

2019

Project Implementation Review (PIR)

**Cambodia LDCF - Early Warning Systems**

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# Basic Data

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| **Project Information** | |
| UNDP PIMS ID | 5235 |
| GEF ID | 5318 |
| Title | Strengthening climate information and early warning systems in Cambodia to support climate resilient development and adaptation to climate change |
| Country(ies) | Cambodia, Cambodia |
| UNDP-GEF Technical Team | Climate Change Adaptation |
| Project Implementing Partner | Government |
| Joint Agencies | *(not set or not applicable)* |
| Project Type | Full Size |

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| **Project Description** |
| The project focuses on introducing climate information to Cambodia in an accessible, timely and relevant way that enhances planning and early warning systems. This is achieved through installing meteorology and hydrology infrastructure and software, which enables contextually adapted monitoring of extreme weather events and advancement of meteorological and hydrological forecasting. Furthermore, capacity building of local authorities, women, children, farmers and community leaders on the use of climate information for planning and early warning has been achieved through the provision of training, curriculum development and providing weather information which empowers them to respond to disaster risks and adapt to climate change. |

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| **Project Contacts** | |
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| Project Implementing Partner | Mr. Mao Hak (maohak@online.com.kh) |
| Other Partners | *(not set or not applicable)* |

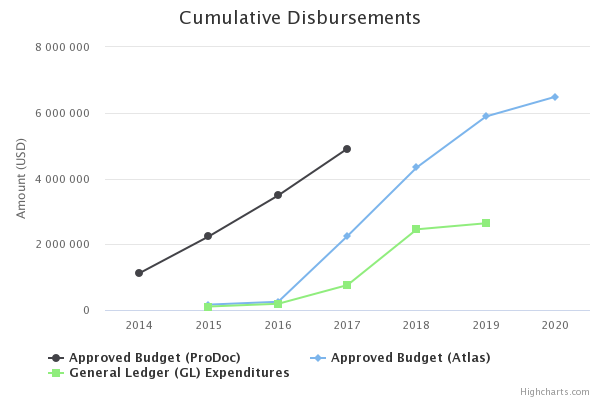
# Overall Ratings

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| Overall DO Rating | Satisfactory |
| Overall IP Rating | Moderately Satisfactory |
| Overall Risk Rating | Moderate |

