy efficiency investments.

No evidence was found that ESMAP activities directly influenced investments from the private sector or the donor community. However, the World Bank, with the EU and the French Development Agency (AFD), recently agreed to hold ad-hoc meetings to sustain engagement in areas relevant to the recent reforms that ESMAP activities have also supported, and that could potentially provide a way for ESMAP to influence activities of the donor community.

Expected development outcomes. The Egypt Energy Pricing and Subsidy activity has been highly successful in the first stage of the subsidies reform, as has the Policy Note on Social Accountability in the Egypt Energy Sector activity. In general, because ESMAP activities are often linked to larger World Bank operations, as mentioned above, the results achieved by the ESMAP activities could be partly tied to the larger operation (see Linkages between ESMAP and World Bank energy sector operations). Such larger operations have provided an umbrella under which several relatively small—albeit strategic—activities are taking place. In contrast, the Data Analytics for Urban Transport to Mitigate Climate Change – Cairo activity did not achieve its development outcomes, and while it contributed to innovation and knowledge exchange, it showed few tangible or strategic results, partly because the level of ambition was too high, but also because of lack of effective counterpart.

Plausibility of sustained results. The support ESMAP has given to the GoE on energy pricing and subsidy reforms has been ongoing since 2011. Demand responsive activities generally promote sustainable solutions because ESMAP can be sure that activities are both needed and wanted. However, despite significant technical advances within the Ministry of Petroleum or EGAS, sustainability of results may rely on realisation of broader institutional reforms.

Sustainability

Effectiveness of ESMAP partnerships. ESMAP has engaged at high levels of government and forged strong partnerships for the most part (notably with the Ministry of Petroleum and Ministry of Social Solidarity, and regulatory authorities, including EGAS and EgyptERA). ESMAP has also worked in strong partnership with some key donors. For example, ESMAP's collaboration with the EU to establish the gas regulator is viewed by interviewees directly involved in the activities as useful and successful, and has also helped better prepare other broader activities in which the World Bank has been engaged with. In particular, the Egypt Gas Regulator Capacity Building was designed to support the gas sector reform in Egypt, and complements an EU activity to establish a gas regulator in Egypt. ESMAP funding has been used as a bridge until the EU support is mobilized. Such

partnerships with government stakeholders and the donor community have enhanced the scope of potential results to which ESMAP is contributing.

Identification and management of risks. Risks appear to have been appropriately identified in project concept notes (PCNs) and grant funding requests (GFRs) for all projects. In general, demand-driven activities have reduced the risks. In the case of Egypt Energy Pricing and Subsidy, and Phase II of Subsidy Reforms TA from the Energy Subsidy Reform and Delivery TA Facility activities, the main risks have been associated with the need to maintain high-level political commitment to the reforms proposed. Whilst technical inputs have been effective, the completion of reforms requires sustained commitment from senior management and political support. Given that subsidy reforms are politically very sensitive, the World Bank and ESMAP have acted as a technical advisor providing analysis and inputs to the Ministry of Petroleum, and have remained in the background of the political decision-making. The Policy Note on Social Accountability in the Egypt Energy Sector activity was a request by EgyptERA and as a result the risks were also low, as EgyptERA took full ownership of the recommendations and hosted several stakeholder consultation workshops. The lack of government counterpart for the Egypt Energy Efficient Cities activity remains the main risk for this new activity. ESMAP recently proposed forming a committee with representatives from a range of relevant stakeholders as a risk mitigation mechanism. However, there remains a significant risk that key decision-makers will not be prepared to attach priority to energy efficiency issues and initiatives, compromising the sustainability of results.

A7.3 Back-to-Office Report: Indonesia

A7.3.1 Introduction

ICF International (ICF) was commissioned by the World Bank in May 2015 to conduct an external evaluation of the Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy (ASTAE) program. The external evaluation is informed, in part, by field visits to six countries participating in ESMAP and/or ASTAE activities, including Indonesia.

An eight-day country visit to Indonesia was undertaken from September 28 to October 5, 2015. Jessica Kyle served as the ICF field evaluator and was accompanied by national consultant, Mr. Shalahuddin Hasan.

The purpose of the country visit was to collect evidence related to key evaluation questions at the country- and project-levels:

- **Relevance**—including the extent to which activities are in line with the needs, priorities, and demands of Indonesia; perceptions of ESMAP and ASTAE's comparative advantages and strategic role in Indonesia, and the extent to which they are utilized and evolving to respond to demands from Indonesia; and the extent of gender and social issue inclusion in ESMAP and ASTAE activities.
- **Effectiveness**—including the extent to which ESMAP and ASTAE activities are achieving the intended objectives and can be replicated; extent of linkages between ESMAP/ASTAE and World Bank energy sector operations; consideration of the food-water-energy nexus and environmental/social inclusion in activity design; and effectiveness of ESMAP and ASTAE communications in reaching relevant stakeholders in Indonesia.
- **Impacts**—including the extent to which activities have increased know-how and institutional capacity; extent of ESMAP and ASTAE's influence on investments from the World Bank, private sector, and donor community; perceptions on expected development outcomes; and the plausibility of sustained results.
- **Sustainability**—including the effectiveness of ESMAP and ASTAE partnerships in Indonesia; and the extent to which ESMAP and ASTAE has properly identified and managed risks.

The evaluation team focused on the planning and implementation of ESMAP and ASTAE grants in Indonesia from July 2011 through June 2015. The evaluation team met with representatives from the World Bank, Government of Indonesia, and involved international and national partners, including bilateral agencies and NGOs.

The remainder of this report is divided into three main parts. Section 2 briefly describes the country context and background. Section 3 provides significant observations from the country visit related to the evaluation's key questions. Section 4 includes the final itinerary for the country visit.

A7.3.2 Background

Energy Sector in Indonesia

Driven largely by economic growth, Indonesia's total primary energy consumption grew by 43% between 2003 and 2013, according to Indonesia Ministry of Energy and Mineral Resources (MEMR). Electricity demand is projected to continue to grow at 8-9% per year over the next two decades (National Electricity General Plan/Rencana Umum Ketenagalistrikan Nasional (RUKN) 2012-2031). Coal consumption has nearly doubled over the past decade, while geothermal and other renewables remain around 1% of the total energy mix.

To meet these energy demands, the Government of Indonesia (GoI) has been pursuing two fast-track programs, the first to procure 10,000 MW of coal-fired power plants, and the second to procure an additional 10,000 MW, of which 50% is planned to be from renewable

energy resources. Government plans to increase the use of renewable energy depend heavily on developing the country's geothermal resources. The GoI is targeting around 6,000 MW of installed geothermal power capacity by 2020, a more than fourfold increase of the end-2012 capacity of 1,335 MW, and for geothermal to represent 5% of the final energy mix by 2025 (National Energy Policy – 2006). However, there is a widespread perception that geothermal development in Indonesia has stalled, given significant regulatory, institutional, and tariff barriers.

The GoI has also set a high electrification target of nearly universal access by 2020; by the end of 2014, the electrification rate was 84%. The 2014 National Energy Policy (Kebijakan Energi Nasional, KEN) directs that Indonesia should approach 100% electrification by 2020, and the 2015-2019 National Medium Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional, RPJMN) sets a target electrification rate of 96.6% by the end of 2019. To help meet this target, PT Perusahanan Listrik Negara (PLN), the state-owned electric utility has embarked upon a 1,000 island electrification program. Under this program, PLN plans to convert mini-grids in Indonesia's islands from diesel-based generation to renewable diesel hybrid systems, and introduce renewable energy generation (mainly solar PV, and mini-hydro) at greenfield sites, combined with network expansion at project locations.

ESMAP and ASTAE Activities

Together, ESMAP and ASTAE have supported nearly 20 projects in Indonesia during the evaluation period, ranging from support for renewable energy planning and development (hydropower, geothermal), to energy efficiency efforts in Indonesian cities and large enterprises, to the Indonesia Clean Stove Initiative, and energy access and electrification activities. The specific projects covered by the evaluation are briefly described below, organized thematically.

Clean Stove Initiative

- ASTAE: Support to the Emergence of Scalable Biomass Stoves Markets (Bank-executed: $300,000, September 2012-ongoing; Recipient-executed: $190,000, May 2014-active)—In support of the ongoing Indonesia Clean Stove Initiative (Indonesia CSI), this activity is aimed at discrete interventions to enhance AusAID funding by supporting the emergence of scalable markets for biomass stoves while reinforcing government ownership of the enabling process (recipient-executed by GoI and RBF fund manager PT. Bank Rakyat Indonesia/BRI) and identifying a possible Bank lending operation (Bank-executed).
- ASTAE: Integration of Social Dimension in Energy Access Projects (Bank-executed: $200,000, December 2012 – closed)—This activity was intended to provide methodological and operational input to the Indonesia task teams for the CSI program and Renewable Energy for Electrification project as to how to assess, incorporate and supervise the effective integration the social dimensions such as care to gender, indigenous, cultural aspects, social exclusion and other social aspects in project development and implementation. During implementation, it was decided for the activities supported by this grant to focus only on assisting the CSI.
- ESMAP: Support to the Design of an RBF Mechanism for the Implementation of the Indonesia Clean Stove Initiative (Bank-executed: $300,000, July 2013 - active)—This activity aims to strengthen the Results-Based Financing dimension in the CSI work, first by support the set-up of a successful RBF pilot, and then design an RBF to scale-up at the national program level. The pilot activity is co-implemented with a recipient-executed component under ASTAE.
- ASTAE: Piloting Biomass Cookstove Markets – MEMR Component (Recipient-executed: $300,000, February 2014 - active)—This component is implemented by the Directorate General of New, Renewable Energy and Energy Conservation in the Indonesia Ministry of Energy and Mineral Resources. The grant is expected to support establishment of the stove testing and certification lab, design and prepare a national clean biomass cookstoves program, and support project management and implementation.

Geothermal Power Development

- **ASTAE: Geothermal Power Development Program II (Bank-executed: $495,000, November 2011 - closed)—**This TA activity is intended to support activities undertaken as part of P113078 (Geothermal Clean Energy Investment Project) and P099757 (Geothermal Clean Energy Development Project), and to build upon the achievements to date to advance geothermal development. Specifically, this grant is intended to review and consolidate previous experience related to investment preparation and policy reforms, assist PGE design and implement the activities within the TA grant from the Government of New Zealand, support the development of a new World Bank investment, and provide TA for policy and regulatory reforms.
- **ESMAP: Geothermal Clean Energy Investment Project (Bank-executed: $56,000, November 2013 – closed)—**This grant was intended to employ two individual consultants, a business development adviser and a geothermal technical adviser under separate contracts to a) review the current development challenges and opportunities of the geothermal sector in Indonesia and delineate an integrated institutional approach that may involve IBRD, IFC and MIGA to engage in the sector in Indonesia and b) review PGE business plan and Partnership Arrangement.
- **ESMAP: Indonesia Capacity Strengthening and Risk Mitigation for Geothermal Development (Bank-executed: $400,000, November 2014 – active)—**This activity was designed with three components: (I) Technical Assistance with Resource Estimation and Lessons Learned; (II) Capacity Building to PIP/MoF and MEMR with the Geothermal Law and restructuring of the Geothermal Fund; and (III) Developing Key Risk Mitigation Models for Geothermal Exploration.

Renewable Energy Electrification

- **ESMAP: Renewable Energy for Electrification- PLN Capacity Building in HOMER (Bank-executed: $50,000, March 2012 – closed)—**To support the implementation of the 1,000 islands electrification project, PLN needs to build internal capacity on technical areas critical for the design and sustainability of renewable energy investments. This activity intends to deliver a renewable energy project design software (HOMER) training program for PLN staff.
- **ASTAE**: **Indonesia – Renewable Energy Access Improvement (Bank-executed: $350,000, April 2012-June 2013; closed)—**This activity aims to support PLN, the national power utility in preparing and implementing the 1,000 islands electrification program through technical assistance and capacity building in (a) technology mapping and least cost renewable energy generation planning; and in (b) spatial geo-reference analysis and least cost grid roll out, and off-grid complement planning.
- **ESMAP: Geospatial Mapping and Least Cost Electrification Planning TA (Bank-executed: $70,000, April 2013-closed)—**This activity aims to support PLN, the national power utility in preparing and implementing the 1,000 islands electrification program, through the development of a technology mapping and least cost electrification plan, and a sector investment and implementation plan for three Eastern Indonesian provinces.
- ESMAP: Renewable Energy Resource Mapping and Geospatial Planning: Indonesia (Bank-executed: $2,000,000, November 2013 – active)—To support PLN in preparing and implementing the 1,000 islands electrification program, this activity has two main outputs: small hydro resource mapping, including a national small hydro resource map and review and validation of small hydro resource potential in NTT, Maluku, Maluku Utara, and Sulawesi; and geospatial mapping and least cost electrification planning, including the preparation of a geospatial least cost electrification plan and funding prospectus for Sulawesi.

Hydropower and Pumped Storage Development

- ESMAP: Financing Options with PPP for a Medium Hydro Power Project in Outer Islands (Bank-executed: $170,000, November 2012 – active)—This activity aims to inform the Government of Indonesia and Indonesia power utility, Perusahaan Listrik Negara (PLN)

on options to develop and finance hydropower generation in Indonesia through public-private partnership (PPP) to leverage financing through the public channel to accelerate hydropower development in Indonesia.

- ASTAE: Support for Preparation of Indonesia Hydropower Project (Bank-executed: $500,000, February 2014 – active)—This activity is aimed at providing advisory service to PLN to : (i) develop Poko and Bakaru II hydropower projects in a river basin perspective; (ii) support sustainable sediment management; (iii) prepare Environment and Social Safeguards Plans for Poko and Bakaru II hydropower projects meeting international standards; (iv) carry out an economic analysis of the Poko project with river basin perspective; and (v) build capacity for greater integration of hydropower investment in PLN planning cycles.
- ESMAP: Local Benefit Sharing for Hydropower Projects in Indonesia (Bank-executed: $180,000, May 2014 - active)—This activity aims to support PLN and concerned government agencies to identify options to develop benefit sharing mechanism for hydropower development in Indonesia to taking into account international experience and national policy and regulations.
- ASTAE: Support to Integrated Catchment Program for Upper Cisokan Pumped Storage Project (Bank-executed: $330,000, May 2014 – active)—This activity aims to transfer knowledge on Integrated Catchment Management (ICM), which PLN can use for the Upper Cisokan Pumped Storage (UCPS) Project.

