



2017

Project Implementation Review (PIR)



*Empowered lives.  
Resilient nations.*

**Solar Photovoltaic Energy**

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## A. Basic Data

Project Information	
UNDP PIMS ID	5137
GEF ID	5063
Title	Catalysing the Use of Solar Photovoltaic Energy
Country(ies)	Iraq, Iraq
UNDP-GEF Technical Team	Energy, Infrastructure, Transport and Technology
Project Implementing Partner	IRQ10
Joint Agencies	<i>(not set or not applicable)</i>
Project Type	Full Size

Project Description
<p>Iraq is highly dependent on fossil fuels to generate power which, despite recent improvements, does not meet peak demand. Private diesel power generation has grown significantly to meet the gap. Fuel used for domestic power generation denies Iraq the opportunity to export that fuel. The project will catalyse the adoption of solar power in Iraq, both on and off-grid, to: a) reduce Iraq's dependence on fossil fuel; b) result in direct GHG reductions of approximately 741,622 tonnes CO<sub>2</sub>; and c) help provide reliable power to the Iraqi people to support development and a better standard of living.</p> <p>The project targets residential-scale units (a few kilowatts) as well as utility-scale units (several megawatts). The project aims to facilitate the installation of 5 MW in aggregate of residential-scale PV generation capacity through the Bytti residential development in Najaf, Iraq. The project also aims to support the Iraqi Ministry of Electricity in the establishment of large, utility-scale PV plants, primarily by providing technical and investment support. The project supports the development of a regulatory framework, technical guidelines, capacity building, and institutional arrangements for the development of public and private (Independent Power Producer, IPP) solar power plants.</p> <p>The project's National Focal Point is the Ministry of Environment. The project will receive close collaboration from the Ministry of Electricity, the Renewable Energy Research Centre of the Ministry of Science and Technology, and others. The project is expected to last 48 months.</p>

Project Contacts	
UNDP-GEF Regional Technical Adviser	Mr. Dominic Rassool (dominic.rassool@undp.org)
Programme Associate	Ms. Zora Urlandova (zora.urlandova@undp.org)
Project Manager	Mr. Tarik Islam (tarik.islam@undp.org)
CO Focal Point	Mr. Ahmed Alyassery (ahmed.alyassery@undp.org)
GEF Operational Focal Point	Dr. Jassim Abdulaziz Humandi (moen.iraq@gmail.com)
Project Implementing Partner	Dr. Jassim Abdulaziz Humandi (moen.iraq@gmail.com)

Other Partners	Mr. Qasim Mohammed Ali (kassim@consultant.com)
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**B. Overall Ratings**

Overall DO Rating	Satisfactory
Overall IP Rating	Satisfactory
Overall Risk Rating	Moderate

## C. Development Progress

Objective or Outcome	Description				
<b>Objective:</b>	<b>To reduce GHG emissions in Iraq by demonstrating and catalysing the application of distributed solar power to meet the energy needs of offices, small businesses, residences and small town services (small-scale distributed solar PV power plants and utility scale plants, on and off-grid).</b>				
	Description of Indicator	Baseline Level	Target level at end of project	Level at 30 June 2016	Cumulative progress since project start
<i>(not set or not applicable)</i>	<p>Amount of reduced CO2 emissions by the investments facilitated by the project.</p> <p>Total electricity generation by the project (MWh).</p>	<i>(not set or not applicable)</i>	<p>Installations in place and operating to achieve direct reduction of 741,622 tonnes CO2 over a 20-year lifetime from project start.</p> <p>Indirect: Mechanisms in place to support the further expansion of PV installations to result in indirect emissions reductions of 5.9 million tonnes CO2.</p>	<i>(not set or not applicable)</i>	<p>The project has completed six solar plant installations, which have been in operation since June 2016. Approximately 35 MWh of clean renewable electricity had been generated from the installations by the end of June 2017, this corresponds to a direct reduction of 40,000 tonnes CO2 by avoiding any pollution that may have been done by generating fossil fueled electricity. With this annual rate of clean renewable energy generation, it is estimated to exceed the target level of 741,622 tonnes CO2 reduction before the end of the plant lifetime.</p> <p>Continued advocacy to support and sensitized residence, local authority and NGO's to push Bayti Housing Complex to fulfill its commitment towards installing 5 MW of solar energy. The 5 MW renewable solar</p>

					energy plan is estimated to reduce 6 million tones of CO2 every year by avoiding fossil-fueled alternatives.
<b>The progress of the objective can be described as:</b>		<b>On track</b>			
<b>Outcome 1:</b>	<b>Investment in solar photovoltaic power technologies for distributed electricity generation for office, residential, small business and small town application.</b>				
	<b>Description of Indicator</b>	<b>Baseline Level</b>	<b>Target level at end of project</b>	<b>Level at 30 June 2016</b>	<b>Cumulative progress since project start</b>
<i>(not set or not applicable)</i>	Megawatts of solar PV installed.	<i>(not set or not applicable)</i>	<p>Installation and operation of 5 MW of distributed, grid-connected PV at Bytti.</p> <p>Installation and operation of 16 utility-scale PV plants.</p> <p>Monitoring and recording operational data from all Bytti and the 16 plants to inform the development of future PV plants.</p>	<p>The project had installed 6 pilot units in the residential area operated by Bytti real estate company. The installed six pilot demonstration units offer a distributed grid-connected capacity of 30 KW. This demonstration site is expected to play an important role to sensitize the local residents and real estate companies for multiply the capacity and catalyze investments in Solar PV during and beyond the project period. The facility is equipped with devices to enable remote monitoring of the system via internet connections.</p> <p>As decided by the steering committee, another grid-connected system has been installed at the premise of the state-owned AI-Monsour company under the Ministry of Industry. The company produces solar panel</p>	<p>The 6 pilot installations provided by the project to Bayti have given Bayti practical guidance to implement their commitment with the local authority in Najaf to complete their 5 MW plan of distributed, grid-connected PV.</p> <p>Bytti 5 MW solar energy plan is expected to be implemented by the end of construction contract between Bayti and Najaf Investment Commission.</p> <p>Project engaged with the Prime Ministers Advisory Committee (PMAC), the Ministry of Electricity (MoE) and the National Energy Committee in order to remove fiscal, incentives and legislation barriers that solar energy projects are facing, including Bayti.</p>