# Development Progress

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| **Description** | | | | | | |
| **Objective**  **To strengthen climate observing infrastructure and increase national capacity to utilize climate and environmental information to respond to climate hazards and to support climate resilient development planning adaptation to climate change.** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Indicator 1  Number of national, sectoral and sub-national plans informed by accurate and up-to-date climate information  (AMAT 1.1.1.3) | Climate and weather information currently provided by MOWRAM, but information is not sufficiently tailored to adequately inform planning | *(not set or not applicable)* | 2 (MOWRAM and MAFF) | No specific national or sub-national plans have been identified as of today. The focus of project implementation so far has been to generate weather and climate information underlying many other Outcomes. Consultations towards meeting this Objective indicator will be discussed in the second half of 2018. | The Disaster Management Law in Cambodia specifies the role of MOWRAM as climate-related data and information provider, to be used for national, sectoral and sub-national plans.  The availability of climate information has been the country’s challenge, which was identified at the start of the project and confirmed throughout the project implementation. This is the first step in supporting other ministries to integrate climate information into their planning.  The project has pushed to advance Cambodia’s climate infrastructure. The data from the installed stations are being used by MOWRAM in disseminating 3-day and 7-day forecast in their website and Facebook page, which is accessed by many Cambodians, especially in the rural areas.  The information is also used by MOWRAM in advancing their existing forecast capacity and available here:    http://www.cambodiameteo.com/forecast?menu=116&lang=en.  https://www.facebook.com/mowram.gov.kh/.    Regular advisories have been developed and published on MOWRAM website: http://www.cambodiameteo.com/articles?menu=114&lang=en    The project has thus supported MOWRAM in providing information and advisories (as specified above) that is more effective and regular, by using the additional climate infrastructures (resulting in more climate data) installed by the project.    The Monsoon Forum, attended by various relevant government ministries and other stakeholders, clarified the gap that is filled by this project, especially this component.  As to this reporting period, the following national and sub-national plans (as well as sectoral plan) are supported by the climate infrastructure established within the project:  1. National Curriculum for Farmers Field School, supported by the project for MAFF. This is part of the Climate Change Action Plan of MAFF.  2. Disaster Risk Reduction Plan in Agriculture Sector of MAFF has been developed with reference to the climate infrastructure supported by UNDP.  3. Drought Manual, to be used as a national reference for drought risk management has been developed and tested in the trainings held in Kampot and Takeo Province.  4. Disaster Risk Reduction Plan 2019-2023 of National Committee for Disaster Management has been developed with reference to the climate infrastructure set up by UNDP and hosted by MOWRAM. |
| Indicator 2  Effective and timely EW/climate information dissemination mechanism established and functioning  (AMAT 2.1.2.1) | Early warning messages are disseminated, but roles, responsibilities and accountability not clear. No SOP in place. | *(not set or not applicable)* | SOP for the dissemination of early warnings designed and successfully tested | The Monsoon Forum, an inter-ministerial body that is expected to meet periodically, has been resurrected as a primary vehicle to discuss SOPs for early warning dissemination. | There is an existing SOP for Early Warning in Cambodia, yet it is more focused specifically on floods early warning system. As the project strengthens the collaboration of key EWS stakeholders in the country (MOWRAM, MAFF and NCDM), there is a need to update the SOP to cater for the wider need of climate information in Cambodia beyond floods.  The existing Early Warning SOP was discussed nationally involving National and Provincial Committees for Disaster Management as well as MOWRAM and Ministry of Agriculture in May 2019  (https://twitter.com/muhiusamah/status/1125963802648780803.)  The current SOP was also discussed in the Monsoon Forum, activated / supported by the project. Both events discussed the two existing documents related to EWS in Cambodia:  1. Road Map for establishing End-to-End Early Warning Strategy from regional, national, provincial and commune levels covering both human capacity and technical consideration, developed by World Bank and ADPC in 2014.  2. Standard Operating Procedure for Flood Early Warning System in Cambodia developed by World Bank and ADPC in 2014.  From the event, it was recommended to have a specific SOP involving key ministries responsible for disaster management and early warning system in Cambodia (MOWRAM, MAFF and NCDM), advocating an integrated, multi-hazard SOP and EWS1294 as a national system. This is being developed by the project, to be finalized in Q4 2019. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 1**  **Increased institutional capacity to assimilate and forecast weather, hydrological, climate and environmental information** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Indicator 1  Number and type of targeted institutions/individuals with increased capacity to assimilate and forecast climate and environmental information | 9 forecasters at DOM (Staff do not currently serve as formal trainers, do not provide tailored products) | *(not set or not applicable)* | 6 forecasters [(3 from DOM and 3 from DHRW) trained, which can also serve as trainers, to use information from monitoring stations in modeling, data quality control and forecasting climate information (on daily to seasonal, as well as medium to long term timescales)] | The training of forecasters has not been completed as of the end of the reporting period. The sequence of activities envisaged in the project is that installation of AWS/AHS infrastructure would take place first and the training would make use of the weather data generated from it. The training is expected to start in August 2018.    To ensure continuity and consistency of meteorological and hydrological forecasting, the project has engaged with the two agencies which are mandated to the provide / enhance Early Warning System in its member countries, including Cambodia:    1. Regional Integrated Multi-Hazard Early Warning System for Africa and Asia-Pacific region (RIMES) for hydrological and meteorological forecasting in Cambodia.  2. SERVIR-Mekong for slow onset analysis in Cambodia. This cooperation not only benefit MOWRAM, but also MAFF, for the climate application for agriculture sector.    The cooperation with RIMES not only will benefit 9 Forecasters of MOWRAM from Dept. of Meteorology (DoM), but also junior staff of MOWRAM (from both Department of Meteorology & Dept. of Hydrology) as well as staff of Provincial Department of Water Resources and Meteorology (PDOWRAM). | End of project target level achieved. A total of 6 DOM staffs and 3 DHRW have been trained on advanced meteorological and hydrological forecasting.  In addition to advance training, the following capacity building processes have been conducted:  - Basics of seasonal forecasting in March 2019, involving 4 DoM staffs and 3 DHRW staffs. The training was on the fundamentals of seasonal forecasting and introduced large-scale drivers and their influence on seasonal variation of rainfall in South Asia and South East Asian regions, using various models used for seasonal forecasting.  - Two specialized trainings for Cambodian meteorologists were carried out on weather and seasonal climate prediction using short-range numerical weather prediction (NWP) and long-range statistical modelling. One was focused on specialized seasonal forecast training using the data from Cambodia. This involved 12 staffs of DoM while another on river forecasting will be conducted in August 2019.  - A secondment involving 2 meteorologists from MOWRAM at RIMES    In addition, at least four training on maintenance of operationalization of climate infrastructures (Automatic Weather and Hydrological Stations) have been carried out, involving 35 MOWRAM and PDOWRAM officials from the 9 provinces where AWS and AHS were installed. The training also introduced addVANTAGE software and system, which is developed by ADCON, our supplier for AWS installation. |