Surabaya Energy Efficient Cities

- **ESMAP: Reforming the Minibuses in Surabaya (Bank-executed: $115,000, October 2013 – Closed)—**This TA activity is intended to assist the City Government of Surabaya to improve the city's public transport system, by assisting the city to decide on and put in place the institutional setup and operational procedures needed to reform the minibus (angkot) industry into a more formal and regulated mode of transport such that individual services are of higher quality and better integrated with the rest of the network and other modes of public transport than at present.
- **ESMAP: Inclusive Green Growth for EAP Cities (Bank-executed: $255,000, January 2015 – active)—**This activity is focused on institutional capacity building that enables Surabaya to develop its sustainable urban energy and emissions plan comprising two parts: Part One - Green Growth Energy and Emissions Plan (GGEEP) to pursue an energy efficient and low carbon city development that will define the city's energy future and its GHG footprint; and Part Two - Green Growth Business Plan (GBP) containing priority projects and initiatives with a clear direction and roadmap to help identify and market PPP opportunities for increasing private sector participation in green infrastructure investments.

Other ASTAE Grants

- **Building Innovation Capacity in Clean Energy in Indonesia (Bank-executed: $200,000, October 2011 – closed)—**This activity aims to develop local capacity to support clean energy innovation in Indonesia by harnessing global knowledge networks. The Program had two sub-components: 1. Indonesia Green Entrepreneurship Subprogram; and 2. Indonesia Demand-Driven Green Innovation Subprogram.
- **Large Entreprises Energy Efficiency Project (Bank-executed: $310,000, January 2014 – dropped)—**This funding was intended to provide the key implementing agency, the Ministry of Industry, and specifically its Directorate of International Industrial Cooperation with project management support to prepare a highly complex and integrated energy efficiency financing activity, funded by the GEF. This activity was dropped and the grant funds returned, and thus progress against outcomes was not evaluated.

A7.3.3 Key Observations

Relevance

Relevance vis-à-vis the country's needs, priorities, and demands. ESMAP and ASTAE activities have varied in terms of their relevance to Indonesia's needs, priorities, and demands. ESMAP and ASTAE support for geothermal power development has been highly relevant to Government needs and priorities, as well as demand-driven. ESMAP and ASTAE technical assistance has directly targeted some of the regulatory and tariff constraints that were stalling the development of geothermal in Indonesia, making it difficult for the GoI to meet its target of 4,000 MW of geothermal by 2020.[88] The Ministry of Energy and Mineral Resources (MEMR) specifically requested assistance from the World Bank to address these barriers.

The newly approved World Bank Country Partnership Framework (CPF) for 2016-2020 also endorses the broad objectives supported by ESMAP and ASTAE with significant associated investment volumes.[89] ESMAP resources were used to support the development of geothermal policies that are supported in the first operation under the CPF, the First Sustainable and Inclusive Energy Development Policy Loan (DPL) ($500 million), and are expected to be supported through future DPLs.

ESMAP activities related to renewable energy electrification are directly relevant to the GOI's National Energy Policy, National Medium Term Development Policy, and the 1,000 island electrification program, which aims to improve electricity access in Indonesia Eastern and Western island regions by using renewable energy resources. PLN, the national power utility, has been tasked with implementing this program. ESMAP has assisted by training PLN staff on a renewable energy project design software (HOMER) and preparing least cost electrification plans and sector investment plans for three Eastern Indonesian provinces.

With 40 percent of Indonesia's households (about 24.5 million households) still relying on traditional biomass as their primary cooking fuel, the Indonesia Clean Stove Initiative (CSI) focused on an important need: identifying and piloting ways to scale us access to clean and efficient cooking solutions. It is unclear whether this initiative will remain a government priority, however, due in part to staff rotation in the government counterpart (MEMR).

Interviews with World Bank operational staff and GoI counterparts suggested low country ownership of some hydropower activities (particularly the PPP and local benefits studies) at the time of the evaluation mission, despite Bank efforts to socialize these concepts through reports and workshops.[90]

ESMAP and ASTAE's comparative advantages and strategic role. Interviews with the World Bank, Government stakeholders, and other international partners indicated that ESMAP's strengths include its ability to produce high-quality technical analysis, facilitate policymaking on difficult issues (e.g., geothermal regulations), and quickly and effectively responding to client demands. For example, at the request of MEMR, ESMAP provided analysis and recommendations on the development of the 2014 ministerial regulation on geothermal policy and pricing in a matter of months. ESMAP (through the World Bank) and ADB are the only two development partners in Indonesia actively helping the Government on these critical policy issues. ASTAE's strategic role is seen by World Bank staff as augmenting funds for preparation and supervision of challenging projects, to better enable a project to meet its development objective. For example, ASTAE grants have been used to

[88] In the face of a power sector that was struggling to keep up with growing electricity demand, the GoI first launched a 10,000 MW Fast-Track Program focused on coal-generation, followed by a second 10,000 MW Fast-Track Program in late 2008 that relies on geothermal to meet 40% of that target.

[89] World Bank. 2015. *Indonesia - Country partnership framework for the period FY16 - 20*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/2015/12/25256041/indonesia-country-partnership-framework-period-fy16-20

[90] According to the World Bank EAP Team, PLN was under a major reorganization at the time of the evaluation, which may contribute to an observation of low ownership.

develop an integrated catchment management (ICM) plan to support a World Bank investment operation constructing a pumped storage facility in the Upper Cisokan, and to prepare analysis (e.g., sediment management studies) to inform the development of hydro development projects in the Poko and Bakaru rivers.

For both ESMAP and ASTAE, the program's partnership with the World Bank—and by extension, the World Bank's convening capacity—is seen as a comparative advantage. For instance, the World Bank convened bilateral partners, NGOs, and private sector partners in support of the ESMAP and ASTAE-funded Clean Stoves Initiative. Particularly in the energy access space, where investments often require significant upfront work and have high transaction costs, ESMAP and ASTAE have funded analytical pre-investment work that wouldn't typically be financed by the World Bank. For ESMAP-funded geospatial mapping and least cost electrification planning, this work has resulted in a KfW investment of approximately $100 million.

Gender and social issue inclusion in ESMAP and ASTAE activities. Several activities in Indonesia have strongly focused on gender and social issues. To complement and inform the Indonesian CSI, ESMAP funded innovative research on the social and cultural context, gender issues, and user needs for the design and promotion of clean stoves in Indonesia (Sumba Island and Yogyakarta City). Conducted by a multi-disciplinary team of a sociologist and gender specialist, an anthropologist, a statistician, and a stove engineer, the research included a survey of more than 1,400 respondents and focus group discussions (with separate groups of men and women), interviews and ethnographic research. The results of this research informed a social protocol for clean stove testing that is hoped to improve the adoption and sustained use of clean stoves in the selected CSI pilot areas.

ESMAP and ASTAE have also funded activities focused on the social acceptability of larger hydropower development. For example, the ESMAP-funded study on local benefit sharing looks at options for project proponents and government to build a partnership with local communities to support the development of hydropower projects in a manner that redistributes economic benefits to local communities, typically in the form of cash or in-kind benefits throughout the life of the project. The ASTAE-funded approach for ICM for the Upper Cisokan Pumped Storage project (UCPS) also strongly considers social issues. The approach seeks to mitigate potential risks related to competing demands for land and water resources in the project's catchment area resulting in people losing their livelihoods (legal and illegal logging, slash and burn agriculture, and poaching) and needing to be resettled. ESMAP is funding the development of an ICM program that considers the need to implement integrated land use solutions that benefit human users, deliver environmental services, and help maintain viable populations of critically endangered and endangered species. Gender issues will be considered in the development of compensation schemes for the ICM program (e.g., if cash compensation is made, the amount should be discussed with both the male and female heads of household and given when both members are present).

Effectiveness

Extent to which ESMAP and ASTAE activities are achieving the intended objectives. In Indonesia, ESMAP and ASTAE grants have been used concurrently or successively on the same thematic initiatives. For example, integrated work under the Indonesia CSI program has been funded by a series of ESMAP and ASTAE grants. ASTAE funded the innovative social research that helped inform the design of the results-based pilot program, the implementation of which is funded by complementary grants from ESMAP (Bank-executed) and ASTAE (recipient-executed). On renewable energy electrification, ASTAE grant funds were used to develop least cost electrification planning and investment prospectuses for three eastern Indonesia provinces, while complementary ESMAP funds were used to train PLN staff in system planning an optimization. Because of this thematic integration, it is challenging to distinguish between ESMAP and ASTAE contribution to results for some initiatives. The discussion below focuses first on the achievement of ESMAP development objectives, followed by a discussion of ASTAE objectives, although grants from both programs may contribute to achieving the combined results.

ESMAP activities in Indonesia are focused largely on ESMAP's objective to influence policy and strategy and increase client capacity, with some activities also targeting outcomes to enhance development financing and to deepen knowledge and generate innovative solutions. The extent to which ESMAP activities are expected to achieve these intended objectives is discussed below.

- **Enhance development financing.** For the ESMAP activity Indonesia Capacity Strengthening and Risk Mitigation for Geothermal Development, expert advice on financial models for mitigating risk for exploratory drilling has been provided to inform the development of a new facility with MEMR and the Ministry of Finance with Clean Technology Funds ($50 million) and GEF funds ($6 million). This facility will focus on convertible grants for government-sponsored exploratory drilling in areas of Indonesia where it is less attractive for the private sector and more challenging to do licensing arrangements. The *Indonesia: Geothermal Energy Upstream Development Project* (a CTF-World Bank investment operation) is under preparation.
- **Influence policy and strategy and enhance client capacity.** ESMAP's contribution to the Indonesia CSI program focuses on the set-up of an RBF pilot program, followed by the design of an RBF to scale-up at the national program level. Design of the pilot program is a notable achievement, and significant research went into the development of certain aspects, including socio-cultural influences for stove adoption and the creation of a testing protocol. The RBF pilot program design was selected for an honourable mention in the Pioneer Award category for GPOBA's 2nd Annual "Inn-OBA-tions" awards and the Knowbel Prize from the Energy & Extractives GP. The pilot design achieves the ESMAP objective to generate innovative solutions, although this outcome was not originally anticipated in the Grant Funding Request (GFR).

However, with an expected closing date at the end of 2015, the RBF pilot does not look likely to achieve the outcomes it did anticipate. [*Note that after the evaluation mission, the RETF was extended until November 2016, thereby improving the likelihood of achieving the outcomes. The observations below are based on the facts as of the date of the evaluation mission—i.e., with the RETF closing in December 2015*.] The first expected outcome, "client capacity increased through implementation of a small scale RBF mechanism in the Pilot area," was expected to be demonstrated by "RBF-led transactions occur in at least one of the 4 pilot sub-areas and cover at least two types of stoves." While some RBF-led transactions have occurred, only one type of stove has been sold. The first call for stove designs yielded seven approved stoves, but all but one were international stoves. Challenges associated with price of the international stoves and Customs import restrictions and duties have been significant barriers to the sales of those stoves. A second call was issued to address these constraints, and while stakeholders were optimistic for the approval of an additional local stove, testing has been delayed due to equipment problems at the new testing facility. The second expected outcome, "inform government policy on RBF mechanisms in support of Indonesia's CSI" was expected to be demonstrated by "Government commitment to RBF mechanisms and set-up a PMU to define and prepare the roll-out of such a scheme." With the RBF pilot delayed, and results still quite modest nearing the end of the pilot period, the evaluation team found no evidence that a national scheme would be supported at this time. [*Note that the extension of the closing date could improve these prospects*.] The third and final expected outcome is "10,000 clean biomass stoves sold in the pilot area." An interview with BRI, the Indonesian bank distributing the RBF subsidies, indicated that the sale of just 36 stoves by one private company—called a market aggregator (MA) had been verified. Other interviews indicated that approximately 300 stoves had been sold by two MAs. While seven MAs were selected to participate in the program, one has withdrawn, and only two have sold stoves to-date; both of these MAs both were already in the business of selling stoves and one is partially funded by a bilateral development partner. The other four MAs are new to the stove industry (they include an agricultural exporter, furniture company, and a handicraft company), and are reportedly waiting to see the results of the second stove testing before actively participating.

Interviews with the World Bank, implementing partners (GERES, YDD, Apex) and a participating MA suggested several key reasons for modest results. The program design has

not yet succeeded in closing the commercial gap, despite some adjustments to attempt to address this issue. With a one-year implementation period, only one stove available to sell, and concerns about the ability to verify sales, the pilot has not yet succeeded in influencing the private sector to participate in a sector where they weren't active before.

Many important lessons are learned, however, about the RBF mechanism through this pilot program. In general, stakeholders interviewed were supportive and enthusiastic about the RBF approach, but acknowledged that adjustments were needed to make it successful. A key lesson learned is that the design of an RBF system takes significant time and effort. The concept is new for governments, and navigating procurement and financing rules is challenging. In Indonesia, just setting up the structure for the RBF took about a year, in part because private sector pushback regarding government administration of the grant funding subsidies resulted in a separate grant and new arrangements to allow a semi-private sector bank (BRI) to administer the funds. Another key lesson learned is that implementation requires resources. Interviewees felt that while significant resources had been applied to develop the testing protocols and establish and run the testing centres, insufficient resources were allotted to support the implementation of the program. In particular, some stakeholders felt support for demand-stimulation activities, initial set-up costs for participating MAs, and other operational aspects have been insufficient. The need for a wide array of funding mechanisms, in addition to the RBF as the core mechanism, is another lesson learned for the scale-up of this RBF pilot. The pilot attracted smaller, more local MAs than originally anticipated, which brought another set of challenges. For example, the smaller MAs were too small to access the advance loans that BRI offered and thus found initial set-up costs steep.

Under the Geothermal Clean Energy Investment Project, a Geothermal Tariff Methodology Report was prepared with recommendations on pricing reform which were adopted in the Regulation No. 17 on Geothermal Tariffs was issued by the MEMR on June 3, 2014. ESMAP recommendations on tendering were also incorporated into the Geothermal Law (2014). ESMAP's geothermal activities also influenced the World Bank's strategy for geothermal development in Indonesia, as well as the World Bank's First Indonesia Sustainable and Inclusive Energy Development Policy Loan (DPL) ($500 million proposed).[91] On Renewable Energy for Electrification, the capacity of PLN staff was increased through ESMAP-funded training events; 120 PLN staff were trained on system planning and optimization, and the network expansion model is being integrated into PLN's system expansion plan. 60 PLN staff were also trained in the use of a renewable energy project design software (HOMER), which was used to prepare about 170 feasibility studies for solar-diesel hybrid power plants across Indonesia. ESMAP activities Financing Options with PPP for a Medium Hydro Power Project in Outer Islands and Local Benefit Sharing for Hydropower Projects in Indonesia have not yet achieved their expected outcomes. For the PPP activity, a peer review of the draft report indicated that it needed substantial revision, and new consultants were hired to do the revisions. A draft report has also been produced for local benefit sharing. Interviews indicated that these reports have had low ownership and interest from the intended government audience. Changes in the government counterpart have been a contributing challenge. In Surabaya, it is too early to speculate on the achievement of objectives for inclusive green growth, although interviews suggested good promise. For the minibus initiative, the ESMAP activity has made recommendations on how to transition to the contracting system for the public transport sector in Surabaya, but the evaluation team had insufficient evidence on whether these recommendations will be adopted by the City Government.