				<p>and the objective is to support Government's initiative to monitor the performance of grid connected Solar system and to leverage the lessons for enhancing performance and ensuring the quality of the state-run company.</p> <p>The project has deployed a solar technician to ensure smooth O&amp;M to build local technical capacity as well as to facilitate advocacy programme.</p>	<p>Despite the MoE's firm commitment, the installation and operation of 16 utility-scale PV plants have been delayed as a result of protracted conflict and also acute economic crisis due to the price cut in the global oil market. The development budget in Iraq has shrunken alarmingly during the past two years as defense expenditure increased sharply to liberate Iraq from the ISIS.</p> <p>However, the MoE has adopted an alternative approach to this challenge and has worked out a plan to create investment opportunities for the private sector to generate 1155 MW from solar energy by the end of 2020 through Power Purchase Agreements (PPAs). Out of that, 80 MW has already been signed in the first quarter of 2017.</p> <p>Further, the MoE has started to install 1 MW solar PV in May 2017 in their own premise. UNDP-GEF project is closely involved in this initiative in terms of technical guidance and policy advocacy. The project has provisioned two industrial 3-phase bi-directional meters in this installation. Building on this successful initiative, the Council of Ministers Secretariat (COMSEC) has authorized other ministries to implement similar solar PV installations on their premises with technical support from the Al Zawraa State Company. It is important to mention that the Gol has recently</p>
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					<p>merged the state-owned Al Mansour (for Solar Panel production) with Al Zawraa company (for electric supplies and solutions) to facilitate capacity building for integrated solar energy services in Iraq.</p> <p>The six grid-connected solar installations in Baytti is fully functional and visited every week for routine checks, data gathering and cleaning of the solar panels. All the six systems are connected to the internet for data storage and online access for all related partners. The progressive analysis of the recorded data has been presented in the steering committee as well as in various forums to influence and shape policy recommendations.</p> <p>Due to frequent country-wide load shedding, the electricity grid has been disruptive and not stable at the Bayti residential complex in Najaf. This has a direct adverse impact on the electricity production at the six demonstration sites at Baity by around 40 % of the installed capacity. The solar technician deployed by the project has been to ensuring technical oversight and addressing the site-</p>
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				<p>specific issues. The Solar Technician was very instrumental in increasing the production by 20 % through technical adjustment in the programmable electrical inverter. He managed to engage are ongoing with the local electricity department to improve the local electricity grid and further increase the generation by solving external electrical grid issues.</p> <p>Similar to Bayti site, the installations at Al Mansour Factory under Al Zawraa State company and the Ministry of Science and Technology have been monitored through monthly site visits and close coordination with the respective authorities. The PV system at the Al-Mansour factory is fully functional and operating at a level of 85 % when compared to simulated data for the same site and equipment. The Directorate of Renewable Energy at the Ministry of Science and Technology prepared the simulation data. The electrical grid at Al Mansour is stable and not affected by the load shedding. Al Mansour is comparing the data gathered from the solar installation provided by the project with its own locally assembled solar panels. The objective is to support the government's initiative to monitor the performance of grid connected solar systems and to leverage the lessons for enhancing performance and</p>
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					<p>ensuring the quality of the state-run company.</p> <p>The two different technologies, which are used in Bayti and Al Mansour have been compared during this period, both the technologies are manufactured to perform well in hot conditions.</p> <p>The project team in cooperation with the Ministry of Science and Technology (MoST) analyzed the productivity of the unit at Al Mansour between June 2016 and the end of May 2017. Based on the lessons learned, specific recommendations were suggested aiming to improve the performance of solar systems in accordance with the Iraqi environmental conditions, including the high temperature during the summer season and high concentrations of dust.</p> <p>The project Steering Committee decided to provide Al Mansour factory with measuring equipment to compare their own solar panels with the project solar installation.</p> <p>While ensuring quality O&amp;M for the installed systems, the Solar Technicians organized meetings and discussions with the local stakeholders and the authorities to ensure sustained advocacy over the last one year. His full time presence at Najaf helped significantly to build</p>
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					local technical capacity, and to enhance the demonstrative effects through regular advocacy programme.
<b>The progress of the objective can be described as:</b>		<b>On track</b>			
<b>Outcome 2:</b>	<b>Encouragement of investments in solar power technology in Iraq and consumer uptake of solar appliances through policy reform and financial incentives.</b>				
	<b>Description of Indicator</b>	<b>Baseline Level</b>	<b>Target level at end of project</b>	<b>Level at 30 June 2016</b>	<b>Cumulative progress since project start</b>
<i>(not set or not applicable)</i>	<p>Existence of RE policies and laws encouraging deployment.</p> <p>Existence of a clear set of regulations and technical and regulatory requirements for connecting to the grid.</p> <p>Volume of investments mobilised for solar PV power.</p>	<p>There have been early-stage discussions between MoE and UNDP on net-metering. There have been no concrete steps or commitments.</p>	<p>Development and implementation of a grid code for distribution and transmission (for small-scale distributed generation and larger utility-scale generation).</p> <p>Design and implementation of a process for IPPs to engage in standardized PPAs with the Ministry of Electricity, to acquire generation licences and to inter-connect with the grid.</p>	<p>The project organized meetings with the key authorities where presentations were made and best practice examples were shared about the development of a grid code.</p> <p>Discussion with the key authorities and actors initiated on IPP engagement and adopting a model contract for power purchase agreement.</p> <p>Options for net metering for industrial and residential applications have been reviewed in Iraq's context and discussed with the key authorities and experts.</p> <p>Based on the decision in the steering committee, a partnership</p>	<p>A partnership with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) has been successfully established during the reporting period. In partnership with RCREEE, the project has managed to roll out targeted policies initiatives including grid code for distribution and transmission of electricity generation. The grid code will take into consideration the conditions of the electrical grid in Iraq and the requirements for connecting renewable energy generation to the grid.</p> <p>To activate the role and engagement of IPPs, the project has contributed significantly to bridge the knowledge gap and build consensus of the key decision makers including the Prime</p>