| Indicator 2  Number and type of training/learning tools on forecasting/modeling available for new hires or for continued learning of staff | Training is generally provided by outside parties and is short term in nature. | *(not set or not applicable)* | 3 courses (1 hydrology, 1 meteorology, 1 applying risk maps and GIS data) developed and available to staff (i.e. online, at local learning institution and training programme within MOWRAM) – course content and level should depend on MOWRAM staff needs | The following types of training targeting MOWRAM and other stakeholders have been agreed:  1. Basic Meteorological Training for junior staff of MOWRAM, as well PDoWRAM staff.  2. Advanced Meteorological and Hydrological Training for technical staff of MOWRAM.  3. Drought monitoring.  4. The risk map and GIS data, which will be integrated in the AWS training and maintenance as well as in the drought monitoring.  5. Re-activating annual Monsoon Forum in Cambodia, which aims at enhancing the knowledge about and capacity of relevant ministries and technical agencies for SOP for extreme events. | End of project target level achieved.    The following trainings (with their corresponding course content and case studies, where applicable), have been implemented:    1. Basic and advance Meteorological forecasting  2. Basic and advance Hydrological forecasting  3. Operation and Maintenance of Automatic Weather Stations & addVANTAGE software system (for DOM)  4. Surface Water and Ground Water Monitoring Stations Software and Hardware Training (for DOHRW)  5. Integrated Water Resource Management System, GIS-based risk analysis from the data from the stations. There will be an advanced GIS data management training to be conducted in Q4 2019 and Q1 2020.  6. Drought Management Manual was developed following the request of Ministry of Agriculture, Forestry and Fisheries on the need of comprehensive drought training manual for agriculture extension officers and farmers, integrating climate / GIS / meteorological and hydrological information for drought management (in Khmer and English)  7. Farmers field school curriculum / training manual was developed in 2019, to be used as a national standard for farmers field school integrating climate information for drought management (in English, Khmer version available in August 2019)  8. Cambodia-specific training modules for meteorological forecasting were developed in May 2019 (English). The result of this module was presented on Monsoon Forum in April 2019: https://www.adaptation-undp.org/resources/document/seasonal-outlook-cambodia-june-2019-department-meteorology-ministry-water. |
| Indicator 3  Number and type of targeted institutions with increased capacity to reduce risks of and response to climate variability  (AMAT 2.2.1) | Forecast information is currently provided, but not tailored. | *(not set or not applicable)* | Products developed for various agro-ecological zones of the 7 priority provinces and provided to MAFF | The design of the climate application for various agro-ecological zones in Cambodia will be developed with MAFF, and part of the activities with SERVIR-MEKONG, later in the project. | The main targeted institutions with increased capacity on climate information, including integration of variability, are MOWRAM, Ministry of Agriculture, Forestry and Fisheries (MAFF) and National Committee for Disaster Management (NCDM).  The project has advanced the forecast products that are available for the entire country. Forecast for each province is also available from the drop down menu of the Ministry’s website listed below. This is the result of the technical trainings specified previously.  City / province forecast: http://www.cambodiameteo.com/forecast?menu=116&lang=en    Climate advisory: http://www.cambodiameteo.com/articles?menu=114&lang=en    Sectoral forecast:  http://www.cambodiameteo.com/productview?menu=124&lang=en    Seasonal outlook from DOM:  https://www.adaptation-undp.org/resources/document/seasonal-outlook-cambodia-june-2019-department-meteorology-ministry-water.    The current forecast is zone-based and caters the need of other stakeholders. As discussed in Monsoon Forum, the future forecast should also be presented based on the agro-climate zone of Cambodia.    The project will first establish agro-climate zone of Cambodia, expected to be completed in November 2019. In the future, forecast will be conducted based on the established agro-ecological zonation of Cambodia. This will be exemplified by the project before the end of the project implementation (Q1 2020). |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 2**  **Climate and weather information available for national, sectoral and sub-national planning as well as for transboundary communication in the region** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Indicator 1  Receipt of transboundary climate and weather related data | Information sharing not systematized | *(not set or not applicable)* | Communications plan to regularly share transboundary information (combined with ADB-supported SOP, or separate) | So far, activities have focused on the production of climate and weather information (Outcome 3), and work in multiple areas has started.    A Memorandum of Understanding with the Mekong River Commission is currently under development to cover the following three areas for this purpose:  i) Sharing climate and weather data generated from the stations established by the Parties through the agreed mechanism  ii) Collaboration between UNDP and MRC on transboundary information dissemination  iii) Knowledge sharing on drought risk management component of UNDP’s EWS project.    In addition, the weather information from MRC-managed weather stations is being integrated into the data platform already established in this project (under Outcome 3).    In June 2018, another regional cooperation was agreed with SERVIR- Mekong to utilize their web-based ‘Regional Drought and Crop Yield Information System’ for the lower Mekong region. This tool will integrate newly generated data from the AWSs/AHSs installed in the project into their system and support policy makers with the current and forecasted drought indices for Cambodia.    The Monsoon Forum described under Outcome 1 will also set the information sharing mechanism for weather related-data in Cambodia. | The project is in cooperation with Mekong River Commission through USAID-funded project implemented by People in Need. Their project is to carry out regional research on the status of transboundary climate and data sharing in Lower Mekong Basin's countries.  The activity is on-going, expected to be completed in Sept / October 2019, whereas the transboundary regional workshop is planned to be held in November 2019.This transboundary climate and weather workshop will be organized by EWS project in Cambodia, which is also part of the technical committee of the regional research.  This is a demonstration of co-sharing activity in supporting transboundary climate and weather data.  Localizing the ‘Regional Drought and Crop Yield Information System for the lower Mekong region’ in Cambodia is being undertaken. It is to be completed in Q4 2019. |