- **Deepen knowledge and generate innovative solutions.** The ESMAP activity (Indonesia Capacity Strengthening and Risk Mitigation for Geothermal Development) is generating innovative financial models to mitigate exploratory drilling risk for the GoI, a key obstacle for geothermal development. Reports prepared for the ESMAP activities Financing Options with PPP for a Medium Hydro Power Project in Outer Islands and

[91] World Bank. 2015. *Indonesia - Energy Sector Development Policy Loan (DPL) Project*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/2015/07/24756305/indonesia-energy-sector-development-policy-loan-dpl-project

Local Benefit Sharing for Hydropower Projects in Indonesia offer information that could deepen knowledge on these topics, but as noted above, interest has been low.

The table below summarizes expected and achieved outcomes for ESMAP activities in Indonesia.

Table 6.1 Expected and Achieved Outcomes for ESMAP Activities in Indonesia

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
Clean Stove Initiative			
Support to the design of an RBF mechanism for the implementation of the Indonesia CSI (P129829)			
Geothermal			
Geothermal Clean Energy Investment Project (P113078)			
Indonesia Capacity Strengthening and Risk Mitigation for Geothermal Development (P143753)			
Renewable Energy Electrification			
Indonesia: Geospatial Mapping and Least Cost Electrification Planning (P128568)			
Renewable Energy for Electrification - PLN Capacity Building in HOMER (P130999)			
Renewable Energy Resource Mapping and Geospatial Planning: Indonesia (P145273)			
Hydropower			
Financing Options with PPP for a Medium Hydro Power Project in Outer Islands (P145283)			
Local Benefit Sharing for Hydropower Projects in Indonesia (P149098)			
Cities - Surabaya			
Inclusive Green Growth for EAP Cities (P146777)			
Reforming the Minibuses in Surabaya (P146316)			

Note: Green: planned and achieved; Green with Diagonal: planned but too early to tell; Green with Grid: not planned but achieved; Orange with Diagonal: planned but evidence suggests may not be fully achieved.

ASTAE activities have generally been successful at providing technical assistance that supports the development or implementation of World Bank energy investment operations. In

the hydropower subsector, the Support to Integrated Catchment Program for Upper Cisokan Pumped Storage Project is developing an integrated catchment management (ICM) program to support more sustainable development of a 1040 MW pumped storage project in West Java. The Environmental Management Plan (EMP) and Land Acquisition and Resettlement Action Plan (LARAP) for UCPS prescribe mitigation and monitoring measures to comply with World Bank regulations and Indonesian law. Concerns about the sustainability of these measures led to development of the ICM approach; an MoU between the two key project stakeholders, PLN and the Perhutani (the forestry company), to collaborate on land management has been signed. In addition to PLN, ASTAE has also socialized the approach with the government agency responsible for geothermal development, PGE. Through the Support for Preparation of Indonesia Hydropower Project, ASTAE has funded advanced studies of the physical and economic conditions for the development of the Poko and Bakaru II hydropower projects, estimated at 360 MW.

Indonesia - Renewable Energy Access Improvement (P128568) provided geospatial least cost electrification plans and funding prospectuses for three Eastern Indonesian provinces that resulted in an approximately €65 million loan from KfW to PLN covering about 90 locations for solar-diesel hybrids in Eastern Indonesia; PLN is also reportedly implementing around 50 locations identified through the planning process with their own budget, although the evaluation team was not able to verify that assertion. Government-imposed limits on sovereign borrowing derailed plans for a complementary World Bank-financed investment.

Limited information was available regarding the ASTAE-funded activity Building Innovation Capacity in Clean Energy in Indonesia (P121841). The pilot project served as a capacity building incubator for green energy entrepreneurs and helped to commercialize two clean energy solutions. According to one interview, the program improved the quality and credibility of the World Bank's conversations with the Government regarding a new investment operation on Research and Innovation in Science and Technology Project (RISET) ($95 million); however, the investment program has a very different focus than the ASTAE pilot, and it is not clear from the Project Appraisal Document how ASTAE activities influenced the design of this investment.

ASTAE also provided significant support for the Indonesia CSI, including the social research (described above in *Gender and social issue inclusion in ESMAP and ASTAE activities*). The project provided inputs to the development of an Indonesia National Standard Method (SNI) 7926-2013 on Biomass Stove Performance which was issued in 2013, recognizing that continued revisions and improvements are needed; no national standard for biomass cookstoves existed when the CSI was launched in 2012. Notably, the project developed a stove testing protocol that integrates technical and social dimensions, which has been used to test stoves for the RBF pilot program. The CSI program has also contributed to ongoing discussions and development for ISO/TC 285 on cookstoves. In addition to developing the testing method, ASTAE has provided funding for technical guidance and capacity building for the establishment of a dedicated stove testing center for the pilot program, as well as support for the establishment of a national stove testing and certification lab. AFD funded the equipment set up of the lab.

Extent to which ESMAP/ASTAE activities can be replicated. CSI activities in Indonesia have fed into the development of a results-based financing (RBF) pilot program, with the hope that this approach can be replicated over time throughout Indonesia with different levels of subsidies. Significant effort has been put into designing the RBF pilot in such a way that it could be scalable, including integrating feedback from outside parties. For example, private sector input resulted in dividing the RBF into two grants—one to the government for the testing facility, and a second to channel the subsidy payments through a semi-private bank, due to private sector concerns about grant subsidies coming directly from the government. The ADB had indicated some interest in replicating the approach in Sumba, but was reportedly told by the government that they would like to wait to see the outcome of the RBF pilot. Interviews raised concerns about whether the pilot will be seen as successful, but regardless, lessons are certain to be learned that could inform the replication of this approach in Indonesia, or more widely in the region, with adjustments.

In the hydropower subsector, the ASTAE-funded ICM approach for more sustainable management of the Upper Cisokan Pumped Storage project is a project-based exercise that has potential to be replicated in other hydropower developments. It is too early to tell whether the ICM approach will be adopted or expanded upon by PLN in Indonesia beyond the project duration and resources. Some challenges have been faced, which would need to be integrated as lessons learned if replicated. In particular, because the integrated catchment management (ICM) program was not part of the original activity and financial plan for the Upper Cisokan pumped storage facility, the process of securing internal PLN funding was cumbersome and caused delay.

The geospatial least-cost electrification planning that ESMAP and ASTAE have funded in three eastern provinces is a replicable framework that could be applied in the rest of Indonesia (and elsewhere) to assist in budgetary planning and electrification rollout. Similarly, the renewable energy resource mapping is an ESMAP global program offering a replicable methodology.

Both ESMAP-funded activities in Surabaya (minibuses and inclusive green growth) offer replication potential. The minibus reform initiative aims to move the public transport sector in Surabaya to a contracting system; if this change is successfully piloted, it could be replicated in other cities in Indonesia, possibly as part of World Bank urban development investment operations. The inclusive green growth planning in Surabaya is the replication of a similar ASTAE-funded effort in Da Nang, Vietnam, stemming from both cities' participation in the energy flagship program Sustainable Energy and Emissions Planning (SUEEP) in EAP. In Surabaya, the grant is implementing the SUEEP Guidebook to develop a Green Growth Energy and Emissions Plan (GGEEP) and Green Growth Business Plan (GBP), and to support development of a street lighting retrofit project; these activities could be replicated relatively easily, given the Guidebook, if funding support is available.

Linkages between ESMAP, ASTAE, and World Bank energy sector operations. ESMAP and ASTAE activities have provided some support for the development of the Geothermal Clean Energy Investment Project ($175 million, 2011-2018). ESMAP's geothermal support also influenced the drafting of the World Bank's First Indonesia Sustainable and Inclusive Energy Development Policy Loan (DPL) ($500 million proposed).[92]

ESMAP and ASTAE activities are also supporting the design and implementation of the 1,040 MW Upper Cisokan Pumped Storage Hydro-Electrical Power project ($640 million, 2011-2018) and potential investments in a Poko Hydropower Project and related Bakaru II Hydropower project. ESMAP and ASTAE support for least cost electrification planning in Eastern Indonesia was intended to inform a World Bank renewable energy for electrification investment operation for the outer islands, but Government-imposed limits on sovereign borrowing have been an obstacle for moving forward on this investment.

Consideration of the food-water-energy nexus and environmental/social inclusion in activity design. For a discussion of social inclusion in ESMAP and ASTAE activity design, see the section above on "Gender and social issue inclusion in ESMAP activities." As noted above, the ESMAP-funded approach for ICM in the UCPS also considers environmental issues, by designing an integrated land use solution that benefits human users, delivers environmental services, and helps maintain viable populations of critically endangered and endangered species.. No activities in Indonesia have explicitly focused on the food-water-energy nexus.

Effectiveness of communications in reaching relevant stakeholders. Across the suite of ESMAP and ASTAE activities in Indonesia, communications have generally been appropriately tailored to the nature and scope of the activity. Among the activities in Indonesia, the Indonesia CSI has had the most substantial communications campaign, aimed at knowledge exchange and generating awareness among the public, government, and private sector, to support the achievement of the development outcomes. Two national

[92] World Bank. 2015. *Indonesia - Energy Sector Development Policy Loan (DPL) Project*. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/2015/07/24756305/indonesia-energy-sector-development-policy-loan-dpl-project

workshops were held to kick-off the initiative. The second phase of the CSI has also included the establishment of a web platform, the Indonesia Stove Alliance (ATI), hosted by the NGO partner Yayasan Dian Desa (YDD). ATI serves as a bilingual portal for communicating news updates, publications, forums, videos, and pictures; organizing various public events and workshops; and engaging with the market aggregators for the RBF pilot.

To raise awareness and support cookstove sales through the RBF pilot program, a social marketing plan was developed and implemented. This has included media activities (such as talk shows, press releases, and a press conference led by the GoI initiated the call for market aggregators); a competition for awareness raising materials (logos, posters, video clips, calendar) held in Central Java, which resulted in a winning logo adopted by the CSI program; awareness raising workshops with local health departments in 7 districts (188 participating health workers) where MAs aim to market clean stoves; cookstove demonstrations in several villages in the pilot program region; and printed posters, CSI program logos, and program-endorsed clean stove logos that were distributed to the government PMO and MAs. Feedback on these efforts was mixed; interviews with private sector partners suggested that these demand-stimulation activities have been insufficient.

More broadly, World Bank staff have communicated the innovative social research and findings (from the concept to the field to the lab), and the design of the RBF pilot, via a set of Brown Bag Lunches at the World Bank and a webinar with an audience of over 100.

Impacts

Extent to which ESMAP/ASTAE activities have increased know-how and institutional capacity. At the national level, the Indonesia CSI program has supported the Directorate of Bioenergy of MEMR through the provision of international expertise, technical advice/review, stakeholder consultations, joint decision-making, and a recipient-executed trust fund (TF) to support the establishment of a national stove testing and certification lab. Awareness was also raised among other government agencies (Ministry of Health, Women) through their participation on a Steering Committee for the CSI. These activities have increased the government's awareness, but sustaining institutional commitment has been challenging given staff rotation in the Directorate of Bioenergy. At the pilot level, the CSI program has provided training and capacity building to the seven selected market aggregators.

In the geothermal subsector, ESMAP and ASTAE have focused on policy and regulatory reform. With ASTAE technical assistance, MEMR engaged in a more extensive stakeholder consultation process and issued a new tariff regulation. Complementary capacity building for MEMR has also been provided by another development partner, the Government of New Zealand. According to World Bank staff, with advisory support financed by ASTAE for the Geothermal Power Development Program II, PGE gained better capacity in managing the entire field development, including production drilling and steam field development; design and procurement for plant construction process; contract management for steam gathering systems and power plants; and implementation of the Environmental and Social Management Plan. Also according to World Bank staff, ASTAE funding has enhanced the Ministry of Finance's knowledge on options and instruments for mitigating exploration risk. The evaluation was not able to confirm these statements with PGE or Ministry of Finance.

With regard to renewable energy electrification, strong outcomes were reported for the ESMAP-funded training of PLN staff on HOMER software. Representatives of all 47 of the PLN branch offices and headquarters (60 PLN staff in total) were trained in HOMER, and in using HOMER outputs to prepare financial and operational viability assessments of renewable energy hybrid systems. These individuals applied this knowledge to prepare 250 solar hybrid projects across Indonesia. According to PLN staff, PLN has since extended the license for HOMER, suggesting that the capacity built has been sustained. ESMAP funding for geospatial mapping and least cost electrification planning also involved training of 120 PLN staff in three eastern Indonesian provinces in digitizing PLN's MV and LV grids, and in preparing a least cost electrification plan using Network Planner software. These trainings contribute to building PLN's capacity for system planning and optimization.

In the hydropower subsector, awareness and ownership of ESMAP reports on local benefits sharing and PPP modalities have been low among government counterparts. ASTAE support for the Poko and Bakaru II hydropower developments has focused on technical studies to prepare the investment. ASTAE support for the ICM approach for the Upper Cisokan Pumped Storage project has included components to raise awareness of the value of integrated approaches for sustainable development of hydropower among MEMR and PGE staff (including a study tour). PLN is still early on the learning curve, given that this is its first attempt to integrate conservation and water management issues. ASTAE-funded technical support to PLN on the design and implementation of ICM, as well as workshops and training events, have resulted in: (1) the establishment of a database consolidating the project's environment and social aspects, which is maintained by PLN staff; (2) the establishment of PLN's internal ICM team, including a biodiversity consultant hired with PLN's own funds; and (3) building partnership with other key stakeholders (as evidenced by the signing of an MOU with Perhutani, and the detailed agreement on the implementation of that MOU).

In Surabaya, it is too early to assess whether the activities related to green growth planning are increasing know-how and institutional capacity, and the evaluation had insufficient evidence to assess the capacity building implications of the minibus activity.

ESMAP and ASTAE's influence on investments from the World Bank, private sector, and donor community. On geothermal, through removing some key barriers to geothermal development (including those related to the tendering process and tariff), it is possible that ESMAP and ASTAE may indirectly contribute to increased private and donor investment in geothermal power. ESMAP also provided direct support to the development of geothermal policies that will be supported in the World Bank's First Indonesia Sustainable and Inclusive Energy Development Policy Loan (DPL) ($500 million), including finalizing the implementing regulations for the 2014 Geothermal Law.[93] ADB, which supported the development of new tariff regimes for geothermal jointly with ESMAP, has also approved a new Sustainable and Inclusive Energy Program ($500 million, approved October 2015) with reforms that will similarly continue to support the enactment of the new geothermal law and related implementing regulations.