			<p>Development of model contracts for power purchase agreements.</p> <p>Implementation of phased fiscal incentives for PV uptake, including partial removal of import taxes on solar panels.</p> <p>Design of a feed-in tariff for renewable energy IPPs with appropriate pricing calibration, geographical zoning and regression schedule, and packaged as a NAMA.</p> <p>Evaluation of net-metering options for industrial and residential applications.</p> <p>Evaluation of a range of policies for specific</p>	<p>with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) is being created to develop the Grid-code, Feed-in-Tariff, and net metering among other activities.</p> <p>Capacity building training has been provided to the Iraqi officials on the importance and technical aspects of Nationally Appropriate Mitigation Action (NAMA). A multi-sectoral expert groups formed under the leadership of the Ministry of Health and Environment. A draft road map for NAMA has been prepared which is currently being reviewed by the Iraqi authorities. This will lay the foundation for the detail design of feed-in tariff for renewable energy IPPs and pricing calibration.</p> <p>The project has catalyzed a number of UNDP initiatives in Iraq toward promoting investments in solar PV in the country:</p> <ol style="list-style-type: none"> <li>1. The opportunity for use of Solar power in responding to current IDPs/Refugee crisis in Iraq has been completed through a study on post-conflict</li> </ol>	<p>Ministers Advisory Committee (PMAC), key officials of relevant ministries (including MoE) and the potential local government authorities (including Baghdad provincial council, Najaf authority and Karbala local government). To attract and facilitate IPP engagement, the project held a series of meetings with the key decision makers in MoE and PMAC in identifying barriers and suggesting suitable solutions and incentive mechanisms appropriate for Iraq contexts. Study trip to Morocco also helped the key stakeholders to understand the ways and the incentive packages practiced in the region. During the reporting period, MoE was able to attract IPPs to finalize and sign PPAs for 80 MW solar plant installations at Muthana province.</p> <p>The project has made significant progress on developing modal contracts for PPAs. Building on the existing experience on PPAs in Iraq, the project has managed to sensitize the counterparts with success stories in the region which may guide to develop model PPA contract for Iraq. In partnership with RCREEE, the</p>
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			<p>circumstances, such as tenders for large solar installations (suitable for Iraq's environment).</p> <p>Support to implementation of the feed-in tariff and/or net-metering scheme.</p>	<p>environmental assessment of Kurdistan region.</p> <p>2. With financial support from EU, the project coordinated and sensitized development sustainable energy action plan covering three northern Governorates under the Kurdistan Regional Government (KRG).</p> <p>3. The project has initiated a collaborative opportunity to integrate solar and other sources of renewable energy in the Provincial Development Strategies for 4 Iraqi Governorates of Basra, Misan, Qadysia and Muthana.</p>	<p>project has started synthesizing relevant policies and strategies and also gathering technical information and data that will aim to improve the existing PPA to strike a balance that may potentially attract IPPs and help to speed up diffusion of Solar PV to meet the electricity crisis in Iraq. The PPAs will take into consideration the recent improvement in renewable energy and the opportunities in Iraq but also the general investment laws in order to provide a clear and standardized PPA that will encourage the investors.</p> <p>As an outcome of the continued advocacy by the project, the Government of Iraq (GoI) has waived the import taxes for all renewable energy equipment in the Iraqi Budget Law 2017. This has made a breakthrough, and the project is currently engaged to sensitize the key actors about a range of additional incentives to attract investors to overcome the related investment risks in the current situation of Iraq. To this end, a national consultation meeting has been planned to be held in Baghdad which will engage key experts from the GoI, RCREEE,</p>
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				<p>academia as well as from selected countries in the region. The objective will be to develop a strategy to attract investors in Iraq.</p> <p>As explained in the earlier section, the project has managed to position itself strongly to engage with the MoE in the design of a feed-in tariff for the IPPs in Iraq during the reporting period. In partnership with the RCREEE, the project has been engaged the gathering relevant information and data as well as consultation with the energy actors and the potential private sector investors on issues relating to calibration of energy pricing and incentive mechanisms and geographical zoning. A draft report is expected to be finalized and ready for Government's endorsement by February 2018.</p> <p>With an objective to complete registration of a FiT NAMA in the UNFCCC NAMA registry, the project continued to build the capacity of the Ministry of Health and Environment (MoHEnv) to promote climate mitigation and preparation for climate financing. During the reporting period,</p>
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					<p>the project facilitated the necessary training on NAMA and to ensure wider discussions on the draft NAMA Roadmap involving the key stakeholders, experts, academia and civil society organization. Attentions were paid to enhance knowledge and understanding on NAMA registry as well as to clarify the roles of NAMA developers and NAMA approvers. The project facilitated stronger collaboration between the ministries of environment and electricity to work together and create conditions for Iraq's registration of FiT NAMA in the UNFCCC NAMA registry with a credit buyer. The experience of Malaysian FiT NAMA was discussed and reviewed as a model. Led by the MoHEnv, a government-wide approach was followed for NAMA process in Iraq which involves climate relevant ministries including the Ministry of Oil, Ministry of Industry, Ministry of Transportation, Ministry of Housing and Construction, Ministry of Higher Education, Ministry of Agriculture, and the Environmental Commission in the Kurdistan region. The project provided technical support and guidance for the Iraqi delegation to organize side events during COP in Morocco where Iraqi climate experts and officials were exposed to innovations, best-practiced solutions, and the emerging carbon markets, and potential</p>
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					<p>investors gathered during the global event.</p> <p>Linked with the ongoing initiative on NAMA and climate financing, the project organized two technical meetings during the reporting period to sensitize and bring the counterparts and stakeholders together to discuss and prepare for Iraq's access to innovative climate financing. The government of Iraq has been supported to formulate its country readiness program for accessing GCF (Green Climate Fund) opportunities. To this end, a formal proposal has been formally submitted to GCF secretariat by the country GCF focal point. This effort will help Iraq to accomplish a range of nationally driven activities over the next two years that will help prepare the country for constructively engage and effectively utilize GCF resources.</p> <p>The project has supported the local government of Basra to include solar energy in their Provincial Development Strategy for the years 2017-2021. The local governments of Misan, Muthana, and Qadisiya were encouraged to follow this approach in their respective strategies. The Ministry of Planning intends to replicate these strategies in the remaining governorates of Iraq.</p>
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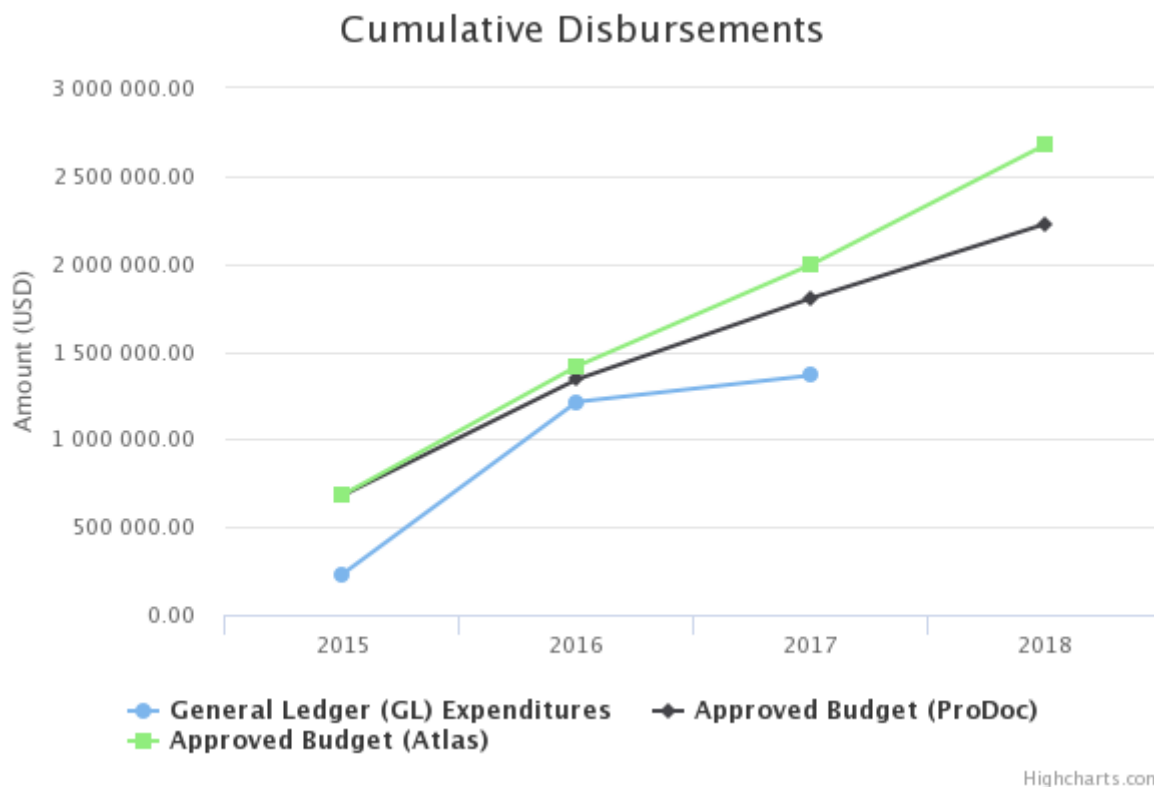
					<p>The project is supporting net-metering options for industrial and residential applications in partnership with RCREEE. This is an ongoing work and a scheme for net-metering will be drafted and shared with the MoE for review and adoptions by the end of 2017.</p> <p>As explained in the earlier sections, the evaluation of existing policies and strategies including tendering of large scale installations has been part of the overall initiative for developing a model PPA for Iraq under the project. The project seized the opportunity to evaluate the PPAs signed by the MoE for the large scale solar plant in Muthana. The deeper knowledge and understanding of this evaluation are leveraged in the development of a tender model suitable for Iraq’s environment.</p> <p>In support of implementation of net-metering scheme, the project is in the</p>
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					process of supplying 10 bi-directional meters which will be installed in Bayti (six units), in solar site at Al-Mansour (one unit), in MoST (one unit) and the rest two for the solar PV site (one MW) at MoE. These will be the first ever schemes on net metering introduced in Iraq. It is expected to have an impact on sensitization, advocacy and public awareness for the possible benefits that the households can gain from the small-scale distributions of PV solar units. The grid code will specify requirements of bi-directional meters accepted in Iraq.
<b>The progress of the objective can be described as:</b>		<b>On track</b>			
<b>Outcome 3:</b>	<b>Facilitation of private sector capacity for technology development, innovation and servicing in the solar power industry, through technical capacity building and domestic market analysis.</b>				
	<b>Description of Indicator</b>	<b>Baseline Level</b>	<b>Target level at end of project</b>	<b>Level at 30 June 2016</b>	<b>Cumulative progress since project start</b>
<i>(not set or not applicable)</i>	Number of individuals and organisations capable of supporting activity in the Iraqi solar market.  Records of PV market prices, participants and installed capacity to track development of solar PV in Iraq.	No effective capacity building exists for the industry. There are few industry players.  No significant market data exist.	Solar power market demand/industry response strategy developed for Iraq, informed by case studies from other countries with developed solar power industries, domestic market analysis, and clarification of Iraqi private sector opportunities for	The project has established partnership with Al Shafei group and has secured effective cooperation for installation of grid connected solar PV as demonstration plants at Bytty real estate in Najaf.  Preparation for a Study tour is in process where Al-Shafei Group of Bytti) as well as experts from the four ministries will expose to the	A preliminary survey and discussions with the partners identified the limited solar market participants currently active in Iraq, this includes the manufacturers, users, resellers, etc. Building on the past efforts, the project has mobilized a comprehensive study to cover the solar power market demand, industry response strategy, and domestic market analysis. This will be supported by case study(ies) from the