| Indicator 2  % change in agriculture productivity in select communities (data disaggregated by gender) | Early warnings provided are not tailored sufficiently to inform planning at agriculture household level | *(not set or not applicable)* | Positive % change in agriculture, productivity, particularly by female headed households, resulting from behavior changes informed by climate information (see Annex F – Randomized Control Trials) | It was agreed that Farmers Field School will integrate climate information in its curriculum. The use of climate information by farmers and the results in terms of improved productivity will be monitored over time. The field school will be implemented from the second half of 2018. | The Mid Term Review conducted in April 2019 revealed the complexity of this indicator, as (a) there is no baseline study on agriculture productivity and (b) the need of conducting a study on agricultural productivity after the farmers training. This indicator is considered mostly complex and challenging and recommended to be changed. However, a series of activities are being developed to increase agricultural productivity as follows:  The partnership established with Dan Church Aid on establishing Drought Info Hub trained 50 local agricultural co-operative leaders in drought-resistant agricultural techniques (such as water conservation and crop diversification) using a train-the-trainer methodology; and further trained 450 farmers in drought-resistant agricultural techniques. These activities were carried out to increase agricultural productivity.  The partnership also included a study on the change behavior of farmers in the areas covered (and not covered) under Drought Info Hub. The study is on-going and to be finalized by mid-August 2019.  A cooperation with DCA would also include a research component on agricultural productivity in the selected communities where the activity on drought management / application of climate information on agriculture is implemented. |
| **The progress of the objective can be described as:** | | **On track** | | | | |
| **Outcome 3**  **Strengthened institutional capacity to operate and maintain EWS and climate information infrastructure, both software and hardware, in order to monitor weather and climate change** | | | | | | |
| **Description of Indicator** | **Baseline Level** | **Midterm target level** | **End of project target level** | **Level at 30 June 2018** | **Cumulative progress since project start** |
| Indicator 1  Number (national coverage) of automatic weather and climate monitoring network in Cambodia (AMAT 2.1.2.1) | 12 fully functional hydrological stations  0 fully functional meteorological stations | *(not set or not applicable)* | 67 functional hydrological stations (the 12 currently functional, plus the 55 as part of this project)  Up to 25 functional meteorological stations | Procurement for 29 hydrological stations has been completed; 24 meteorological stations have been installed.    During this reporting period, a downward revision of the target for this indicator was tentatively agreed: the number of hydrological stations to be installed by the project was reduced from 55 to 29; meteorological stations reduced from 25 to 24. This is due to new development assistance, which has been newly committed since the project approval, but now assisting the Government with installation of AWSs/AHSs. In exchange for reducing the number of stations, their specifications have been upgraded, enabling the Government to obtain more accurate and/or a wider range of weather parameters as a result (An official letter by MOWRAM requesting for this change is attached). The changes and the underlying justification are expected to be endorsed by the Project Board soon.    As a result of the installation of AWS, processed real-time weather information has been made available online: http://110.74.207.107:8080/livedata/map.jsf?template=weather    In the design of the hydro-meteorological network, the data generated from it will be compatible with other existing data platforms in the country. The data-sharing agreement has already been signed with EWS1294 http://ews1294.info/home ; and another one is being initiated with Mekong River Commission http://ffw.mrcmekong.org/index.php | End of project target level achieved.  - 24 meteorological stations have been installed.  - 29 hydrometeorological stations have been installed; 5 of which are hydrological stations for ground water, and 24 of them are hydrological stations for surface water.    The information from the installed climate infrastructures is housed online and available to public:    AWS live / realtime data: http://110.74.207.107:8080/livedata/map.jsf?template=weather&units=metric  AHS live / realtime data: http://203.189.137.173/Home/Index  Those stations were handed over to the Royal Government of Cambodia: https://www.adaptation-undp.org/node/5377    Additionally, 4 surface water-level sensors were installed under the agreement with PIN in 2018 (https://www.adaptation-undp.org/node/5149); and 10 are expected to be installed under the agreement in 2019 (https://www.adaptation-undp.org/node/5539)  MOWRAM requested the project to install one more AWS in Bokor Mountain before the end of 2019. |
| Indicator 2  Number and type of targeted individuals with increased capacity to provide O&M training for EWS related infrastructure  (AMAT 3.2.1.1 ) | Unclear as brand of equipment and related supplies that need to be procured | *(not set or not applicable)* | 10 key staff from DOM (5) and DHRW (5) trained, and can serve as trainers, in the operations and maintenance of equipment | Training in Siem Reap: 5 meteorologists from DOM of MOWRAM and 28 meteorologists and technicians from the provinces where the AWS were installed were given training on the O&M of weather stations, as well as on add-VANTAGE software for weather data management from the AWS.    The meteorologists from DoM will be further trained on the seasonal forecast for Cambodia, as well as a training of trainers for provincial meteorological staffs from MOWRAM. | A couple of trainings on O&M have been provided to MOWRAM staffs (DOM and DHRW).    - Throughout the installation process (March - Dec. 2018), 3 staff of DOM and 5 staffs of DOHRW are trained directly on the installation, operationalization and maintenance of AWS and AHS.  - In June 2018, 35 officials from MOWRAM and PDOWRAM of 9 provinces where the stations are installed attended the training on operationalization and maintenance of weather stations. The training also introduced addVANTAGE software and system, which is developed by ADCON, as our supplier for AWS installation.  - In December 2018, 12 staffs (5 hydrologists and 7 staffs) of Department of Hydrology and River Works of MOWRAM were trained on the operationalization of automatic hydro stations for surface water and ground water, for software and hardware.  - In April 2018, four staffs of DOM were trained on O&M for AWS    In Q3, Q4 2019 and before the end of the project, two specialized trainings for (at least) 10 staffs (5 from DOM and 5 from DHRW) will be trained on advanced O&M, advancing their skills to be trainers in the future. They will be engaged in training provincial staffs on O&M of AWS and AHS, which will be rolled out in 2019 and the remaining project period in 2020. |
| Indicator 3  % of financing plan funded for hardware and software operations and maintenance | Currently O&M is funded by the MOWRAM budget, this is however insufficient. A financing plan is needed for the longer term sustainability of the network. This does not currently exist. | *(not set or not applicable)* | Financing plan with committed resources sufficient to operate and maintain equipment for at least 5 years (including 2 years after the completion of project) | UNDP, in collaboration with MOWRAM, is in the process of developing a financial plan for operationalization of the AHS and AWS after the project period’s implementation. This includes developing a strategy on commercialization of weather / climate data in Cambodia. | In 2018, the government has secured around USD 40,000 for operation and maintenance of AWS and AHS. This is a good move towards securing funding for sustainability of climate data that is invested by the project. The project is also exploring opportunity with private sectors on their engagement on this aspect in Cambodia.  Advocating this aspect (inclusion / allocation of more government budget with Ministry of Finance) is an ongoing initiative between the project and MOWRAM. The official handover stations from the project to MOWRAM is used as a basis for building a case of more budget allocation for AWS and AHS maintenance. A financial plan to operate and maintain equipment is being developed, expected to be available before the end of 2019; this has been discussed in the last board meeting, especially exploring the involvement of private sectors. |
| **The progress of the objective can be described as:** | | **On track** | | | | |