The first phase of the Indonesian CSI was largely funded by AusAID, and the second phase was parallel financed by AFD. The CSI was designed with the intention of influencing the design and preparation of a National Clean Biomass Cookstoves program. Whether such a program will be financed will depend on the outcomes of the pilot program, political commitment, and availability of funding, among other factors; staff rotation in the government counterpart (the Bioenergy Directorate in MEMR) has been a challenge for maintaining GoI commitment for this initiative.

ESMAP and ASTAE activities related to renewable energy electrification directly led to an approximately $110 million loan (2015) from KfW to PLN covering about 90 locations for solar-diesel hybrids in Eastern Indonesia; these locations were identified by the least cost electrification plans prepared with ESMAP funding. PLN is also reportedly implementing around 50 locations with their own budget, although the evaluation team was not able to verify that assertion. The least cost electrification plans were originally intended to inform a joint World Bank-KfW investment of over $200 million; however, because of a recent GoI freeze on sovereign-guaranteed borrowing, the World Bank was not able to proceed with its planned investment.

ESMAP and ASTAE activities are supporting the design and implementation of the 1,040 MW Upper Cisokan Pumped Storage Hydro-Electrical Power project ($640 million World Bank; $160 million GoI, 2011-2018) and the Poko Hydropower Project and related Bakaru II Hydropower project ($360 million), the feasibility of which are currently being studied with funding by KfW and ASTAE.

[93] World Bank. 2015. *Indonesia - Energy Sector Development Policy Loan (DPL) Project*. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/2015/07/24756305/indonesia-energy-sector-development-policy-loan-dpl-project

Finally, while the Grant Report and Monitoring (GRM) completion report for the ASTAE grant on Building Innovation Capacity in Clean Energy suggests that the follow-on activity is the Research and Innovation in Science and Technology Project (RISET) ($95 million, 2013-202), the evaluation found insufficient evidence to validate this assertion. The Project Appraisal Document for the RISET project makes no mention of the activities undertaken with ASTAE funding,[94] and third-party stakeholders were either unaware of the ASTAE grant or unavailable for interview.[95]

Expected development outcomes. Fieldwork suggested that perceptions of expected development outcomes are generally consistent with stated outcomes in project documents. No notable discrepancies were identified.

Plausibility of sustained results. The Indonesia CSI program has generated innovative research and developed an integrated technical and social stove testing protocol that could have sustained results through a demonstration effect. The CSI program has also influenced cookstove testing protocols at the international and Indonesian national level. However, while important lessons may be learned from the implementation of the RBF pilot that could improve the potential for future successful initiatives, it appears unlikely that the RBF pilot will be scaled up into a national program without continued support from ESMAP or ASTAE.

On geothermal, support from ESMAP has contributed to a new ceiling tariff methodology that was codified in the Regulation No. 17 on Geothermal Tariffs, issued by MEMR on June 3, 2014. While interviews suggested that the government is already considering revisions to the tariff regime, returning to a feed-in tariff system, ESMAP's support laid the groundwork for broader policy engagement on geothermal. The development of geothermal policies is supported in the first operation under the newly approved Country Partnership Framework for 2016-2020, the First Sustainable and Inclusive Energy Development Policy Loan ($500 million), and is expected to be supported through future DPLs. ESMAP is also supporting the development of implementing regulations on indirect use and production bonuses.

On renewable energy electrification, evidence suggested that institutional capacity for system planning in PLN would be sustained (see section above on institutional capacity), and the least cost electrification planning activities in the three eastern Indonesian provinces will be sustained through a KfW investment operation.

As noted, interviews suggested low government ownership for ESMAP-funded studies on local benefit sharing and PPP models for hydropower. However, if future governments were more interested in sustainable hydropower development, these studies could form the basis for a follow-on engagement. For the Upper Cisokan Pumped Storage project, it is too early to comment on the sustainability of results achieved in forest and habitat conservation through the ICM approach. A long-term funding mechanism and the involvement of a third-party to independently monitor the implementation after the construction period will be critical to success and are key objectives of the ICM approach.

In Surabaya, it is too early to speculate on the plausibility of sustained results for the green growth activity.

Sustainability

Effectiveness of ESMAP partnerships. Desk review and interviews with stakeholders in Indonesia indicate that the World Bank (as the representative of ESMAP- and ASTAE-funded activities) has forged strong partnerships in the energy sector in Indonesia, including with ADB, KfW, and the Government of New Zealand (GoNZ). The World Bank (with ESMAP funding) and ADB collaborated during 2012–2015 in their policy and regulatory support work in the geothermal subsector, which jointly supported the issuance of a new geothermal Law in 2014 and adoption by the government of a new tariff scheme. This collaboration was seen

[94] World Bank. 2013. *Indonesia - Research and Innovation in Science and Technology Project*. Washington DC : World Bank. http://documents.worldbank.org/curated/en/2013/03/17428447/indonesia-research-innovation-science-technology-project

[95] Of the three interviewees identified, two were unaware of the grant activities and one was deceased.

as successful from all sides, including the government counterpart. The GoNZ provided complementary capacity building to MEMR to support the policy changes.

Identification and management of risks. Risks have been appropriately identified in project concept notes (PCNs) and GFRs for all projects. Given the technical assistance and knowledge-oriented nature of ESMAP and ASTAE activities, commonly identified risks include low government ownership or absorption of the results of studies, low government capacity and commitment, and delays in execution. Interviews suggested that although appropriate mitigation measures were taken, for some activities (particularly in the hydropower sector), low government ownership and staff rotation were indeed limiting factors for the achievement of outcomes and sustained results.

A7.4 Back-to-Office Report: Senegal

A7.4.1 Introduction

ICF International (ICF) was commissioned by the World Bank in May 2015 to conduct an external evaluation of the Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy (ASTAE) program. The external evaluation is informed, in part, by field visits to six countries participating in ESMAP and/or ASTAE activities, including Senegal.

A three-day country visit to Senegal was undertaken from October 28-30, 2015. Nikolaos Papachristodoulou served as the ICF International field evaluator and was accompanied by national consultant, Nicolas W. Etoyi.

The purpose of the country visit was to collect evidence related to key evaluation questions at the country- and project-levels:

- **Relevance**—including the extent to which activities are in line with the needs, priorities, and demands of Senegal; perceptions of ESMAP's comparative advantages and strategic role in Senegal, and the extent to which they are utilized and evolving to respond to demands from Senegal; and the extent of gender and social issue inclusion in ESMAP activities.
- **Effectiveness**—including the extent to which ESMAP activities are achieving the intended objectives and can be replicated; extent of linkages between ESMAP and World Bank energy sector operations; consideration of the food-water-energy nexus and environmental/social inclusion in activity design; and effectiveness of ESMAP communications in reaching relevant stakeholders in Senegal.
- **Impacts**—including the extent to which ESMAP activities have increased know-how and institutional capacity; extent of ESMAP's influence on investments from the World Bank, private sector, and donor community; perceptions on expected development outcomes; and the plausibility of sustained results.
- **Sustainability**—including the effectiveness of ESMAP partnerships in Senegal; and the extent to which ESMAP has properly identified and managed risks.

The evaluation team focused on the planning and implementation of ESMAP grants in Senegal from 2012 through 2015. The evaluation team met with representatives from the World Bank, Government of Senegal (GoS), and involved international and national partners.

The remainder of this report is divided into three main parts. Section 2 briefly describes the country context and background. Section 3 provides significant observations from the country visit related to the evaluation's key questions. Section 4 includes the final itinerary for the country visit.

A7.4.2 Background

Energy Sector in Senegal

Senegal remains heavily dependent on imported oil products for its energy supply (about 90 percent of electricity generated using oil products). Plans to diversify the energy mix started as early as mid-2000, but are only now being implemented.[96]

The energy sector, and particularly the electricity sub-sector, experienced a major crisis in 2010 and 2011, which caused widespread load shedding. In response to this crisis, the GoS initiated a major restructuring and an Electricity Emergency and Recovery Plan (2011-15) for the whole energy sector.

Rural electrification was made a key Government priority through its Letter of Development Policy of Rural Electrification (LPDER) developed in 2004, and the Letter for Energy Sector Development Policy (LPDSE) in 2008 that outlines the sector policy objectives to improve

[96] Project Appraisal Document. The Banda Gas to Power Project. May 2014. The World Bank.

the sector's performance in the medium term. The 2012 LPDSE revision placed the development of rural access to electricity at the heart of its policy of economic and social development.[97]

Responsibility for the power sector lies with the Ministry of Energy, which is assisted by the National Energy Council (NEC) and the Permanent Secretariat for Energy (SPE). Electricity production, transmission, distribution and client commercialization is dominated by the electricity company, *Société Nationale d'Electricité du Sénégal* (SENELEC). *Agence Sénégalaise d'Electrification Rurale* (ASER) has sole responsibility to manage the rural electrification program.

The World Bank has provided significant support over the years in the energy sector through the implementation of different programs and projects, including Energy Sector Management Assistance Program (ESMAP)-funded projects.

ESMAP Activities

ESMAP from 2012 through 2015 has supported four projects in Senegal:

- **SE4ALL TA for Senegal (P145845) (2013-17)** — This non-lending Technical Assistance (TA) activity was approved in 2013 (FY2013) with an allocation of $1,800,000. As of May 9, 2015, approximately $650,896 (36%) had disbursed.[98]

  This project is providing advice to the GoS for appropriate approaches for institutional, technical and economic design and implementation access expansion programs. It comprises three components: (i) rural electrification sector strengthening; (ii) rural electrification investment prospectus and funding strategy for the period to 2030; and (iii) energy sector governance and management. Activities under the three components are following a Sector Wide Approach (SWAp), and modalities have range from analytical products and capacity building, to the development of an investment prospectus.[99]

- **AFREA II Gender and Energy Program (P149119) (2014-16)** — This regional non-lending TA activity was approved in 2014 (FY2014) with an allocation of $1,400,000. As of March 12, 2015, approximately $215,325 (15%) had disbursed.[100]

  The program is expected to increase adoption of gender sensitive approaches across energy projects in the Africa region through: (i) advisory and operational support on gender mainstreaming; (ii) training and capacity building; (iii) knowledge development and dissemination; and (iv) results and monitoring & evaluation. The program has been supporting related activities in Senegal, as well as Mali, Benin, Tanzania, Kenya and Zambia.

- **AFREA I Gender and Energy Program (P116908) (2009-14)** — This regional non-lending TA activity was approved in 2009 (FY2010) with an allocation of $1,395,381. This activity is now closed.

  This activity aimed to develop and mainstream best practice in gender-focused energy projects in Africa, with a particular focus on renewable energy. Activities included the preparation of a gender and energy work program for countries in Africa, including Senegal, and support for implementation, strengthening of evidence-based case studies and technical assistance.[101]

[97] Proposal Summary Form/Concept Note, Sustainable Energy for All Technical Assistance Program.

[98] Project at a Glance, SE4ALL TA for Senegal, 08/10/2015

[99] Proposal Summary Form (PSF) SE4ALL TA for Senegal; Grant Funding Request (GFR) 13332 - SE4ALL TA for Senegal

[100] Project at a Glance, AFREA II: Gender and Energy Program, 08/10/2015

[101] Project at a Glance, 3A: Gender and Energy, 11/20/2014

- **Lighting Africa Expansion (P146987) (2013-15)** — This regional non-lending TA activity was approved in 2013 (FY2014) with an allocation of $2,500,000. As of June 30, 2014, approximately $828,423 (33%) had disbursed.[102]

  This activity provides co-financing for the second phase and scale-up of the Lighting Africa program to support the extension of ongoing activities to enable market-based solutions for affordable, modern off-grid lighting in eight incumbent countries (South Sudan, DRC, Burkina Faso, Senegal, Mali, Ethiopia, Tanzania and Nigeria) and the geographic expansion of the program into new countries, including Senegal. In Senegal, the project is expected to design and then implement a consumer awareness campaign. Given the small scope of this activity, and that it is currently being prepared, this activity is not discussed in the report.

A7.4.3 Key Observations

Relevance

Relevance vis-à-vis the country's needs, priorities, and demands. ESMAP activities are assessed to be highly relevant to the Senegalese context, and to addressing key country needs and priorities. The GoS was one of the first countries in the world to have opted into the Sustainable Energy for All (SE4ALL) initiative, and ESMAP's SE4ALL TA for Senegal activity has been supporting the government's commitment for electrification, as reflected in the revised 2012 Letter for Energy Sector Development Policy (LPDSE) and rural electrification strategy. In particular, Senegal has set itself the ambitious target of increasing the rural access rate from 24 percent in 2012, to 50 percent by 2017, and to 95 percent and 70 percent at the urban and national levels respectively.[103]

The ESMAP-funded activities of the AFREA I and II Gender and Energy Programs are also relevant to national priorities and needs. The GoS has endorsed international and regional conventions to integrate gender in policies, standards and programs in order to facilitate gender mainstreaming across all institutional levels; for example, in 2010, GoS established a Ministry of Culture, Gender and Living Environment, and adopted a law establishing absolute parity between women and men in elected assemblies.[104] Despite these advances large disparities still remain. Within the energy sector, gender issues are prominent in interventions involving households and small businesses that use and deliver traditional and modern energy services. The rural poor are often disproportionately affected by the use and management of environmental resources due to higher levels of dependence on local natural resources for their livelihood.[105] The AFREA I Gender and Energy Program conducted a gender impact assessment on the World Bank's Sustainable and Participatory Energy Management Project (PROGEDE I) (1997-04, $19.3 million), and continues to provide support on gender mainstreaming to the World Bank's Senegal Second Sustainable and Participatory Energy Management Project (PROGEDE II) (2010-16, $19.37 million) through the AFREA II Gender and Energy Program. AFREA II Gender and Energy Program is also providing support to the Rural Electrification Agency (ASER), and to Senegal's National Power Utility (SENELEC) under the World Bank-funded Electricity Sector Support Project (ESSP) (2012-16, $93.50 million).

All interviews with Government stakeholders and national and international partners view ESMAP activities in Senegal as relevant (and useful) to national priorities and needs.

ESMAP's comparative advantages and strategic role. Interviews with the World Bank, Government stakeholders and other international partners indicated that they saw ESMAP's strategic role in Senegal as one of coordination and leadership, particularly in relation to achieving SE4ALL objectives and the integration of gender considerations into energy

[102] Project at a Glance, Lighting Africa Expansion, 07/27/2015

[103] Proposal Summary Form/Concept Note, Sustainable Energy for All Technical Assistance Program.

[104] AFREA Gender and Energy Program, Gender and Energy Consultant, Senegal Energy Program, Terms of Reference, Draft.

[105] Ibid.

operations. Stakeholders pointed out that ESMAP's value added lies in its ability to produce knowledge, supply technical assistance and facilitate policy dialogue in cutting edge issues (e.g., gender) across the spectrum of energy sector focus areas (e.g., energy access, energy efficiency, clean energy and energy assessments and strategies), and the linkages between them.