			<p>distributed solar PV power production. Iraq private sector and Government agencies exposed to all aspects of the industry (technology development, supply, servicing, financing).</p> <p>Development and delivery of certified technical training on solar PV technologies (hybridization, supply, service) for emerging private sector companies.</p>	<p>successful experience of Morocco in solar energy investment.</p> <p>The project has collaborated with UNDP's Iraq's ongoing support to Government of Iraq on development of a national strategy for Private Sector development in Iraq. Implementation of the strategy would catalyze private sector engagement and increased investment in solar PV in the coming years.</p> <p>The project has collaborated with number of universities/institutions and participated in the event to sensitize stakeholders and private sector entities on solar energy development.</p> <p>1. Dialogues with the key universities including the University of Technology and Baghdad University as well as with the Ministry of Sciences and Technology have taken place. A proposal for instituting training on Solar PV is now under preparation which is likely to be implemented during 4th quarter of 2016. The training will cover various aspects of solar energy</p>	<p>region and in partnership with RCREEE.</p> <p>Private sector, staff from the Electricity Department of Najaf, Al Mansour and MoST technical staff have been receiving training on solar installations, as well as effective O&amp;M. In partnership with the RCREEE, the preparation for certified technical training are now underway. The process will seize opportunity to institutionalise the certified training course within reputed universities in Iraq. Two that end, the project is engaged in mapping existing capacities and the available course curricula in selected universities/vocational institutions in Baghdad and Najaf. The plan is to start the certified course by January 2018.</p>
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				systems including installation, operation and maintenance.  2. Discussion is underway involving Iraqi Universities and RCREEE to establish internationally accredited certified training in Iraq.	
<b>The progress of the objective can be described as:</b>		<b>On track</b>			