# Implementation Progress



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| Cumulative GL delivery against total approved amount (in prodoc): | 53.75% |
| Cumulative GL delivery against expected delivery as of this year: | 53.75% |
| Cumulative disbursement as of 30 June (note: amount to be updated in late August): | 2,639,104 |

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| **Key Financing Amounts** | |
| PPG Amount | 150,000 |
| GEF Grant Amount | 4,910,285 |
| Co-financing | 23,379,540 |

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| **Key Project Dates** | |
| PIF Approval Date | May 2, 2013 |
| CEO Endorsement Date | Oct 23, 2014 |
| Project Document Signature Date (project start date): | Nov 28, 2014 |
| Date of Inception Workshop | *(not set or not applicable)* |
| Expected Date of Mid-term Review | Nov 28, 2016 |
| Actual Date of Mid-term Review | Jun 10, 2019 |
| Expected Date of Terminal Evaluation | Feb 28, 2020 |
| Original Planned Closing Date | Nov 28, 2018 |
| Revised Planned Closing Date | May 28, 2020 |

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| **Dates of Project Steering Committee/Board Meetings during reporting period (30 June 2018 to 1 July 2019)** |
| 2019-03-22 |
| 2018-09-26 |

# Critical Risk Management

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| Current Types of Critical Risks | Critical risk management measures undertaken this reporting period |
| Operational | In the long run, sustainability of the stations will depend on MOWRAM’s capacity (technical and financial) to ensure that the stations are functioning and contributing to MOWRAM’s vision of providing climate information and early warning system in Cambodia. The technical capacity has been enforced through capacity building and facilitation of direct interactions with the supplier.  MOWRAM has realized and internalized this situation. They have discussed in the cabinet meeting to include this as their regular budget plan. In 2018, MOWRAM received USD 40,000 for the maintenance of the stations. In 2019 and 2020, the project is developing a sustainability strategy on ensuring the availability and implementation of the long-term strategy for the operationalization and maintenance of the stations. |

# Adjustments

**Comments on delays in key project milestones**

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| **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. If there are no delays please indicate not applicable.** |
| Not applicable. |

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| **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. If there are no delays please indicate not applicable.** |
| Not applicable |

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| **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. If there are no delays please indicate not applicable.** |
| Not applicable |