Gender and social issue inclusion in ESMAP activities. The relevance of social and gender aspects is considered highly relevant to the ESMAP activities in Senegal, and interviews with the World Bank, government officials and other national and international partners indicated that the AFREA I and II Gender and Energy Program have played an instrumental role in the systematic integration of gender considerations into energy operations in Senegal. As mentioned above, the AFREA I Gender and Energy Program which ended in 2014, conducted a gender impact assessment of PROGEDE I, which helped consolidate lesson learning on the strengths and weaknesses of the project in terms of gender integration, and in doing so directly contributed to the Project Development Objective (PDO) and design of its second phase, PROGEDE II[106] (see Effectiveness and Impacts sections below).

In the Senegalese Agency for Rural Electrification (ASER) implementation of an action plan is foreseen under AFREA II Gender and Energy Program, and support is being provided to the broader World Bank energy sector portfolio through gender mainstreaming in the Senegal Electricity Sector Support Project (ESSP) with SENELEC. Following successful integration of gender considerations into ASER's and PROGEDE's programs, there is demand to also consider how to capture these lessons and apply them at the utility level to work with SENELAC, and the ESSP project. Gender and electricity infrastructure Economic and Sector Work (ESW) has been conducted and a report will be released at the end of 2015 showcasing the findings of the assessment. Based on the findings and recommendations in the report, further work with SENELEC may be explored and undertaken through the AFREA II Gender and Energy Program. The AFREA II Gender and Energy Program is also assisting with the hire of a gender and energy specialist to support the Senegal gender and energy work more broadly.[107] As well as project-level support, AFREA II Gender and Energy Program activities in Senegal have provided input for significant knowledge sharing and lesson learnt activities in the form of briefing notes, news stories and videos, among others.

Effectiveness

Extent to which ESMAP activities are achieving the intended objectives. ESMAP activities in Senegal are focused on all three of ESMAP's overall objectives: to enhance development financing, influence policy and strategy and increase client capacity, and to deepen knowledge and generate innovative solutions. The extent to which ESMAP activities are expected to achieve these intended objectives is discussed below.

- **Enhance development financing.** AFREA I Gender and Energy Program activities achieved their objective to inform the design, documentation, planning, strategy and implementation of PROGEDE II, as mentioned above. The currently ongoing SE4ALL TA for Senegal activity is expected to mobilize non-Bank resources, including from private sector investors and other development partners, through developing an investment prospectus and funding strategy for rural electrification which will include a detailed five-year pipeline of investment and TA projects. Another related activity under SE4ALL TA for Senegal is the preparation of the last two Local Electrification Concession Plans (eight concession plans have already been prepared).

[106] Africa Renewable Energy and Access Program (AFREA): AFREA II Gender and Energy Program (P149119), Draft Project Concept Note, January 2014.

[107] Written communication with Ms Awa Seck, Senior Economist and Task Team Leader (TTL) of the ESMAP-funded AFREA Gender and Energy Program.

- **Influence policy and strategy and increase client capacity.** Fieldwork indicated good progress toward outcomes for the SE4ALL TA for Senegal activity which is (i) supporting internal reorganization and capacity building of ASER in areas such as monitoring and evaluation (M&E), implementation of rural electrification concessions, systems, programs and technologies for demand management, innovative financing mechanism, and social impact assessment of tariff reforms,[108] (ii) facilitating policy dialogue through a series of workshops with a range of stakeholders involved in rural electrification, and (iii) supporting overall energy sector governance, including through monitoring implementation of a performance contract plan between the GoS and SENELEC and progress of the implementation the LPDSE. In parallel, SE4ALL TA for Senegal recently started providing technical assistance to strengthen the existing energy information system.

  Interviews with World Bank and Government stakeholders suggested that the gender assessment conducted under the AFREA I Gender and Energy Program and the gender action plan developed under the AFREA II Gender and Energy Program improved gender awareness and helped mainstream gender issues into ASER and PROGEDE II activities. Implementation of the action plan has not started yet, but interviews with stakeholders suggest that activities are in general well positioned to achieve intended results. The AFREA I Gender and Energy Program and AFREA II Gender and Energy Program through training and capacity building activities have also increased the capacity of World Bank energy teams to integrate and address gender issues within their programs and projects.

- **Deepen knowledge and generate innovative solutions.** The AFREA I Gender and Energy Program and AFREA II Gender and Energy Program developed and disseminated a great deal of knowledge products and tools on the integration of gender in energy access programs and projects, and in doing so deepened knowledge of World Bank energy teams and government officials. These products are seen by involved parties (including Government stakeholders) as high quality and useful for decision making throughout the project cycle (project design, implementation, review, and monitoring and evaluation). The AFREA II Gender and Energy Program also facilitated exchange of knowledge and experiences in gender mainstreaming approaches, as a result of its replication in Benin, but also in Mali and Liberia (see Extent to which ESMAP activities can be replicated).

Table 6.2 Expected Outcomes for ESMAP Activities in Senegal

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
SE4ALL TA for Senegal (P145845)			Not applicable
AFREA II Gender and Energy Program (P149119)			
AFREA I Gender and Energy Program (P116908)			

Note: Green: planned and achieved; Lt Up Diagonal: planned but too early to tell; Red: planned but not achieved.

The evaluation found that the presence of a World Bank staff person who champions 'gender' in-country has been a key driver of success, as it facilitated connections with World

[108] Proposal Summary Form/Concept Note, Sustainable Energy for All Technical Assistance Program.

Bank energy teams and government stakeholders, enabling ESMAP's influence of World Bank operations, and of the thinking and actions of government initiatives and programs. The same World Bank staff person serves as the TTL for PROGEDE II and for the regional AFREA I and II Gender and Energy Programs.

Extent to which ESMAP activities can be replicated. ESMAP activities under the AFREA I Gender and Energy Program piloted gender mainstreaming activities in Senegal, with the intention of scaling up in-country and replication in other contexts. In particular, gender mainstreaming approaches and tools implemented under PROGEDE II have been replicated from the AFREA II Gender and Energy Program in a number of other countries in the region. For example, in Benin, input on gender is being provided through technical support by an in-country gender and energy expert and a mission planned for December 2015, which a World Bank staff person from Senegal will lead, for the World Bank-funded Increased Access to Modern Energy Project (2009-16, $177 million). This project is currently implementing forest management plans over 300,000 ha and developing new ones for another 300,000 ha. In addition, lessons learned from Senegal on PROGEDE were shared with a TTL working on gender assessments on Liberia, while the Economic Community of West African States (ECOWAS) has shown interest in replicating the gender mainstreaming approaches of PROGEDE II in their Programme on Gender Mainstreaming in Energy Access (ECOW-GEN).

Linkages between ESMAP and World Bank energy sector operations. As mentioned above, ESMAP's SE4ALL TA for Senegal activity is closely aligned with and will complement activities underway through other donor financed activities, including the World Bank ESSP project. In addition, the AFREA I Gender and Energy Program informed the design, documentation, planning, strategy and implementation of PROGEDE II. The AFREA II Gender and Energy Program continues to provide support to PROGEDE II, and also conducts ESW linked to the World Bank-funded ESSP project.

Consideration of the food-water-energy nexus and environmental/social inclusion in activity design. Social inclusion and gender have been considered directly relevant to all activities and have been incorporated in their design, implementation and monitoring and evaluation. In particular, activities under the AFREA I and II Gender and Energy Programs helped provide high level expertise in gender and maximized gender and social inclusion outcomes.

Effectiveness of ESMAP communications in reaching relevant stakeholders. There is strong evidence that ESMAP has made good use of a range of communication products and channels in reaching relevant World Bank, government and other stakeholders in Senegal, and more broadly in the region. For example, the AFREA I and II Gender and Energy Programs have communicated knowledge on energy access gender-informed programs and projects through knowledge events (e.g. AFREA gender and energy workshop in Dakar, or BBLs), trainings, policy briefs, case studies, news stories, blogs and media (e.g., video).

Impacts

Extent to which ESMAP activities have increased know-how and institutional capacity. Early evidence from fieldwork suggests that ESMAP activities under the AFREA I Gender and Energy Program have already increased institutional capacity at the World Bank on how to integrate and address gender issues within their programs and projects, and the SE4ALL TA for Senegal activity increased ASER and SENELEC capacity to monitor implementation of the performance contract plan between the GoS and SENELEC, and progress of the implementation of the LPDSE, as well as increased the know-how at ASER to manage and implement ASER's proposed internal reorganization. Interviews indicated that Government officials have increased their awareness on gender issues, particularly within ASER and SENELEC, but is it is too early to speculate that their capacity in this area has increased as a result.

ESMAP's influence on investments from the World Bank, private sector, and donor community. ESMAP has played a key role in coordinating the efforts of GoS and multiple development donors (notably with the EU) to better advance the SE4ALL agenda. Donors

engaged in the energy sector meet regularly approximately every two months to share experiences and discuss the progress of their programs and projects. This forum has been used as a venue to discuss outputs of the SE4ALL TA for Senegal and AFREA II Gender and Energy Program activities, to seek collaboration and to influence and leverage on investments from the World Bank and donor community in the energy sector. For example, the currently ongoing SE4ALL TA for Senegal activity is expected to mobilize non-Bank resources, including from private sector investors and other development partners, through developing an investment prospectus and funding strategy for rural electrification which will include a detailed five-year pipeline of investment and TA projects. Another related activity under SE4ALL TA for Senegal is the preparation of the last two Local Electrification Concession Plans (eight concession plans have already been prepared).

Expected development outcomes. Fieldwork suggested that perceptions of expected development outcomes are consistent with stated outcomes in project documents. For example, work on gender under the AFREA II Gender and Energy Program has already resulted in better development outcomes for PROGEDE II. In particular, integration of gender considerations in PROGEDE II has led to an increase of women's income and status in the community. Now with training for the entire charcoal value chain supported by the project, some 1,018 women have emerged as charcoal producers, while the share of total community income going to women has risen from 3% in 2009 to 12% in 2013.[109] Through SE4ALL TA for Senegal, ESMAP activities that are now underway are expected to strengthen ASER's ability to successfully implement the rural electrification program and LPDSE action plan.

Plausibility of sustained results. Interviews suggest that ESMAP's SE4ALL TA for Senegal activities in Senegal show good potential for sustained results given that these address critical bottlenecks in energy sector governance and management and support the implementation of Government initiatives and programs, including the implementation of LPDSE. In addition, ESMAP activities have supported the development of robust M&E of programs and projects for tracking their progress against lasting outcomes and overall development goals. For example, SE4ALL TA for Senegal supports monitoring of implementation of performance contract plan between the GoS and SENELEC, which aims to achieve an adequate level of operational and financial performance for SENELEC's financial recovery, while AFREA II Gender and Energy Program supported the development of PROGEDE II's M&E system which supports its work on gender and energy.

Sustainability

Effectiveness of ESMAP partnerships. ESMAP has forged strong partnerships with the donor community and national and international partners for the most part (notably with the EU). Desk review and interviews with stakeholders in Senegal suggest that donor coordination in the energy sector in Senegal is strong. Donors engaged in the energy sector meet regularly approximately every two months to share experiences and discuss the progress of their programs and projects.[110] This forum has been used as a venue to discuss outputs of the SE4ALL TA for Senegal and AFREA II Gender and Energy Program activities, to seek collaboration and to influence and leverage on investments from the from the World Bank and donor community in the energy sector. The AFREA Gender and Energy Program has also worked in strong partnership with government representatives working with ASER, PROGEDE and SENELAC. According to interviews with Government stakeholders and national and international partners, the World Bank is seen as very well-informed about the needs and priorities of the energy sector, and with significant experience in working at high level of Government.

Identification and management of risks. Risks appear to have been appropriately identified in project concept notes (PCNs) and grant funding requests (GFRs) for ESMAP projects in Senegal. In general, the nature of the activities which focus on awareness raising,

[109] World Bank Feature Story. June 2014. Community-Led Sustainable Forest Management Program Creates Wealth for Rural Families and New Energy Sources in Senegal.

[110] Proposal Summary Form/Concept Note, Sustainable Energy for All Technical Assistance Program.

capacity building and technical support have reduced the risks (see Plausibility of sustained results).

A7.5 Back-to-Office Report: St Lucia

A7.5.1 Introduction

ICF International (ICF) was commissioned by the World Bank in May 2015 to conduct an external evaluation of the Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy (ASTAE) program. The external evaluation is informed, in part, by field visits to six countries participating in ESMAP and/or ASTAE activities, including Saint Lucia.

A four-day country visit to Saint Lucia was undertaken from September 14-17, 2015. Jessica Kyle served as the ICF field evaluator and was accompanied by national consultant, Dr. Vasantha Chase.

The purpose of the country visit was to collect evidence related to key evaluation questions at the country- and project-levels:

- **Relevance**—including the extent to which activities are in line with the needs, priorities, and demands of Saint Lucia; perceptions of ESMAP's comparative advantages and strategic role in Saint Lucia, and the extent to which they are utilized and evolving to respond to demands from Saint Lucia; and the extent of gender and social issue inclusion in ESMAP activities.
- **Effectiveness**—including the extent to which ESMAP activities are achieving the intended objectives and can be replicated; extent of linkages between ESMAP and World Bank energy sector operations; consideration of the food-water-energy nexus and environmental/social inclusion in activity design; and effectiveness of ESMAP communications in reaching relevant stakeholders in Saint Lucia.
- **Impacts**—including the extent to which ESMAP activities have increased know-how and institutional capacity; extent of ESMAP's influence on investments from the World Bank, private sector, and donor community; perceptions on expected development outcomes; and the plausibility of sustained results.
- **Sustainability**—including the effectiveness of ESMAP partnerships in Saint Lucia; and the extent to which ESMAP has properly identified and managed risks.

The evaluation team focused on the planning and implementation of ESMAP grants in Saint Lucia from 2012 through 2015. The evaluation team met with representatives from the World Bank, Government of Saint Lucia (GoSL), and involved international and national partners, including NGOs.

The remainder of this report is divided into three main parts. Section 2 briefly describes the country context and background. Section 3 provides significant observations from the country visit related to the evaluation's key questions. Section 4 includes the final itinerary for the country visit.

A7.5.2 Background

Energy Sector in Saint Lucia

Saint Lucia is a mountainous small island developing state in the Eastern Caribbean with a population of about 184,000. A public-private corporation—St. Lucia Electricity Services Limited (LUCELEC)—holds a universal license for generating, transmitting, distributing, and selling electricity until 2045, according to the Electricity Supply Act. Self-generation is allowed, and independent power producers are permitted by agreement with LUCELEC under certain limiting conditions. Electricity supply is reliable in Saint Lucia, but costly due to near total reliance on diesel for power generation, as well as diseconomies of scale given the country's small market size.