## D. Implementation Progress



Cumulative GL delivery against total approved amount (in prodoc):	61.23%
Cumulative GL delivery against expected delivery as of this year:	75.6%
Cumulative disbursement as of 30 June (note: amount to be updated in late August):	1,363,733.71

<b>Key Financing Amounts</b>	
PPG Amount	80,000
GEF Grant Amount	2227273
Co-financing	<i>(not set or not applicable)</i>

<b>Key Project Dates</b>	
PIF Approval Date	Oct 3, 2012
CEO Endorsement Date	Aug 11, 2014
Project Document Signature Date (project start date):	Dec 15, 2014
Date of Inception Workshop	Jan 20, 2015
Expected Date of Mid-term Review	Dec 1, 2017

Actual Date of Mid-term Review	<i>(not set or not applicable)</i>
Expected Date of Terminal Evaluation	Dec 10, 2018
Original Planned Closing Date	Dec 30, 2018
Revised Planned Closing Date	<i>(not set or not applicable)</i>

<b>Dates of Project Steering Committee/Board Meetings during reporting period (30 June 2016 to 1 July 2017)</b>
2016-11-24
2017-03-12

## E. Critical Risk Management

Current Types of Critical Risks	Critical risk management measures undertaken this reporting period
Political	<p>In spite of the recent defeat of ISIS in Mosul by the Iraqi Armed Forces, the security risk in Iraq continues to remain very acute, and there have been explosions in Baghdad and elsewhere in the country. The security risks of the project have been managed during the reporting period within the security umbrella established by the UN Mission in Iraq. The project organized UN security convoys for field visits to Najaf and other field sites (Al Monsour) by the International experts. The important technical events and workshops including the Steering Committee meetings were organized in the Green Zone, a secured area in Baghdad.</p> <p>The project has been subjected to periodic programme criticality analysis with the purpose to determine security risks and the safeguard mechanisms for its implementation by UNDP in Iraq.</p> <p>During the reporting period, the project continued to build local capacity for effective management of the Solar Demonstration plant at Najaf by fielding a solar technician based in Najaf. This helped the project organizing awareness and advocacy events at the field site for promotion of Solar PV avoiding risky travel between Baghdad and Najaf due to security reasons.</p>

## F. Adjustments

### Comments on delays in key project milestones

<p><b>Project Manager: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure.</b></p>
<p>There has not been major delays during the reporting period except organizing Mid-term review. This was due to the fact that there was no positive response from any qualified consultants to open advertisement made by the project. The project is now coordinating with the GEF UNDP colleagues to get a consultant from the roster.</p>
<p><b>Country Office: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure.</b></p>
<p>No major delays experienced during the reporting period.</p>
<p><b>UNDP-GEF Technical Adviser: please provide comments on delays this reporting period in achieving any of the following key project milestones: inception workshop, mid-term review, terminal evaluation and/or project closure.</b></p>
<p><i>(not set or not applicable)</i></p>



## G. Ratings and Overall Assessments

Role	2017 Development Objective Progress Rating	2017 Implementation Progress Rating
Project Manager/Coordinator	Satisfactory	- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -
Overall Assessment	<p>In the context of high security risks and difficult economic challenges that Iraq has been facing, the project has achieved remarkable progress during the reporting period. The pilot installations in three sites have started to produce credible results and meaningful insights and shape the pathways for a promising outcome of the project.</p> <p>For outcome-1, the project is on a right track toward achieving the direct impact in terms of targeted results and ensures the desired level of CO2 reduction. The systems and capacities are now in place for close monitoring and gathering operational data from the field sites to feed into the process of policy advocacy and influencing the key decision makers to mobilise rapid actions to catalyze increased investments in solar PV in Iraq.</p> <p>Achieving progress toward Outcome2 has been the key focus during the reporting period. Building on successful grid-connected solar installations at the Beitty Residential complex, and also in Al Monsour and at MoST, the project has made significant efforts toward creating conditions - in terms of removing barriers, putting systems and incentives – that will catalyze increased investments for Solar PV in Iraq. Import tax on all renewables has been waived, an appropriate PPA to attract investors is in the making, piloting net-metering options are underway, the design of a feed-in tariff with appropriate pricing calibration, geographical zoning and regression schedule is in progress, and the national actors have been mobilised and supported with a technical team to develop renewable energy policy for Iraq. The partnership with a center of excellence (RCREEE) in the region is established to leverage regional best practices in achieving the policy outcomes for Iraq.</p> <p>Achieving progress toward Outcome2 has been the key focus during the reporting period. Building on successful grid-connected solar installations at the Beitty Residential complex, and also in Al Monsour and at MoST, the project has made significant efforts toward creating conditions - in terms of removing barriers, putting systems and incentives – that will catalyze increased investments for Solar PV in Iraq. Import tax on all renewables has been waived, an appropriate PPA to attract investors is in the making, piloting net-metering options are underway, the design of a feed-in tariff with appropriate pricing calibration, geographical zoning and regression schedule is in progress, and the national actors have been mobilised and supported with a technical team to develop renewable energy policy for Iraq. The partnership with a center of excellence (RCREEE) in the region is established to leverage regional best practices in achieving the policy outcomes for Iraq. The project has also made a breakthrough by setting up a gender platform aiming to integrate gender concerns and to advocacy for sustainable and cleaner technologies.</p> <p>The exposure visit to Morocco has provided useful knowledge and deeper understanding in moving forward to achieve outcome 3 of the project. The Iraqi authorities, particularly the Ministry of Electricity has been able to review and analyze the solar market demand and opportunities for distributed solar PV power production. The engagement of MoE in the NAMA process helped to review existing plans and initiatives and determine priorities for distributed solar</p>	