# Ratings and Overall Assessments

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| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **Project Manager/Coordinator** | Highly Satisfactory | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | The DO rating is Highly Satisfactory because the project has made significant progress toward delivering its expected outcomes of the project.    Within the remaining project period, the project will have been on track to fully achieve its end-of project targets by project closure in May 2020.    Of the three target outcomes of the project, Outcome 3 (Strengthened institutional capacity to operate and maintain EWS and climate information infrastructure), both software and hardware, in order to monitor weather has been achieved. The earmark of this outcome is the completed installation of AWS and AHS and hand-over to the government during the Project Board Meeting in Q1 of 2019. The project has also developed a maintenance and operationalization plan for AWS and AHS with MOWRAM, and schedule of maintenance with respective MOWRAM departments. In addition, the project also installed additional 10 water level stations under the fast-onset Early Warning System, linked to Outcome 2.    Under the Outcome 2 (Climate and weather information available for national, sectoral and sub-national planning as well as for transboundary communication in the region), the project has managed to advance the availability of climate data through the data from the installed stations. The National Climate Outlook Forum (Monsoon Forum) was activated as a periodic mechanism of sharing climate and weather information (real time and seasonal) to public in Cambodia. The forum also discussed the SOP for EWS, which is expected to be available in 2019.  On Outcome 1 of the project (Increased institutional capacity to assimilate and forecast weather and climate), 12 DoM staff have been trained on forecasting, and 10 staffs from DoHRW Works have been trained on the hydrological forecasting. This is beyond the end of project target level, which is 3 of each department. As of the reporting period, various training tools have been developed and tested on the use of climate information in response to climate variability:  - Drought Manual for Cambodia, which includes adoption of drought resistance agriculture training.  - FARM field school curriculum, on local-level advisory guidance for farmers on integrating adapting to climate change and variability into the agriculture sector. These trainings have been piloted with 651 farmers in the Provinces of Takeo and Kampot. This is to be increased as the activities are to be expanded in three more provinces in 2019.    The project also activated national climate outlook forum (Monsoon Forum) in Q1 2019, in which mechanisms for sharing climate information by MOWRAM was discussed. The forum presented the way the climate information has been much more advanced due to the support of this project. More advanced trainings on climate forecasting are being discussed with technical partners to strengthen forecasting capacity on hydrology and meteorology at MOWRAM. In addition, a specialized training for two DOM and DOHRW staff are being planned with technical partners on the actual forecasting as well as advanced training on maintenance and operationalization of AWS and AHS. This is a factory-level training planned with the suppliers of AWS and AHS. Under this component, a ToT for FARM field school will be conducted in Q2 as well as PCDM trainings on fast-onset EWS, focusing on the SMS-based EWS under the EWS1294.    There is a linear progress of the project compared to the 2018 progress report. All targets of installation climate infrastructure have been achieved; and the data is all available online. Continued capacity building programs are ensured. While the focus of the capacity building in the previous reporting period focused on the on-site trainings for operationalization and maintenance of weather stations, this reporting period demonstrated the focus on the climate forecasting on hydrology and meteorology.    Of all the target outputs to be achieved these activities are left to be completed:  - Advanced training on O&M of AWS and AHS for at least 10 staffs of MOWRAM (at least 5 hydrologists and 5 meteorologists) of MOWRAM advancing their skills to be trainers in the future.  - Development of SoP of Early Warning System. The activity has commenced involving various ministries, National Committee for Disaster Management and 14 Provincial Committee for Disaster Management (PCDMs). The SOP will be finalized and tested in Q4 2019.  - Involvement of private sector in Early Warning System. The draft of O&M for AWS is available as of June 2019 and being discussed with MOWRAM and the service provider (ADCON). As per the engagement of private sector, upon the request of project board meeting, a strategy on involvement of private sector in Early Warning System is being developed. This shall focus on increasing engagement of private sector in early warning and actual maintenance and operationalization of AWS and AHS, to ensure continued production of climate data.  - Transboundary Early Warning workshop, which is planned to be conducted in November 2019 to be tagged with the presentation of a research on regional transboundary EWS funded by USAID through People in Need, in which EWS project is involved as a technical committee. The transboundary workshop will be carried out with Mekong River Commission as well.  - As per the Indicator 2 of Outcome 2 (increasing of agricultural productivity), the Mid Term Review conducted in April 2019 revealed the complexity of this indicator, as (a) there is no baseline study on agriculture productivity and (b) the need of conducting a study on agricultural productivity after the farmers training. This indicator is considered mostly complex and challenging and recommended to be changed. This will be discussed in the next board meeting. However, a series of activities are being developed to increase agricultural productivity, under the Drought Info Hub initiative with Dan Church Aid (see part C, Development Progress).  Throughout the reporting period, the project has established several partnerships including with DanChurchAid (on establishing Drought Info Hubs in Kampot and Takeo Provinces), People In Need (on implementation of EWS1294, SMS-based EWS in Koh Kong and Sihanoukville), Save the Children (on capacity building of climate knowledge and response in school children and staff in Koh Kong and Sihanoukville) and the Regional Integrated Multi-Hazard Early Warning System for Asia and Africa (RIMES) on supporting MOWRAM on Multi Hazard Early Warning System in Cambodia through seasonal forecasting, SESAME program and activation of Monsoon Forum in Cambodia. This cooperation with RIMES is on a co-financing basis where RIMES contributes to the development of forecasting tools and guidelines, translated from the global climate model, suitable for Cambodia. This resulted from the RIMES’ Council Annual Program Meeting in which Capacity Development Plan for Cambodia was developed.  In addition, the government of Cambodia also utilized their own funding of ~USD 40,000 for maintenance and operationalization of AWS and AHS. This has been used as a co-financing mechanism for regular maintenance of the stations installed by UNDP in 2018.  The gender component of the project is implemented in Q3 2019. A cooperation is being initiated with Action Aid Cambodia on gender-focus EWS and risk reduction. The cooperation focuses on improving women’s capacity in EWS and Disaster Risk Reduction (DRR) Climate Change Adaptation (CCA) and increasing women’s voices and demands on EWS, DRR and CCA issues.  Through technical collaboration, the project has achieved some of the ‘End of project target level’ in order to meet the project objective of ‘Strengthening climate observing infrastructure and increase national capacity to utilize climate and environmental information to respond to climate hazards and support climate-resilient development planning and adaptation to climate change’. It is done so though various technical collaboration, from installing / modernizing climate infrastructure to making the climate data available. The technical capacity of MOWRAM in assimilating climate data for weather forecasting has been improved, as the result of seasonal forecasting for Cambodia was presented in the Monsoon Forum. Application of climate information on agriculture sectors have been rolled out at community level, which is being duplicated in other provinces of Cambodia, in line with MAFF’s Climate Change Action Plan on agriculture sector. As per the early warning, the project works with NCDM in disseminating early warning through mobile phone, linking provincial and district level contingency plan and community-level actions. This activity is being replicated in three other provinces in Q3 and Q4 in 2019. | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **UNDP Country Office Programme Officer** | Satisfactory | Satisfactory |
| Overall Assessment | The DO rating is Satisfactory because the project has made significant progress toward delivering its expected result.  For this reporting period, the key achievement was the realization of the investment plan of the project on the hardware - hydro and meteorology station which required strong coordination with national stakeholder, contract management, and supplier management. This required extensive engagement with the technical teams from the Ministry of Water Resource and Meteorology (MOWRAM) from both hydrology and meteorology departments. The project also made significant progress in establishing capacity development plans for Operation and Maintenance and early warning info data quality control from the group of experts from ADCON and SUTRON. The project also made good progress on the engagement with other development agencies to collaborate and build synergy, to bring project results in a more cost-effective manner in delivering products on slow-on-set and fast-on-set early warning to the impacted farmers group. The project also built strong engagement with the Ministry of Agriculture, Forestry and Fisheries (MAFF), and the National Committee for Disaster Management (NCDM).  The project also built and benefitted from a strong partnership with all relevant stakeholders, namely MOWRAM, MAFF, and NCDM, due to active and strong project teams. This is a strong asset for the project moving forward.  While a lot of achievements made by end of 2018 and in early 2019, the project will need to maintain its performance for the next 1 year period, focusing more on the soft-side of project commitments - namely capacity building on forecasting, more impact to vulnerable groups, accessibility and availability of early warning information, engagement with private sector, and sustainability plan for the stations invested by the project. With strong project team and strong engagement from the national counterparts, the project will make steady and positive progress toward its commitment for the year 2019, and hence the rating of Satisfactory.  The Outcome 3 (Strengthened institutional capacity to operate and maintain EWS and climate information infrastructure) of the project is one of the backbones of the project. This is a great contribution for Cambodia, as the number of weather monitoring stations has been significantly increased, from 12 to 67, in addition to 10 more water-level sensors. At the beginning, the project faced a big challenge on this hence the change of NIM to DIM modality. The assistance of Procurement Support Unit in Copenhagen, pushed this component to succeed, ensuring that WMO (World Meteorological Organization) standard is adhered.  Significant progress has been achieved under the Outcome 2 (Climate and weather information available for national, sectoral and sub-national planning as well as for transboundary communication in the region). The project has managed to push for increased capacity in assimilating climate data through the data from the installed stations, transforming into seasonal forecasting, adding to the real-time data which is available online. The transboundary component is left to be carried out. Cooperation with Mekong River Commission is being carried out, and this activity will be implemented in Q4 2019. This also shows how the country-level project could contribute to the existing regional transboundary EWS mechanism.  On Outcome 1 of the project (Increased institutional capacity to assimilate and forecast weather and climate); although the main training under the project (on seasonal forecasting) has been conducted, additional technical trainings are to be expected, to introduce more regional models to be applied for forecasting in Cambodia. This is the result of the technical collaboration with RIMES, which needs to be strengthened. Additional O&M training to strengthen capacities of key DOM and DHRW focal persons needs to be carried out. They would be expected to be the trainers for the provincial staffs of MOWRM. The challenge on this is the depth of the technical aspect of the training, which requires more time to understand. This is tackled through continued capacity building.    