In 2001, the Cabinet of Ministers approved a Sustainable Energy Plan, by Cabinet Conclusion No. 695. One of the goals identified by the Plan was to enhance the security of energy supply and use for all sectors of the economy. In 2010, a comprehensive National Energy Policy (NEP) was elaborated. A key objective of the NEP is "to create an enabling

environment, both regulatory and institutional, for the introduction of indigenous renewable energy to the national energy mix, thus achieving greater energy security and independence." An ambitious target of 35% renewable energy by 2020 has been set by the Prime Minister; the current energy mix includes less than 1% renewables.

Successful implementation of the Sustainable Energy Plan and renewable energy targets of the NEP has been impeded by an incomplete regulatory and policy framework and technological, environmental, and financing issues at promising geothermal sites.

ESMAP Activities

ESMAP, through the SIDS-DOCK program, is supporting three projects in Saint Lucia:

- **Geothermal Resource Development in Saint Lucia**—This TA activity was approved in late 2014 (FY2015) with an allocation of $1,250,000. As of March 31, 2015, approximately $41,000 (3%) had disbursed. The project is co-financed by the GEF with $1,000,000, and coordinated, parallel financing is also provided by the Government of New Zealand and the Clinton Climate Initiative. The ESMAP activity includes both Bank-executed and recipient-executed components.

  This grant is expected to provide technical advisory support for: (1) upstream geothermal development preparation and project management (including surface reconnaissance, environmental and social safeguards, and integration of technical work toward a pre-feasibility assessment); and (2) transaction and regulatory support (including reviewing existing agreements with UNEC to evaluate potential transaction options, transaction advisory services and negotiation support to the GoSL to reach fair and equitable agreements with a qualified developer, and review and revision of the existing relevant legal framework).

- **Eastern Caribbean Energy Regulation Authority (ECERA)** — This regional TA activity was approved in FY2013 with an allocation of $1,500,000. This funding is provided in parallel to a World Bank investment operation ($2.8 million) focused on setting up and operationalizing ECERA. As of March 31, 2015, $550,560 (37%) had disbursed. The ESMAP activity includes both Bank-executed and recipient-executed components.

  This grant is expected to: (1) fund the participation of observers (nominees from Organization of Eastern Caribbean States [OECS] Governments not yet part of ECERA), Carilec (the association of Caribbean electric utilities), and ECTEL (the Eastern Caribbean Telecommunication Authority); (2) provide technical advisory support for policy work that demonstrates the value of a regional regulatory, including related to grid feed-in mechanisms for promoting renewable energy, operating and technical standards and grid code for renewable energy IPPs, and model licensing agreement or PPA for geothermal energy for the Eastern Caribbean; and (3) fund other activities that increase the likelihood of success, such as stakeholder outreach and consultation.

- **Solar PV Scale Up Project**—This regional activity is still under preparation, with appraisal/negotiations anticipated for this month, September 2015. $2 million in grant funding from ESMAP has been earmarked. The project plans to pilot commercial scale rooftop PV systems on public buildings in St. Lucia, Grenada, and St. Vincent, as part of a coordinated effort with the ECERA project to address barriers to PV deployment in the Eastern Caribbean. The regional pilot is expected to provide lessons learned that can support global dissemination of best practices and support subsequent scale-up investments in the region.

A7.5.3 Key Observations

Relevance

Relevance vis-à-vis the country's needs, priorities, and demands. The three ESMAP-funded projects in Saint Lucia are highly relevant to the Government of Saint Lucia's priorities in the energy sector. Exploitation of indigenous renewable energy resources—including solar and geothermal—are a key tenet of Saint Lucia's National Energy Policy

(2010). The Government's commitment to increasing renewable energy is demonstrated by a growing target for renewables as a portion of the national energy mix; while the National Energy Policy cites a quota of 30% by 2020, the Prime Minister has verbally upped this target to an ambitious 35% by 2020. Geothermal generation will be a key component for meeting this target.

ESMAP-funded projects are also relevant to one of the key objectives of the National Energy Policy, which is to create a regulatory and institutional environment that enables the penetration of indigenous renewable energy in Saint Lucia. The ECERA and geothermal projects include studies that are contributing to the drafting of supporting regulations for renewable energy development. The Solar PV project also has potential to improve the enabling environment by demonstrating the development of an off-take agreement between LUCELEC and the Government for a project that exceeds the current kW size limit for commercial development.

Interviews with Government officials and other partners suggested that the projects were viewed as relevant (and useful) to national priorities and needs.

ESMAP's comparative advantages and strategic role. In interviews, Government officials indicated that they saw ESMAP's strategic role in Saint Lucia as one of coordination and leadership, particularly in relation to the geothermal project. The Government also recognized that other Caribbean countries have made uninformed decisions regarding renewable energy development and, in this context, appreciated the provision of information, analysis, and strategic advice under ESMAP-funded grants that is helping the Government make good decisions.

Other partners (and former Government officials) saw ESMAP's work on energy regulations as a particularly strategic engagement, given Saint Lucia's need for reform and the reality that other development partners have not been active in this area.

Gender and social issue inclusion in ESMAP activities. The relevance of social and gender aspects is generally low in the three ESMAP activities in Saint Lucia, and in interviews with the Government of Saint Lucia, gender issues were dismissed as not relevant to the ESMAP activities. There is minimal scope to incorporate these aspects into the ECERA and solar PV projects. For the geothermal project, it is expected that gender aspects will be considered in the context of environment and social safeguards (e.g., whether the development of the geothermal site disproportionately affects women in some capacity).

Effectiveness

Extent to which ESMAP activities are achieving the intended objectives. ESMAP activities in Saint Lucia are focused on two of ESMAP's three overall objectives: to enhance development financing, and influence policy and strategy and increase client capacity. No specific outcomes were identified related to the third objective (deepen knowledge and generate innovative solutions). The extent to which ESMAP activities are expected to achieve these intended objectives varies from activity-to-activity, as discussed below. For the solar PV scale-up activity—which is still being prepared—it is too early to speculate on its potential to achieve results.

- **Enhance development financing.** The ESMAP geothermal activity shows good promise for achieving its outcomes under this objective (see Table 1). Under the Bank-executed component, transaction support has been provided for negotiations with a qualified developer, two donor conferences have been held to begin exploring financing options for exploratory drilling, and initial stakeholder consultations have been held on environmental and social impacts. In interviews, stakeholders expressed confidence that an agreement would be reached with a well-known developer and that financing would be secured.
- **Influence policy and strategy and increase client capacity.** Both ESMAP activities in Saint Lucia are contributing to new and revised energy regulations that can better support renewable energy generation. Fieldwork indicated good progress toward outcomes for the geothermal activity. Under the recipient-executed component, terms of

reference are being prepared for drafting new supporting regulations for geothermal development, including those related to level of acceptable change, environmental and social impact assessment, and geothermal development. The World Bank has also coordinated the development of key technical studies (including magneto-telluric tests and LiDAR assessment[111], funded by the Government of New Zealand).

The ESMAP ECERA activity shows mixed progress toward expected outcomes under this objective (see Table 1). On one hand, the project, in consort with the World Bank investment operation, has been unable to attract firm commitments from other countries, due in part to factors outside ESMAP's control (e.g., government turnovers, natural disaster in Dominica, and incompatible debt-to-GDP ratios).[112] As a result, the project is being restructured with a proposed extension of the closing date by up to 20 months. On the other hand, several technical studies have been prepared on relevant topics—including the grid code, feed-in-tariff, tariff rules, and electricity supply and financial arrangements for ECERA—which should inform new and revised regulations in Saint Lucia that can support increased renewable energy generation. These studies are seen by involved parties (including Government officials) as high quality and useful for decision making and regulatory drafting.

Table 6.3 Expected Outcomes for ESMAP Activities in Saint Lucia

Geothermal Resource Development Project	ECERA Project
■ *Policy/strategy informed*: 1 assessment for all three areas confirming up to three as sound for exploration drilling (Baseline: 0) ■ *Development financing informed*: 1 equitable grant agreements with a qualified developer (Baseline: 0) ■ *Development financing informed*: $US20-30 million allocated for exploration drilling (Baseline: 0)	■ *Policy/strategy informed*: OECS member states adopt and/or incorporate any policy options, or take specific actions in support of the establishment of ECERA ■ At least 2 additional countries join the Regional Energy Committee; at least 1 additional country joins ECERA

The evaluation team identified several factors that are contributing to successes under the geothermal project. First, the geothermal activity is benefiting from lessons learned from previous ESMAP engagements, including geothermal development in Dominica. For example, ESMAP has engaged earlier in the geothermal development process in Saint Lucia than in Dominica. Second, the preparation of a geothermal development roadmap (under a previous ESMAP grant) has served as an important organizing framework, enabling the World Bank and other partners to engage in a meaningful way. And lastly, the World Bank has actively managed strategic partnerships. In interviews, Government officials and partners commended the strong leadership and coordinating role of the World Bank in geothermal achievements to-date.

Because the ECERA activity is linked to a larger World Bank investment operation (Eastern Caribbean Energy Regulatory Authority Program, $5.6 million), the results achieved by the ESMAP activity are partly tied to the larger operation. In this case, the larger operation has experienced implementation challenges that also affect the ESMAP component.

Extent to which ESMAP activities can be replicated. None of the ESMAP activities in Saint Lucia have been prepared with the explicit intention of replication in other contexts, although applicable lessons will likely be learned from all of them. In particular, for geothermal, lessons learned from multiple engagements—including in Saint Lucia—are being aggregated by ESMAP in a paper on risk mitigation measures.

[111] LiDAR is a remote sensing method that can be used to understand structural geology and volcanic history for potential geothermal development.

[112] Sinha, Chandra Shekhar. 2014. OECS Countries - Eastern Caribbean Energy Regulatory Authority (ECERA) : P101414 - Implementation Status Results Report : Sequence 06. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/2014/12/23041069/oecs-countries-eastern-caribbean-energy-regulatory-authority-ecera-p101414-implementation-status-results-report-sequence-06

Linkages between ESMAP and World Bank energy sector operations. ESMAP's ECERA grant is linked to a larger World Bank investment operation (Eastern Caribbean Energy Regulatory Authority Program, $5.6 million). ESMAP provides technical assistance around renewable energy as well as grant financing to support broader regional participation, since the adaptable program loans are owned by just two countries in the region (Saint Lucia and Grenada). The solar PV project is intended to provide a concrete demonstration of the types of projects that might be possible if the draft legislation developed under ESMAP's support to ECERA come to fruition.

The geothermal grant lays the early groundwork for a future investment in geothermal in Saint Lucia—by the World Bank or another development partner. This ESMAP activity is providing transaction advice to reach an equitable agreement with a private developer, as well as providing support to identify concessionary financing sources for exploratory drilling that will enable a lower risk premium and tariffs. One financing option being explored is for Saint Lucia to use its World Bank International Development Association (IDA) funding window.

Consideration of the food-water-energy nexus and environmental/social inclusion in activity design. The food-water-energy nexus and environmental and social inclusion are minimally relevant to the three ESMAP-funded activities in Saint Lucia. Gender and social inclusion is discussed above in Section 3.1.

Effectiveness of ESMAP communications in reaching relevant stakeholders. Stakeholders interviewed in Saint Lucia received regular communications and electronic delivery of work products from ESMAP-funded activities. For example, technical studies financed through ESMAP under the ECERA program were widely distributed to involved parties and relevant decisionmakers, including from the Ministry of Sustainable Development, Energy, Science, and Technology (MoSDEST), LUCELEC, ECTEL, and CARILEC.

Impacts

Extent to which ESMAP activities have increased know-how and institutional capacity. Early evidence from fieldwork suggests that ESMAP activities have already increased institutional capacity by providing technical studies that are directly informing the revisions of regulations that are relevant to renewable energy development in Saint Lucia. Interviews indicated that Government officials have come up a steep learning curve, particularly on geothermal development, and that capacity to develop these types of projects has increased as a result.

ESMAP's influence on investments from the World Bank, private sector, and donor community. No evidence was found that the ECERA activity directly influenced investments from the World Bank, private sector, or the donor community. One stakeholder suggested that the ESMAP grant funding may have played a role in gaining World Bank approval for the project as a regional activity, since it enabled the participation of more than two countries.

The geothermal development project is being supported by multiple development partners in addition to ESMAP, including $1 million in co-financing from the GEF and parallel financing from the Clinton Climate Initiative (CCI) and the Government of New Zealand. CCI support to the Government of Saint Lucia preceded ESMAP's grant, and interviews suggested that the Government of New Zealand might have provided funding for technical studies in the absence of ESMAP's involvement. However, it is clear that the World Bank has played a key role in coordinating the efforts of CCI and the Government of New Zealand, to better advance the geothermal agenda. Looking forward, ESMAP has potential to directly influence future investments in exploratory drilling in Saint Lucia ($20-30 million). Success in this regard might be attributed to the credibility and convening power of ESMAP and the World Bank working in tandem.

Expected development outcomes. Fieldwork suggested that perceptions of expected development outcomes are generally consistent with stated outcomes in project documents. For example, the stated development objective for the geothermal development project is to

"aid the GoSL in making an informed decision regarding geothermal exploration and development in Saint Lucia." Interviews with Government officials indicated that the perceived outcome of ESMAP support was indeed support for informed decision making around geothermal development.

In Saint Lucia, stakeholders focused strongly on development outcomes related to regulatory reform – i.e., technical studies funded by ESMAP that directly inform the drafting of new or revised regulations related to electricity supply and generation. This work is important for improving the enabling environment for future renewable energy investment.

Plausibility of sustained results. By virtue of a coordinated approach that addresses technical, environmental, and financial barriers to geothermal development, ESMAP's geothermal development project shows good potential for sustained results. Key drivers of downstream results will be the negotiation of an equitable agreement with a qualified developer, identifying a financier to derisk the exploratory drilling, and the passage of draft legislation related to geothermal development, environmental and social impact assessment (ESIA), and level of acceptable change (LAC). Interviews suggest good potential to fulfill the first two drivers. For the legislative changes, however, the lack of an umbrella environmental management act in Saint Lucia is a barrier. This gap means that the ESIA and LAC bills must instead be connected to the Physical Development and Planning Act, which is under the auspices of another ministry (the Ministry of Physical Development). Further support may be required to advise on how to deal with these legislative entanglements.

For ECERA, technical studies prepared with ESMAP grant funding are directly influencing the drafting of new regulations related to feed-in-tariffs, grid codes, and the development of tariff rules. Whether those regulations come into force will affect the sustainability of ECERA's results.