	<p>PV power production in Iraq. While the project continues to provide technical training to the partners and the stakeholders including the private sector (Beitty Real Estate), an initiative is underway to institute certified training in Iraq in partnership with the RCREEE.</p> <p>With its engagement with the key institutions and policy makers, and with the momentum gained during the reporting period, the project is set to achieve all its planned goals and targets during the remaining period of the project.</p>	
<b>Role</b>	<b>2017 Development Objective Progress Rating</b>	<b>2017 Implementation Progress Rating</b>
<b>UNDP Country Office Programme Officer</b>	Highly Satisfactory	Satisfactory
Overall Assessment	<p>In spite of negative impacts of the security situation in Iraq and the limited financial resources available to the national partners, the project managed to advance toward achieving the planned objectives. It is highly expected that the project will accomplish the planned goals by the end of its age.</p> <p>Through the Programme Unit (PU), UNDP Country Office has been following the activities of the project closely during the reporting period. A site visit was made by a PU staff member to Baytti to evaluate the work. Other beneficiaries of the project were approached by PU. All the activities planned for the reporting period either completed or in progress as planned.</p> <p>The project managed to install all planned PV solar units in three different locations i.e. Baytti site, Najaf Province, Al-Mansour Factory, Baghdad and the PV solar energy Test Station at the Ministry of Science and Technology Baghdad. The generation of the power from both sites of Baytti and Al-Mansour Factory were monitored remotely by the Project Steering committee as well as the Project Team. Regular site visits were made by a Solar Technician to observe the performance on site and to build local capacity through training on O&amp;M and trouble-shooting for the beneficiaries.</p> <p>Regarding the component of policy/regulations to catalyze the use of the solar energy in Iraq, need assessment was made through consultation with the Ministry of Electricity (MoE) which is represented in the Project Steering Committee. Based on the gaps identified, a partnership with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) was established during the reporting period. RCREEE started participating through International and Regional experts to draft a grid-code, schemes for net-metering and Feed-in-Tariff, Fiscal incentives and other means to enforce the participation of IPPs in the solar market of Iraq.</p> <p>Besides the regular partners of the projects which include four Federal ministries and Private Sector, the project builds ties with some decision-makers related to the renewable energy sector in Iraq. Those include The Prime Minister Advisory Commission (PMAC), The Provincial Council of Baghdad and Basra, and others.</p> <p>Residents of Baytti and NGOs in Najaf were frequently met for advocacy and public awareness on the importance of the solar energy to the needs of Iraq.</p> <p>The security situation in Iraq limited the movement of the International staff in the office as per UN regulations. However, the Project Team was able to meet the counterparts in the secured International Zone (IZ). The national staffs of</p>	

	the CO are moving relatively freely in the areas covered by the project; mainly in Baghdad and Najaf.	
<b>Role</b>	<b>2017 Development Objective Progress Rating</b>	<b>2017 Implementation Progress Rating</b>
<b>GEF Operational Focal point</b>	<i>(not set or not applicable)</i>	- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -
Overall Assessment	<i>(not set or not applicable)</i>	
<b>Role</b>	<b>2017 Development Objective Progress Rating</b>	<b>2017 Implementation Progress Rating</b>
<b>Project Implementing Partner</b>	<i>(not set or not applicable)</i>	- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -
Overall Assessment	<i>(not set or not applicable)</i>	
<b>Role</b>	<b>2017 Development Objective Progress Rating</b>	<b>2017 Implementation Progress Rating</b>
<b>Other Partners</b>	<i>(not set or not applicable)</i>	- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -
Overall Assessment	<i>(not set or not applicable)</i>	
<b>Role</b>	<b>2017 Development Objective Progress Rating</b>	<b>2017 Implementation Progress Rating</b>
<b>UNDP-GEF Technical Adviser</b>	Moderately Satisfactory	Satisfactory
Overall Assessment	<p>Given the current security risks in Iraq, this project has made good progress across all its components over this reporting period. The current installed capacity means the project is on track with its emissions reductions over the lifetime of the PV systems; the only caveat in this regard is related to the effects of load shedding, which reduces the impact these systems will have on emissions. Moreover, together with assistance from the PMU, the government has done well to adapt to security risks to ensure the signature of PPA contracts during the first quarter of this year. The project is now in the process of developing a grid code through a partnership with RCREEE, which together with additional consultation with government, has facilitated the development of model IPP contracts; this culminated in the signature of an 80MW IPP earlier this year. With guidance from RCREEE, the project has and continues to ensure that the enabling environment is been created; to this end, Outcome 2 has benefitted and its development objectives are more or less on track. Activities in Outcome 3 have begun implementation but are slightly behind. Overall, the partnership with RCREEE, however, has proved to be essential to this project, especially because this organisation has provided technical oversight to the project, which otherwise may have struggled to implement a number of its key enabling activities. The financial delivery of the project has been satisfactory this year 60% against the prodoc and 75% against the approved budget for this year.</p>	

## H. Gender

### Progress in Advancing Gender Equality and Women's Empowerment

This information is used in the UNDP-GEF Annual Performance Report, UNDP-GEF Annual Gender Report, reporting to the UNDP Gender Steering and Implementation Committee and for other internal and external communications and learning.