On the project management side, the project identified the lack of staffs. The change of implementation modality from NIM to DIM did not yield the change of project members. This has been tackled by hiring consultants on monitoring of project results as well as a communication consultant. The project has managed to roll out monthly meeting with the key government counterparts (MOWRAM and MAFF). Coordination with NCDM is also held regularly, especially in relation to the SOP of EWS and EWS1294.  Sustainability of the data produced by the stations installed during the project is one risk that the project faces. This has been discussed in every board meeting and monthly / regular meeting with government counterparts. The allocation of ~USD 40,000 government budget for O&M budget in 2018 is one sign of ownership. After the official handover of the stations, the project is looking at other financial strategy, i.e. by investigating the feasibility of private sector engagement on climate information and EWS. This is expected to be finished in November 2019.  Many have been achieved by the project up to this reporting period. In addition to the project plan for the next implementation period specified by the Project Manager, MOWRAM and UNDP are looking at sustainability strategy, ensuring:  - The climate data is continued to be available in Cambodia, and Cambodian hydrologists and meteorologists continuously provide forecasting and early warning. Involvement of private sector is being explored and private sector engagement strategy is being developed as a response to MOWRAM’s request on looking at sustainable financing strategy, in addition to government’s financial commitment that has been demonstrated in 2018.  - Inter-ministerial collaboration between MOWRAM, MAFF and NCDM will be strengthened at the last implementing year of the project ensuring that SOP for EWS is updated and tested. | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **GEF Operational Focal point** | *(not set or not applicable)* | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | *(not set or not applicable)* | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **Project Implementing Partner** | *(not set or not applicable)* | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | *(not set or not applicable)* | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **Other Partners** | *(not set or not applicable)* | *- IP Rating provided by UNDP-GEF Technical Adviser and UNDP Country Office only -* |
| Overall Assessment | *(not set or not applicable)* | |
| **Role** | **2019 Development Objective Progress Rating** | **2019 Implementation Progress Rating** |
| **UNDP-GEF Technical Adviser** | Satisfactory | Moderately Satisfactory |
| Overall Assessment | During this reporting period, the project continued to capitalize on the successful recovery made in the previous reporting period from a long period of stagnation. The project is now largely on track of achieving all intended development results, and for this reason, a Satisfactory rating is given towards Development Objective progress; at the same time, the financial delivery slowed down in the second half of this reporting period, and for this reason, a Moderately Satisfactory rating is given towards Implementation Progress.    DEVELOPMETN OBJECTIVE  Since the start of the project, but mainly from the last reporting period, the project has made significant progress in enhancing the capacity for monitoring weather data (i.e. hardware), analysis (i.e. software), capacity building (i.e. human resources and institutional) and application (partnerships). Many of these areas are an uncharted territory in Cambodia and the project is making considerable contributions to setting standards in the country. That said, as it will be analyzed below, quick wins have been achieved in the last two years and the project is now starting to make impact in areas that require partnerships, negotiation, deep analyses, etc, that require longer gestation period.    Outcome 1 focuses on institutional capacity building and the project has already achieved two of the three indicators – training of national forecasters and development of training modules. Despite the successful delivery of the project activities, Cambodia continues to suffer from a lack of qualified forecasters. In order to ensure that those nine officers who received training through the project build functional competency in their job, the project team needs to continue monitoring of their performance. The last indicator that requires additional work, which is currently planned for in subsequent years, is the production of tailor-made climate information products. Drought forecasts are currently being worked on in partnership with SERVIR-MEKONG and their application is being discussed in the Monsoon Forum, the national multi-sectoral platform that provides high-level guidance on climate information dissemination which was supported by the project.    Outcome 2 is concerned with processes that translate the weather monitoring capacity (Outcome 3) and analytical capacity (Outcome 1) into development impacts through application of weather forecasts and climate projections for development use. Understandably, this is the most complex Outcome that a large part of focus needs to be dedicated in the rest of the project duration.    The first indicator is related to establishing a cross-boundary information transfer mechanism. While seamless sharing of hydrometeorological information across national borders is important for making up for paucity of information, reaching a bilateral/multilateral agreement is proven to be a challenge. In the last reporting year, an MoU was signed between UNDP and the MRC, no concrete agreements have been signed between Cambodia and any of the neighboring countries. The project is working closely with a USAID-funded project, implemented by People in Need, that is conducting regional research on transboundary EWS involving Cambodia, Laos, Thailand and Myanmar. UNDP and MRC are part of the technical/scientific committee of the project and now considering organizing a regional workshop to enhance the awareness about the need for transboundary information sharing among these countries.    With SERVIR-MEKONG, another regional cooperation that was agreed in the previous reporting period, establishment of a regional platform for sharing drought information is currently being explored. After the partnership was forged, it became apparent that the country does not have any baseline drought studies are available, and now UNDP is undertaking a national drought study.    The second indicator under this Outcome aims at capturing a positive change in agricultural productivity attributable to dissemination of climate information/advisory. During this reporting period, in partnership with an NGO, drought-resistant agricultural techniques are being delivered to farmers and action research is being undertaken to capture changes in productivity.    Two of the three indicators for Outcome 3 have already been achieved. This includes the installation of 24 AWS and 29AHS with 4 additional groundwater stations (in total 57 compared to the EoP target of 55) as well as institutional capacity building for O&M. The last indicator, which is about establishing a financing framework for O&M, is a challenging one and must become one of the key focus activities in the remainder of the project. So far, $40,000 of government funding has been secured for O&M – a nominal, yet a significant amount considering the history of Cambodia where securing the budget for this purpose has been extremely difficult. Continued advocacy, technical support to MoWRAM staff in O&M budgeting, and exploring opportunities for private sector engagement will continue for the rest of the project.    IMPLEMENTATION PROGRESS  As reported in the last PIR, the project improved the operational effectiveness significantly since the implementation modality was altered and high-value procurement of hydrometeorological equipment followed, continuing till the second half of 2018. This was captured in the financial delivery for the first half of this reporting period. Cumulative disbursement during the calendar year of January to December 2018, covering two PIR reporting periods, shows rapid delivery. However, the delivery in the first 2019 slowed down. This may be an indication of operational efficiency of the project implementation, but it is also partially because of the fact that the procurement-driven phase of the project already ended and the project activities become much more dependent on multi-stakeholder consultations, partnerships, collaboration, etc. This is the main factor contributing the Moderately Satisfactory rating for IP.    As presented in the DO PROGRESS section, the project is already on track for achieving many of the project indicators and procurement-driven activities are largely complete (although MoWRAM requested for installation of an additional AWS by the end of 2019) while the cumulative expenditure as of 30 June is 53.74% of the total budget. This means that, moving into the next reporting period, the project team will need to identify relevant activities that contribute to the overall development objective and/or sustainability of the project results within the Outcome framework of the project.    The project team demonstrated ability to make necessary adjustments in response to the ground situation as evidenced by, for example, the decision to undertake a national drought study when it became clear that the country lacks such studies. The project team also continues to play a catalytic role in the country in the EWS sector by expanding partnerships to a large number of development partners. During this reporting period alone, it commenced collaboration with PIN and Dan Church Aid, and it is having a dialogue with several bilateral donors for further collaboration.  Capturing and dissemination of lessons from the project is one of the strengths of this project. The project continues to produce a large number of information materials through blog articles, SNS messages and YouTube videos.    ACTIONS FOR IMPROVED PERFORMANCE  As described above, the project has entered into a phase where adaptation/development dividends from the last two years of work need to be identified and delivered, and in the nascent EWS sector in Cambodia, this will be a challenging undertaking.    1. Continue to invest in private sector engagement potential  While exploring opportunities for private sector engagement in the use of tailored climate/weather information is one of the most difficult tasks, if successful, it can transform the way the national weather station network is maintained. Also given the pivotal role that the project is already playing in the EWS sector in the country, the project is well placed to initiate multi-stakeholder dialogues. To this end, it is suggested that the project engages in a business development expert in this area and explore practical possibilities, based on good practices from other countries, of engaging private sector entities.    2. Continue to invest in the technical capacity of MoWRAM  Although the targets in relation to technical capacity building for forecasters are considered achieved, the project should continue to invest in periodic refresher and other types of training for newly recruited staff. Despite the contributions from this project, the total number of forecasters in Cambodia is no more than a dozen and it is critical that this capacity is maintained or expanded. The project should update a capacity development strategy covering the period for the rest of the project.    3. Undertake a robust economic analysis to capture the change in agricultural productivity  Under Outcome 2, in partnership with Dan Church Aid, a study is currently being done to observe the effectiveness of drought-resistant agricultural techniques. This study is expected to be complete by August 2019. However, the project should consider expanding the scope of this research so that the effectiveness of such techniques is 1) captured from different parts of the country over the course of the remainder of the project; and 2) translated into economic impact. Monetizing the impact of weather/climate information is critical to raise awareness among planners in MoWRAM about the value of maintaining the national network of hydromet stations. This study results, then, should be used as an advocacy tool for securing O&M budget. | |