Sustainability

Effectiveness of ESMAP partnerships. As noted above, ESMAP (through the World Bank) has played a critical role in coordinating external and bilateral partnerships under the geothermal development project. Interviews suggested that the World Bank communicated frequently and effectively with involved parties to ensure progress toward the common goal. The solar PV project at St Jude's Hospital is being coordinated with parallel activities funded by the Governments of Mexico and Taiwan; the Government of Saint Lucia is considering issuing a single bidding document for all three installations.

Identification and management of risks. For all three projects, risks appear to have been appropriately identified. For the geothermal project, modest risks were identified related to limited capacity within the Government of Saint Lucia, delivery of complementary work by other development partners, reaching equitable agreements with a qualified developer and the national utility, and carrying out environmental and social safeguards. Through a strong coordinating role and technical expertise in geothermal development, the World Bank has been effectively managing these risks. An additional risk is related to the passage of draft legislation, which may require further support.

For the ECERA project, the main risk identified in the GFR was that ECERA continues to be restricted to the existing Participating Governments (Grenada and St Lucia) and other OECS governments decide not to participate at a regional level. ESMAP-funded activities have sought to mitigate this risk—through support for observer participation at ECERA meetings, regional events and trainings, other outreach, and a consultancy to advise on approaches for encouraging participation. However, as of this writing, no other governments have joined ECERA, due in some part to factors beyond the control of the project. The project is being restructured, which some stakeholders believe will encourage broader participation in future.

A7.6 Back-to-Office Report: Turkey

A7.6.1 Introduction

ICF International (ICF) was commissioned by the World Bank (WBG) in May 2015 to conduct an external evaluation of the Energy Sector Management Assistance Program (ESMAP) and Asia Sustainable and Alternative Energy (ASTAE) program. The external evaluation is informed, in part, by field visits to six countries participating in ESMAP and/or ASTAE activities, including Turkey.

A five-day country visit to Turkey was undertaken from October 19-23, 2015. Ravi Kantamaneni served as the ICF field evaluator and was accompanied by national consultant, Mr. Murat Cevik.

The purpose of the country visit was to collect evidence related to key evaluation questions at the country- and project-levels:

- **Relevance**—including the extent to which activities are in line with the needs, priorities, and demands of Turkey; perceptions of ESMAP's comparative advantages and strategic role in Turkey, and the extent to which they are utilized and evolving to respond to demands from Turkey; and the extent of gender and social issue inclusion in ESMAP activities.
- **Effectiveness**—including the extent to which ESMAP activities are achieving the intended objectives and can be replicated; extent of linkages between ESMAP and World Bank energy sector operations; consideration of the food-water-energy nexus and environmental/social inclusion in activity design; and effectiveness of ESMAP communications in reaching relevant stakeholders in Turkey.
- **Impacts**—including the extent to which ESMAP activities have increased know-how and institutional capacity; extent of ESMAP's influence on investments from the World Bank, private sector, and donor community; perceptions on expected development outcomes; and the plausibility of sustained results.
- **Sustainability**—including the effectiveness of ESMAP partnerships in Turkey; and the extent to which ESMAP has properly identified and managed risks.

The evaluation team focused on the planning and implementation of ESMAP grants in Turkey from July 2011 through June 2015. The evaluation team met with representatives from the World Bank, Government of Turkey (GoT), and international and national partners, including NGOs.

The remainder of this report is divided into three main parts. Section 2 briefly describes the country context and background. Section 3 provides significant observations from the country visit related to the evaluation's key questions. Section 4 includes the final itinerary for the country visit.

A7.6.2 Background

Energy Sector in Turkey

Turkey is import dependent; over 75% of energy used comes from foreign sources (i.e., >90% of oil and natural gas). This is equivalent to over US$50 billion, and has resulted in energy security and balance of payment concerns. With Turkey's primary energy demand increasing rapidly over the last few years and with expectations for it to continue to grow by nearly 25% by 2018 from 2013 levels[113], the Government has significantly rethought how it generates and consumes power. Turkey's tenth national development plan supports investments to harness Turkey's renewable energy resources and improve energy efficiency.

In 1984, Turkey opened its energy sector to privatization. Market reforms have followed, as reflected in the Electricity Market Law (2001; and 2013) and Natural Gas Market Law (2001),

[113] Tenth Development Plan (2013-2018), Ministry of Development, Turkey

which have increased investment in power generation and distribution systems. Furthermore, a regulatory framework for renewables and development of electricity market have led to over 16,000 MW of renewable generation capacity between 2001 and 2014. In 2007 the Energy Efficiency Law was enacted, followed by an Energy Efficiency Strategy (2012), which aims to reduce energy intensity by 20% by 2023. However, challenges still exist, including non-payment of energy in some poorer regions of Turkey, increasing per capita primary energy consumption, and institutional issues.

The World Bank has had a long history in Turkey, and provided significant energy sector support over the years. Currently, over 50% of its lending portfolio is focused on the energy sector through the implementation of different programs and projects, including the Clean Technology Fund (CTF), and Energy Sector Management Assistance Program (ESMAP)-funded projects.

ESMAP Activities

From 2011 through 2015, ESMAP has supported four projects in Turkey:

- **Turkey: Energy Efficiency Institutional Review (P146501)** — this technical assistance (TA) activity was approved in mid-2013 (FY2014) with an allocation of $149,750. As of March 31, 2015, the full amount had been disbursed. The activity is now closed.

  The grant aimed to enhance the capacity of the Ministry of Energy and Natural Resources (MENR) to more effectively manage energy efficiency (EE) policies and programs and, thus, contribute to helping them meet their national EE targets. As such, an EE institutional review was conducted in consultation with the Turkish Government. The review consisted of an assessment of the current institutional set-up, including roles and responsibilities for EE in Turkey, along with a comparison with international experience and best practices. A final set of institutional options and recommendations were provided in the report.

- **Energy Reform Milestones and Challenges (P149638)** — this activity was approved in early 2014 (FY2014) with an allocation of $110,000. As of August 7th, 2015, approximately $87,670 had been disbursed.[114]

  The aim of the grant was to: (a) review Turkey's accomplishments in developing and implementing market-oriented energy reforms; and (b) assess the key reform challenges going forward, so as to inform future reforms in Turkey and elsewhere. A report was published in July 2015 that presented the accomplishments and challenges of Turkey's energy reforms.[115]

- **Facilitating Small and Medium Enterprise (SME) Financing for Energy Efficiency in Turkey (P130578)** — this TA activity was approved in early 2012 (FY2012) with an allocation of approximately $49,580, and was fully disbursed by October 2012. The activity is now closed. The funding is linked to a World Bank investment operation ($201 million), Small and Medium Enterprises (SMEs) Energy Efficiency Project for Turkey, which aims to improve EE in SMEs, by scaling-up commercial bank lending for energy efficiency investments.

  An EE bank screening tool was developed and delivered to three Turkish partner banks (Halkbank, Vakıfbank, and Ziraatbank). It has also been shared with the ministries and departments in the GoT. The tool aimed to better inform commercial banks on the identification and appraisal of energy efficiency projects in the SME and building sectors.

- **National Watershed Management (P129244)** — this TA activity was approved in late 2011 (FY2012) with an allocation of approximately $78,550. As of September, 30th, 2015 it was fully disbursed. The activity is now closed.

[114] Project at a Glance, P149638, dated 08/07/2015

[115] http://documents.worldbank.org/curated/en/2015/10/25201156/turkey%E2%80%99s-energy-transition-milestones-challenges

The TA supported the Ministry of Environment and Urbanization (MoEU) strengthen its regulatory framework and implementation capacity for addressing cumulative environmental impacts by: (i) undertaking a study to develop implementation guidelines for the *Cumulative Environmental Impact Assessment (EIA) for Hydropower Projects in Turkey*; (ii) raising awareness among key stakeholders; and (iii) sharing international experience.

- **Social Compact in Electricity Privatization in Southeastern Turkey (P147492)** — this TA activity was approved in late 2014 (FY2015) with an allocation of approximately $80,000. As of July 8th, 2015, $68,645 had been disbursed.[116] The activity is now closed.

  The aim of the project was to work with the private electricity company and consumers in the region in developing a social compact around electricity service and payment by organizing, building, and sustaining relationships with communities through user associations in selected pilot communities. A case study entitled *Social Compact in Electricity Privatization in Southeastern Turkey: Building dialogue and consensus between the citizens and the electricity company towards improved cost recovery and service* was published in June 2015.

A7.6.3 Key Observations

Relevance

Relevance vis-à-vis the country's needs, priorities, and demands. Currently, Turkey imports nearly 75 percent of its energy.[117] It is estimated that total final energy demand and the total primary energy demand will more than double by 2020, which will require diversification of its energy supply routes, increases in the share of renewables in its energy mix, and significant steps to increase energy efficiency.[118] The latter is considered important for Turkey to sustain its economic growth while meeting its climate change and environmental commitments in support of the country's accession to the European Union (EU). The government has recognized this and has included EE within its energy security strategy[119], National Climate Change Strategy[120] and National EE Strategy[121]. The latter, in particular, aims to reduce energy intensity by 20% by 2023 from 2011 levels.

The Turkish energy security strategy aims to increase the use of hydro, wind and solar energy resources; for example, Turkey envisages producing 30% of its electricity needs from these renewables by 2023. However, with this drive has come significant negative public reaction due to the lack of meaningful and accessible consultation with the communities before, during, and after project construction. In particular, interviews with Government officials noted that historic environmental impact assessments only focused on individual projects by different developers at different times, rather than on a series of projects, such as hydro projects along a river. Consequently, there was a real need for the assessment of the cumulative impacts of renewable development.

Turkey is also taking steps in order to liberalize its energy market to align and harmonize its energy legislation with that of the EU acquis, including new electricity and gas legislation, and energy price reform. However, interviews with a private electric company noted that there are still significant segments of the Turkish population (e.g., South-eastern and Eastern provinces) that do not pay their electricity bills, due to various political, economic, behavioral and technical reasons. Consequently, due to the long held perception that electricity is free, wasteful electricity use behaviour has resulted.

[116] Project at a Glance, P147492, dated 08/07/2015

[117] Energy security strategy; http://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa

[118] Ibid

[119] Ibid

[120] http://www.dsi.gov.tr/docs/iklim-degisikligi/ulusal_iklim_de%C4%9Fi%C5%9Fikli%C4%9Fi_strateji_belgesi_eng.pdf?sfvrsn=0

[121] http://www.eie.gov.tr/verimlilik/document/Energy_Efficiency_Strategy_Paper.pdf

Within this context, the five ESMAP-funded projects in Turkey are highly relevant to the GoT's priorities in the energy sector. Furthermore, interviews with Government officials and other partners indicated that the projects were considered relevant (and useful) to national priorities and needs.

ESMAP's comparative advantages and strategic role. The country management unit (CMU) indicated that their technical advisory (TA) capability in Turkey is lacking; for example, they have attempted to introduce a reimbursable advisory service (RAS) in Turkey but it has not been successful due to administrative issues, limited GoT capacity, and competition from EU grants. Consequently, ESMAP has fulfilled a critical role in addressing this TA gap. Furthermore, it was noted that ESMAP has the advantage of being able to quickly mobilize funds, so the CMU has been able to offer timely support to the beneficiary.

As discussed earlier (see *Relevance vis-à-vis the country's needs, priorities, and demands*), energy is a strategic country priority, which is reflected in energy projects accounting for over 50% of the WBG's lending portfolio in Turkey. The CMU noted that ESMAP has contributed to these objectives through its initiatives supporting policy dialogue, which provide the building blocks for their lending operations. For example, the GoT (and other partners) noted that as EE is a horizontal topic covering a number of ministries and departments, patronage and structural (i.e., EE is decentralized and not coordinated) problems are prevalent. Consequently, ESMAP's EE Institutional Review was a timely strategic engagement that provided an independent assessment of the current situation, with useful recommendations that are now being considered in the drafting of the National EE Action Plan.[122]

Overall, stakeholders noted that ESMAP's outputs were robust, objective, and practical, which reflects ESMAP's ability to access and mobilize good quality national and international technical resources, and also benefits from the World Bank's local presence and access to national ministries and government stakeholders. ESMAP is also considered flexible to accommodate client delays or changes in strategy due to unforeseen issues. For example, for the Social Compact activity, escalating security issues in Southeastern Turkey, heightened ethnic tensions brought about by the influx of refugees from Syria, and electricity infrastructure failures in mid-2014, created significant tension, which led to the electricity company not wanting to conduct further stakeholder meetings in the region. To accommodate these unforeseen issues, the meetings were switched to Ankara, with the WBG serving as a mediator. Interviews with stakeholders noted that this change in strategy proved a success as it took communities away from their volatile local context, while the independent venue allowed them to openly engage in discussions with the electricity company without being perceived as a sign of betrayal by their communities.

These knowledge resources have/are proving strategically useful. For example, the Energy Market Regulatory Authority (EMRA) have indicated that findings from the Energy Reform Milestones and Challenges study are supporting their legislative reviews of tariff structures, and licensing. Similarly, the output (i.e., cumulative EIA guidelines) from the National Watershed Management study is now informing the development of the Strategic Environmental Assessment (SEA), which will be finalized in 2016, by the General Directorate of EIA, Permit and Inspections.

Gender and social issue inclusion in ESMAP activities. The Social Compact in Electricity Privatization in Southeastern Turkey aimed to forge and sustain a dialogue between urban and rural consumers and the local electricity company on increased electricity payment and improved service quality. As such, stakeholders considered it relevant on social elements. Furthermore, special attention was paid to gender in the survey methodology, with female surveyors and questions tailored to female respondents, and education campaigns. The Energy Reform Milestones and Challenges report incorporates discussion of social issues and challenges; specifically integrating lessons learned from the Social Compact activity. Interviews with GoT and other stakeholders also considered the National Watershed

[122] Development of the National Energy Efficiency Action Plan is being funded by the European Bank for Reconstruction and Development (EBRD)

Management activity to be highly relevant for social issues, as the scope of the prepared *Cumulative EIA Guidelines* includes social risks.

Stakeholders indicated that social and gender aspects were not relevant for remaining two Turkey ESMAP activities (i.e., EE Institutional Review; and Facilitating SME Financing for Energy Efficiency in Turkey).

Effectiveness

Extent to which ESMAP activities are achieving the intended objectives. ESMAP activities in Turkey are focused on all three of ESMAP's objectives: to enhance development financing, influence policy and strategy and increase client capacity, and to deepen knowledge and generate innovative solutions. The extent to which ESMAP activities have achieved these intended objectives is discussed below and presented in Table 1.