<p><b>Has a gender analysis been carried out this reporting period? Please note that all projects approved in GEF-6 (1 July 2014 through 30 June 2018) are required to carry out a gender analysis.</b></p>
<p>Yes</p>
<p><b>If a gender analysis was carried out what were the findings?</b></p>
<p>The project collaborated closely with the Gender Specialist in the UNDP-Iraq CO during the reporting period. One of the key findings of the gender analysis of the project is that women are particularly vulnerable in Iraq by the lack of accessible and affordable energy services because of their traditional roles, household responsibilities, and low social and political status. A better understanding of the different ways men and women use energy in various cultures and locations can promote greater gender equity and empowerment of women in Iraq, as well as enhance the effectiveness of the outcome of the project in Iraq. The key recommendation from the Gender Specialist was to ensure greater participation of the women and gender experts in the development of Iraq's renewable energy policy, which is currently under preparation by RCREEE. The advocacy initiatives for Solar PV at the site should involve the women in the local communities and carried out in a gender ways. Local NGOs should be involved in the in the advocacy initiative at the site.</p>
<p><b>Does this project specifically target woman or girls as direct beneficiaries?</b></p>
<p>Yes</p>
<p><b>Please specify results achieved this reporting period that focus on increasing gender equality and improving the empowerment of women.</b></p> <p><b>Results reported can include site-level results working with local communities as well as work to integrate gender considerations into national policies, strategies and planning. Please explain how the results reported addressed the different needs of men or women, changed norms, values, and power structures, and/or contributed to transforming or challenging gender inequalities and discrimination.</b></p>
<p>The project collaborated closely with the Gender Unit in the UNDP CO and has supported in organizing a comprehensive training for the Gender focal points of all climate related ministries for improved skills and understanding about gender linkages and mainstreaming in the areas of environment, energy and climate programmes and projects in Iraq.</p> <p>The participants in the training analyzed the unique roles that men, women, youth and the marginalized could potentially play in the design and implementation of energy projects in Iraq. The training also provided tools and frameworks for integrating gender within the scope of developing energy policies in Iraq. The participants were made aware of the fact that the programmes and projects in Iraq should integrate gender-energy nexus for sustainability of the energy services as well as the human development opportunities available to women and men.</p>

## I. Communicating Impact

<p><b>Tell us the story of the project focusing on how the project has helped to improve people's lives.</b></p> <p><b>(This text will be used for UNDP corporate communications, the UNDP-GEF website, and/or other internal and external knowledge and learning efforts.)</b></p>
<p>The Iraqis use the term "safya dafya" ("sunny and warm") to remind others about solar energy potentials in the country. With its abundant sunshine and vast open terrain, Iraq is one of the most viable country for the solar energy in the world. The GEF funded project has started to reinforce this belief in the minds of Iraqi people through continued advocacy, awareness and demonstrative impacts from the pilot installations. In addition to addressing the energy demands, the stakeholders have been sensitized on the opportunities for creating green jobs in Iraq. Local people, mainly in Baghdad and Najaf, have started to be aware of the importance and the benefits of solar energy.</p>
<p><b>What is the most significant change that has resulted from the project this reporting period?</b></p> <p><b>(This text will be used for internal knowledge management in the respective technical team and region.)</b></p>
<p>2017 Iraqi budget law has incorporated the provision which has exempted taxes for all imported renewable energy appliances such as solar, wind, biogas, and related equipment in Iraq. This milestone was achieved by the project through sustained advocacy and sensitization of the Iraqi authorities to adopt fiscal incentives to attract private sector investment in renewable energy.</p> <p>Eleven senior officials from partner Ministries and the private sector acquired first-hand knowledge and technical understanding through site visits to major solar installations in Morocco, and explored collaborative opportunities with the purpose of harnessing solar energy for promoting sustainable development.</p> <p>As an outcome of UNDP's advocacy and policy support, the GoI had taken encouraging steps in the areas of solar energy development during the reporting period. Two separate contracts totaling 80MW large scale solar PV systems in Muthana governorate have been granted to IPPs. Three contracts for large scale solar powered mini-grids are expected to be finalized by June 2017 which will be installed in Babil, Wasit and Najaf Provinces in Iraq. Continued advocacy by the project was instrumental in reducing subsidies on the use of fossil based electricity. As a result, the cost of electricity supply for both residential and the industrial rate has been increased incrementally which in turn make solar PV to become more competitive than before.</p> <p>With UNDP's support, and catalyzed by GEF Solar project, Kurdistan Regional Government (KRG) has started preparation of Sustainable Energy Action Plan (SEAP) for all three Governorates (Sulaimania, Erbil, and Duhok). These SEAP, once finalized, will boost investment in solar PV in the northern Iraq. World Bank has already signed an agreement with KRG for economic development where energy constitutes an important part.</p> <p>The private sector has started showing more interests. A number of private investors have started lobbying with the higher authorities for necessary policy change and price negotiation. Baytti Complex is located in an area allocated for investment on housing projects. Works on many complexes, similar to Baytti have been going on at that area of Najaf. It is expected that the</p>

investment in the solar PV at Baytti will encourage the private sectors as well as the local government for an expansion of the usage of solar PV.

**Describe how the project supported South-South Cooperation and Triangular Cooperation efforts in the reporting year.**

**(This text will be used for internal knowledge management within the respective technical team and region.)**

Inspired by the Moroccan progressive model on solar energy development, the GEF funded project, in collaboration with UNDP Morocco, has successfully organized a week-long exposure visit for the Iraqi delegation to Morocco in 2016. The objectives were to foster south-south cooperation and partnership between Morocco and Iraq on mutually supported initiatives on investments in solar energy. The Iraqi delegation was comprised of 11 (eight) senior officials from the four partner ministries (Electricity, Industry, Environment, and Science & Technology) and from the private sector. The delegation acquired first-hand knowledge and technical understanding through their visits to a number of sites on major solar installations. They exchanged views with the policy makers and experts in Morocco and had productive discussions to explore collaborative opportunities between the two countries with the purpose to harness solar energy for promoting sustainable development in the region.

The ongoing partnership with the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE), based in Cairo, has created an opportunity to leverage regional best practices and promoting south-south cooperation in Iraq's efforts to build capacity and promote Solar PV.

## Project Links and Social Media

**Please include: project's website, project page on the UNDP website, Adaptation Learning Mechanism (UNDP-ALM) platform, Facebook, Twitter, Flickr, YouTube, as well as hyperlinks to any media coverage of the project, for example, stories written by an outside source. Please upload any supporting files, including photos, videos, stories, and other documents using the 'file upload' button in the top right of the PIR.**

Project description on the UNDP homepage:

[http://www.iq.undp.org/content/iraq/en/home/operations/projects/environment\\_and\\_energy/SolarEnergy.html](http://www.iq.undp.org/content/iraq/en/home/operations/projects/environment_and_energy/SolarEnergy.html)

Iraq's nationally Appropriate Mitigation Action event:

<http://www.iq.undp.org/content/iraq/en/home/presscenter/pressreleases/2017/02/11/iraq-prepares-to-curb-greenhouse-gas-emissions-through-development-of-a-roadmap-for-mitigation-action/>

UNDP facilitates Iraq's national preparations to COP22:

<http://www.iq.undp.org/content/iraq/en/home/presscenter/pressreleases/2016/10/25/undp-facilitates-iraq-s-national-preparations-to-cop22-.html>