- **Enhance development financing.** The ESMAP activity to Facilitate SME Financing for EE in Turkey was implemented under a World Bank lending operation, Small and Medium Enterprises (SMEs) Energy Efficiency Project for Turkey. The activity developed a calculation tool to better inform three commercial banks on the identification and appraisal of EE projects. Interviews with the commercial banks indicate that although they are implementing SME financing through the WBG lending facility, and therefore achieving development financing objectives, the effectiveness of the tool in supporting this endeavor has been mixed. One bank noted that while the tool was user friendly, it was not sufficient for their requirements (i.e., the analysis was limited and did not capture additional sources of revenue brought about by the EE investment, so it was difficult to reach an acceptable internal rate of return (IRR)). They consider less than 50% of their investment proposals can be evaluated with the tool. Nonetheless, they see value in the tool, but expect the consultant supporting the lending operation to improve it. The second bank considers the tool to be very useful, with it effectively integrated into their processes. They believe approximately 60-70% of their investments can be evaluated with it. However, the third bank who were provided the tool, do not use it as they do not consider it user friendly or useful to their needs.

  For the Energy Reform Milestones and Challenges activity aims to inform a future development policy loan (DPL) and investment operation in Turkey; however, evidence collected by the evaluation team indicates that it is too early to tell if this will be achieved.

- **Influence policy and strategy and increase client capacity.** Within the Turkish Government there are several Ministries focused on energy, with many of them establishing their own EE mandates: the General Directorate of Renewable Energy (Ministry of Energy and Natural Resources) is responsible for EE policy; the Directorate General for Industry (Ministry of Science, Industry and Technology) is responsible for EE equipment; the Administration for Supporting and Developing SMEs (Department of Energy and Natural Resources) focuses on SMEs, and provides subsidies for EE training, study and consulting services procured by SMEs; and the Department of Climate Change (Ministry of Environment and Urbanization) has developed a climate change action plan, which includes RE and EE targets. Given the lack of coordination and visibility of EE policy within the GoT, government (and other partners) indicated that the EE Institutional Review (P146501) was a useful strategic engagement as it provided an independent, critical review of the institutional setup. Government officials have since requested that recommendations from the study be considered in the EE Action Plan.

Although not planned, interviews with GoT stakeholders indicate that the report prepared under the Energy Reform Milestones and Challenges activity has provided an objective body of evidence to support potential legislative improvements. This latter point was noted by EMRA, who consider the report as a benchmark from which to support planned legislative changes to tariff structures, licensing, privatization of generation assets, and their reiteration of the need for an independent regulator.

As noted above, the Facilitate SME Financing for EE in Turkey activity has had mixed results in terms of building bank staff capacity. Although, training was provided under the TA, the level of capacity built in the banks varied, with one bank integrating the tool within their

systems, another seeing the value of the tool, but wanting to improve its functionality, and the third bank not seeing any value in the tool or training, and thus utilizing third party consulting support in place of the tool.

Due to the proliferation of hydropower projects on rivers, significant negative publicity and legal challenges led to the cancelation of some impact assessments, and projects. In response to this, the National Watershed Management activity developed *Cumulative IA Guidelines for Hydropower Projects in Turkey*, which was launched officially at the International EIA Congress in November 2013, Ankara. Interviews with GoT indicate that this work has led to the introduction of the "cumulative" impact assessment concept in the Turkish EIA Regulation – Annex 3 (EIA General Format); Resmi Gazete Sayı: 291186 (25.11.2014).

Although increased electricity company capacity was an expected outcome of the Social Compact in Electricity Privatization activity, interviews with stakeholders indicate that results may be mixed. While a Stakeholder Committee Strategic Plan (SCSP) was developed, the lack of electricity company senior management (i.e., decision makers) involvement in the project was a problem. This is reflected in interviews with the electricity company that indicate that the SCSP has not been institutionalized in the company. Furthermore, it is unclear if they are currently utilizing lessons learned from the pilot studies for their interactions with local communities.

Deepen knowledge and generate innovative solutions. The Energy Reform Milestones and Challenges activity led to a report, which GoT stakeholders note is now being used as a training tool for new hires in the Ministry of Energy and Natural Resources (MENR), since it provides a comprehensive overview of the evolution of the Turkish energy markets, their existing challenges, and recommendations for addressing them.

Although not defined as an outcome, interviews with GoT indicate that prior to the publication of the *Cumulative IA Guidelines for Hydropower Projects in Turkey* there were no IA tools for hydropower projects. Consequently, GoT noted that the development of this knowledge product has led to a deeper understanding of cumulative impacts amongst project developers, GoT, NGOs, local communities, etc, which is, in part, reflected in fewer hydropower-related law suits since its publication.

Stakeholder interviews indicated that the Social Compact in Electricity Privatization in Southeastern Turkey was an innovative approach to address longstanding political, economic, behavioral and technical issues surrounding high rates of electricity non-payment. These problems were reinforced by the electricity company having no strategy to engage with urban and rural communities in the region. The social compact setup stakeholder committees to initiate and maintain dialogue between the consumers and the electricity company on increased electricity payment and improved service quality. Stakeholders noted that the approach, including using the WBG as the intermediary party, and moving discussions to an independent location (Ankara) led to positive interactions, and the development of a joint Stakeholder Committee Strategic Plan to address payment, service quality and communication issues. Furthermore, know-how and materials generated from this work has been transferred into a number of knowledge reports for wider dissemination, and new TA activities (see *Extent to which ESMAP activities can be replicated*).

Table 6.4 Expected Outcomes for ESMAP Activities in Turkey

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
Turkey: Energy Efficiency Institutional Review (P146501)	Not applicable		Not applicable
Energy Reform Milestones and Challenges (P149638)			

	Enhance development financing	Influence policy and strategy and increase client capacity	Deepen knowledge and generate innovative solutions
Facilitating Small and Medium Enterprise (SME) Financing for Energy Efficiency in Turkey (P130578)			Not applicable
National Watershed Management (P129244)	Not applicable		
Social Compact in Electricity Privatization in Southeastern Turkey (P147492)	Not applicable		

Note: Green: planned and achieved; Green with Grid: not planned but achieved; Green with Diagonal: planned but too early to tell; Orange with Diagonal: planned but evidence suggests may not be fully achieved

Extent to which ESMAP activities can be replicated. Interviews with stakeholders indicated that there is interest in the *Cumulative IA Guidelines for Hydropower Projects* to be replicated in other sectors, such as thermal power plants; however, no concrete plans have been formulated at present. The Social Compact in Electricity Privatization activity has the potential for replication, as lessons learned have been disseminated to a broader audience through integration in the Energy Reform Milestones and Challenges report, and reports on *Adapting to Higher Energy Costs: Findings from Qualitative Studies in Europe and Central Asia (2015)*, and *Toward Gender-Informed Energy Subsidy Reforms: Findings from Qualitative Studies in Europe and Central Asia (2015)*. Furthermore, materials and know-how have been transferred to 1) the *Jamaica Energy Security & Efficiency Enhancement (P112780)* to support a new activity that has been requested entitled "Community Electricity Loss Reduction"; and 2) a TA entitled *Operational and Financial Sustainability of Electricity Distribution Companies in Turkey (P155872)*.

For the remaining activities, they have not been prepared with the explicit intention of replication. For example, EE Institutional Review and Energy Reform Milestones and Challenges are bespoke reports, while the replicability of the SME financing tool is unlikely, as interviewees noted that there are already several tools that have been developed independently by bi-/ multi-lateral funding organisations in Turkey.

Linkages between ESMAP and World Bank energy sector operations. The Facilitating SME Financing for Energy Efficiency in Turkey activity is linked to a WBG investment operation ($201 million) entitled *Small and Medium Enterprises (SMEs) Energy Efficiency Project for Turkey*. The tool (and associated training) that was provided by the ESMAP grant, aims to inform the three commercial banks that have received concessional loans on the identification and appraisal of energy efficiency projects.

As discussed above (See *Extent to which ESMAP activities can be replicated*), the results and lessons learned from the Social Compact in Electricity Privatization activity has fed into a number of WBG energy sector publications and TA activities.

Although not directly linked to a specific funding operation, the development of the *Cumulative IA Guidelines for Hydropower Projects in Turkey* was the result of the high proportion of hydropower projects in the WBG's Clean Technology Fund (CTF) renewable energy portfolio. As discussed previously, negative publicity and legal issues led the WBG to take up this issue with the Ministry of Environment and Urbanization.

Consideration of the food-water-energy nexus and environmental/social inclusion in activity design. The food-water-energy nexus is minimally relevant to the ESMAP-funded activities in Turkey. However, environmental and social inclusion are key themes in the

National Watershed Management and Social Compact in Electricity Privatization activities. The former activity developed a *Cumulative IA Guideline* that addressed the impacts of environmental and social risks from hydropower projects. The social inclusion element of the latter activity is discussed in Section 3.1. The Energy Reform Milestones and Challenges report also integrates environmental and social issues and challenges into relevant sections.

Effectiveness of ESMAP communications in reaching relevant stakeholders. GoT stakeholders indicated that reports and tools generated by the Turkey: Energy Efficiency Institutional Review, Energy Reform Milestones and Challenges, and Facilitating Small and Medium Enterprise (SME) Financing for Energy Efficiency in Turkey activities were widely disseminated within government. Also, interviews with the EU Delegation of Turkey indicated that they had received the reports associated with the former two activities, highlighting some external dissemination of products as well. The National Watershed Management activity included workshops and outreach, which involved numerous stakeholders, including MDBs, and NGOs. This process led to greater cooperation and increased awareness in government/ public of the guidelines, which is reflected, as stakeholders noted, in its widespread use.

Impacts

Extent to which ESMAP activities have increased know-how and institutional capacity. Interviews suggest that ESMAP activities have increased institutional capacity on cumulative IA, which is reflected in its incorporation in the EIA regulation and informing the upcoming SEA. GoT stakeholders indicated that both the EE Institutional Review and Energy Reform Milestones and Challenges reports discussed issues that were known within the government; however, the fact that it was developed independently, and incorporated broad GoT stakeholder input, gave the issues and recommendations presented sufficient substance that they are now being considered in the upcoming EE Action Plan and EMRA's legislative review.

At this time, evidence from the fieldwork suggests that increased know-how and institutional capacity within the electricity company (per the Social Compact activity), and the commercial banks (per the SME Financing activity) are mixed. On the former, the Stakeholder Committee Strategic Plan has not been institutionalized within the company, and, based on interviews with the electricity company, it's unclear if lessons learned are being transferred into ongoing interactions with the Southeastern Turkish communities. On the latter, as discussed previously, one commercial bank has not institutionalized the learnings from the activity, and is still relying on an external consultant to identify and appraise energy efficiency projects.

ESMAP's influence on investments from the World Bank, private sector, and donor community. There is no evidence to date to suggest that the activities are directly influencing new investments. However, lessons learned from some of them have fed into new lending operations. For example, Cumulative IA Guidelines have been integrated into the design of a $115 million river basin management lending activity, while know-how and materials from the Social Compact in Electricity Privatization activity have fed new TA activities: 1) *Jamaica Energy Security & Efficiency Enhancement (P112780)*; and 2) *Operational and Financial Sustainability of Electricity Distribution Companies in Turkey (P155872)*.

Expected development outcomes. Evidence from the fieldwork suggests that perceptions of expected development outcomes are mostly consistent with stated outcomes in project documents (Table 1). For example, the stated development objective for the EE Institutional Review was to "incorporate and/or take specific action toward the implementation of EE policy or strategy." Interviews with GoT stakeholders indicated that recommendations are being considered in the National EE Action Plan. However, as the report was still relatively recent, and the fieldwork occurred a few week prior to the national election, officials were reticent to provide concrete predictions on whether it will be translated into policy or not. There was no evidence to date that the Energy Reform Milestones and Challenges activity led to the informing of a development policy loan (DPL) and investment operation in Turkey.

In a couple of instances, observed outcomes went beyond those that were expected. For example, EMRA perceived the Energy Reform Milestones and Challenges report as a justification of their role and responsibilities, which they indicated they would use to push through needed legislative improvements. For the Cumulative IA Guidelines, GoT officials noted that the number of hydropower-related law suits has declined since its publication, which they attribute, in part, to broader stakeholder acceptance and understanding of cumulative IA concepts.

Plausibility of sustained results. As discussed previously, the Cumulative IA Guidelines are informing the development of the Strategic Environmental Assessment (SEA). The SEA will provide a systematic decision support process to ensure that environmental and other sustainability aspects are considered effectively in policy, plan and programme making. Furthermore, since cumulative IA concepts have already been incorporated into the EIA regulation, it is highly likely that results will be sustained.

For the Social Compact activity, it was expected that the electricity company would institutionalize the Stakeholder Committee meetings, and start implementing portions of the Strategic Action Plan (e.g., EE educational campaign and improving its grievance redress mechanism); however, interviews suggest that the plan has not been institutionalized in company processes, which may be due to the lack of electricity company senior management in the activity design.

For the Facilitating Small and Medium Enterprise (SME) Financing for Energy Efficiency in Turkey activity, the likelihood of sustained results is strong within two of the three commercial banks that were provided training and the SME financing tool. Both banks see value in the tool, are using it within their systems, and are looking beyond its current functionality to incorporate additional parameters to enhance the financial analysis. The third bank has not institutionalized the learnings, although they are still using the WBG concessional loan to provide EE project financing to SMEs.

Although initial observations from GoT officials on the EE Institutional Review are positive, it is still too early to tell whether results will be sustained through adoption in government strategies. Due to the upcoming national elections, GoT stakeholders were reticent to predict how and if the findings would be used, although they indicated that they have recommended them for consideration.

Sustainability

Effectiveness of ESMAP partnerships. Work on the Social Compact in Electricity Privatization has led to ongoing dialogue between the electricity company and the Southeastern Anatolia development authority (GAP). Interviews with stakeholders indicated that this was a key partnership that was developed through the activity, with the relationship leading to discussions about other potential projects in the region.

Both the EE Institutional Review and Energy Reform Milestones and Challenges activities have led to broad engagement across government ministries, as well as other bi-/multi-lateral organisations (e.g., EU Delegation to Turkey, Agence Française de Développement (AFD)) through a lengthy review process. GoT stakeholders have indicated satisfaction with the process, and has led to greater ownership of the results. The National Watershed Management activity conducted a number of workshops, which involved numerous stakeholders, including GoT, bi-/multi-lateral organisations, and NGOs. Again, stakeholders note the success of this process in leading to greater cooperation and increased awareness in government/ public of the output.

Identification and management of risks. For four of the five projects, risks appear to have been appropriately identified. For the EE Institutional Review, Energy Reform Milestones and Challenges, National Watershed Management and Social Compact in Electricity Privatization activities, identified risks included: potential scope creep, schedule delays, and the potential lack of adoption of recommendations. However, through a strong coordinating role and technical expertise, the World Bank has effectively managed these risks.

For the Facilitating Small and Medium Enterprise (SME) Financing for Energy Efficiency in Turkey activity, no risks were identified. However, based on interviews, this has neglected to recognize potential risks associated with the beneficiary not using the developed SME financing tool, which has been realized in at least one commercial banks.