Taqaway – Iraq database for solar energy

[http://taqaway.net/network/mod/book/iraq\\_network.php](http://taqaway.net/network/mod/book/iraq_network.php)

## J. Partnerships

Give the name of the partner(s), and describe the partnership, recent notable activities and any innovative aspects of the work. Please do not use any acronyms. (limit = 2000 characters). This information is used to get a better understanding of the work GEF-funded projects are doing with key partners, including the GEF Small Grants Programme, indigenous peoples, the private sector, and other partners. Please list the full names of the partners (no acronyms please) and summarize what they are doing to help the project achieve its objectives. The data may be used for reporting to GEF Secretariat, the UNDP-GEF Annual Performance Report, UNDP Corporate Communications, posted on the UNDP-GEF website, and for other internal and external knowledge and learning efforts. The RTA should view and edit/elaborate on the information entered here. All projects must complete this section. Please enter "N/A" in cells that are not applicable to your project.

<b>Civil Society Organisations/NGOs</b>
<p>Al Rased Najaf – local NGO with a branch-office in Najaf; Iraqi Green Climate</p> <p>These NGOs are engaged in advocacy among the communities and stakeholders at large on the benefits of solar PV and renewable energy in addressing the electricity needs in Iraq.</p>
<b>Indigenous Peoples</b>
<p>The activities under the project are not aiming to directly benefit the indigenous people in Iraq. However, the policy outcome from the project will lead to provisioning electricity generation through Solar mini-grids across the desert lands in Anbar and other provinces. This will enhance the quality of lives of Bedouins who live in those far-flung remote locations.</p>
<b>Private Sector</b>
<p>Al Shafei group – The investor of Bayti Housing Complex which is a member of the project steering committee.</p> <p>In partnership with Al Shafei group (Bayti real estate company), the project has managed to install six unit of grid-connected solar system at the Bayti residential complex. These systems are maintained in a safe and secured way with periodic monitoring by the Project Technician.</p>
<b>GEF Small Grants Programme</b>
<i>(not set or not applicable)</i>
<b>Other Partners</b>
<p>The key partners who are directly involved in project implementation and participate in the decision making by the project through their representation in the steering committee meeting.</p> <ol style="list-style-type: none"> <li>1. Ministry of Health and Environment (GEF focal point)</li> <li>2. Ministry of Electricity</li> <li>3. Ministry of Science and Technology</li> </ol>



4. Al Mansour Factory under the umbrella of the Ministry of Industry and Minerals

In addition, the following partners are closely involved in the implementation of the project activities.

5. The Prime Ministers Advisory Committee (PMAC)
6. Baghdad Provincial Council
7. Najaf Authority
8. Karbala local government
9. The Regional Center for Renewable Energy and Energy Efficiency (RCREEE)
10. Basra local government
11. Misan local government

## K. Grievances

### Environmental or Social Grievance

This section must be completed by the UNDP Country Office if a grievance related to the environmental or social impacts of this project was addressed this reporting period. It is very important that the questions are answered fully and in detail. If no environmental or social grievance was addressed this reporting period then please do not answer the following questions. If more than one grievance was addressed, please answer the following questions for the most significant grievance only and explain the other grievance(s) in the comment box below. The RTA should review and edit/elaborate on the information entered here. RTAs are not expected to answer these questions separately.

<b>What environmental or social issue was the grievance related to?</b>
<i>(not set or not applicable)</i>
<b>How would you rate the significance of the grievance?</b>
<i>(not set or not applicable)</i>
<b>Please describe the on-going or resolved grievance noting who was involved, what action was taken to resolve the grievance, how much time it took, and what you learned from managing the grievance process (maximum 500 words). If more than one grievance was addressed this reporting period, please explain the other grievance (s) here.</b>
<i>(not set or not applicable)</i>

## L. Annex - Ratings Definitions

### Development Objective Progress Ratings Definitions

(HS) Highly Satisfactory: Project is on track to exceed its end-of-project targets, and is likely to achieve transformational change by project closure. The project can be presented as 'outstanding practice'.

(S) Satisfactory: Project is on track to fully achieve its end-of-project targets by project closure. The project can be presented as 'good practice'.

(MS) Moderately Satisfactory: Project is on track to achieve its end-of-project targets by project closure with minor shortcomings only.

(MU) Moderately Unsatisfactory: Project is off track and is expected to partially achieve its end-of-project targets by project closure with significant shortcomings. Project results might be fully achieved by project closure if adaptive management is undertaken immediately.

(U) Unsatisfactory: Project is off track and is not expected to achieve its end-of-project targets by project closure. Project results might be partially achieved by project closure if major adaptive management is undertaken immediately.

(HU) Highly Unsatisfactory: Project is off track and is not expected to achieve its end-of-project targets without major restructuring.

### Implementation Progress Ratings Definitions

(HS) Highly Satisfactory: Implementation is exceeding expectations. Cumulative financial delivery, timing of key implementation milestones, and risk management are fully on track. The project is managed extremely efficiently and effectively. The implementation of the project can be presented as 'outstanding practice'.

(S) Satisfactory: Implementation is proceeding as planned. Cumulative financial delivery, timing of key implementation milestones, and risk management are on track. The project is managed efficiently and effectively. The implementation of the project can be presented as 'good practice'.

(MS) Moderately Satisfactory: Implementation is proceeding as planned with minor deviations. Cumulative financial delivery and management of risks are mostly on track, with minor delays. The project is managed well.

(MU) Moderately Unsatisfactory: Implementation is not proceeding as planned and faces significant implementation issues. Implementation progress could be improved if adaptive management is undertaken immediately. Cumulative financial delivery, timing of key implementation milestones, and/or management of critical risks are significantly off track. The project is not fully or well supported.

(U) Unsatisfactory: Implementation is not proceeding as planned and faces major implementation issues and restructuring may be necessary. Cumulative financial delivery, timing of key implementation milestones, and/or management of critical risks are off track with major issues and/or concerns. The project is not fully or well supported.

(HU) Highly Unsatisfactory: Implementation is seriously under performing and major restructuring is required. Cumulative financial delivery, timing of key implementation milestones (e.g. start of activities), and management of critical risks are severely off track with severe issues and/or concerns. The project is not effectively or efficiently supported.