# 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.  The Project Manager and/or Project Gender Officer should complete this section with support from the UNDP Country Office.

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| **Gender Analysis and Action Plan:** *not available* |
| **Please review the project's Gender Analysis and Action Plan. If the document is not attached or an updated Gender Analysis and/or Gender Action Plan is available please upload the document below or send to the Regional Programme Associate to upload in PIMS+. Please note that all projects approved since 1 July 2014 are required to carry out a gender analysis and all projects approved since 1 July 2018 are required to have a gender analysis and action plan.** |
| *(not set or not applicable)* |

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| **Please indicate in which results areas the project is contributing to gender equality (you may select more than one results area, or select not applicable):** |
| Contributing to closing gender gaps in access to and control over resources: No |
| Improving the participation and decision-making of women in natural resource governance: Yes |
| Targeting socio-economic benefits and services for women: Yes |
| Not applicable: No |

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| **Atlas Gender Marker Rating** |
| **GEN2:** gender equality as significant objective |

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| **Please describe any experiences or linkages (direct or indirect) between project activities and gender-based violence (GBV). This information is for UNDP use only and will not be shared with GEF Secretariat.** |
| not applicable. |

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| **Please specify results achieved this reporting period that focus on increasing gender equality and the empowerment of women.**    **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.** |
| Given the nature of the project, which is more on the technical installation of the automatic hydro and meteorological stations, the gender marker that the project would bring can be effective when the sectoral application of the EWS is implemented, especially on the gender-focused EWS. The technical work of the project was completed in 2018, thus the work on gender specific component is implemented in Q2 of 2019.    The field of meteorology / hydrology that the project focuses on is known to be dominated by male groups. The project has managed to promote the involvement of women in this field in Cambodia in through a story:  - Climate Hero(ine) on collection of climate data in the field:  https://www.adaptation-undp.org/resources/communications-products/cambodian-climate-hero-profile-ms-oak-iet  - A female meteorologist was trained to conduct climate forecast in the country and presented the result of the climate forecast during the 2019 Monsoon Forum. This is also a strategy to show the power structure / change norm in the field commonly known to be dominated by male groups.  The presentation and quote is presented here: https://www.adaptation-undp.org/node/5457 https://www.flickr.com/photos/undpclimatechangeadaptation/48003871426/in/album-72157698388535814/ |

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| **Please describe how work to advance gender equality and women's empowerment enhanced the project's environmental and/or resilience outcomes.** |
| In Q3 of 2019, a gender-focused early warning and disaster risk reduction component is being implemented in coastal province of Cambodia. The gender-specific intervention shall:  • Improve women’s capacity in EWS, Disaster Management and Climate Change Adaptation (CCA) actions  • Increase women’s voices and demands on EWS, DRR and CCA issues  As well as selecting, training and linking local women as ‘DRR Champions’ with skills in community-based disaster risk reduction, hazard, vulnerability and capacity assessments, and leadership and advocacy, the intervention is set to develop a Women’s Resilience Index for Cambodia. The Women’s Resilience Index is a global tool to assess a gender-related capacity in early warning, DRR and CCA, to which the needs of women are being integrated in national resilience-building efforts. Women and youth will be trained in data collection and entry, with analysis supported by UNDP and implementing partner.  The project will also produce and promote a women’s ‘Charter of Demands for Disaster Risk Reduction and Climate Change Adaptation’. The Charter will be developed based on data and consultative workshops, as well as input from women ‘DRR Champions’ from the two provinces. The Charter will provide the basis for advocacy at the sub-national and national levels, seeking action on priority areas. |

# Social and Environmental Standards

**Social and Environmental Standards (Safeguards)**

The Project Manager and/or the project’s Safeguards Officer should complete this section of the PIR with support from the UNDP Country Office. The UNDP-GEF RTA should review to ensure it is complete and accurate.

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| **1) Have any new social and/or environmental risks been identified during project implementation?** |
| No |

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| **If any new social and/or environmental risks have been identified during project implementation please describe the new risk(s) and the response to it.** |
| *(not set or not applicable)* |

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| **2) Have any existing social and/or environmental risks been escalated during the reporting period? For example, when a low risk increased to moderate, or a moderate risk increased to high.** |
| No |

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| **If any existing social and/or environmental risks have been escalated during implementation please describe the change(s) and the response to it.** |
| *(not set or not applicable)* |

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| **SESP:** [EWS Cambodia ESS.pdf](https://undpgefpims.org/attachments/5235/213950/1685214/1685495/EWS%20Cambodia%20ESS.pdf)  **Environmental and Social Management Plan/Framework:** *not available* |
| **For reference, please find below the project's safeguards screening (Social and Environmental Screening Procedure (SESP) or the old ESSP tool); management plans (if any); and its SESP categorization above. Please note that the SESP categorization might have been corrected during a centralized review.** |
| *(not set or not applicable)* |

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| **3) Have any required social and environmental assessments and/or management plans been prepared in the reporting period? For example, an updated Stakeholder Engagement Plan, Environmental and Social Impact Assessment (ESIA) or Indigenous Peoples Plan.** |
| No |

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| **If yes, please upload the document(s) above. If no, please explain when the required documents will be prepared.** |
| *(not set or not applicable)* |

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| **4) Has the project received complaints related to social and/or environmental impacts (actual or potential )?** |
| No |

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| **If yes, please describe the complaint(s) or grievance(s) in detail including the status, significance, who was involved and what action was taken.** |
| *(not set or not applicable)* |

# Communicating Impact

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| **Tell us the story of the project focusing on how the project has helped to improve people’s lives.**  **(This text will be used for UNDP corporate communications, the UNDP-GEF website, and/or other internal and external knowledge and learning efforts.)** |
| Story 1:    Ms. Oak Iet, 46, is a fulltime official with the Provincial Department of Water Resources and Meteorology in Koh Krong. southwest Cambodia.    Each and every day for the past two years, Ms. Iet has been manually checking a simple rain gauge in her backyard, logging the data and reporting it the provincial authorities. She feels responsibility for what she does for the community as a PDOWRAM official, so she voluntarily let her land to install the rain gauge.    Her contribution – along with other officials and volunteers performing a similar duty across the country – is an important one. The data she collects feeds in to Government of Cambodia’s capacity to monitor and forecast weather. For this task, Ms Iet and her husband receive a small payment each month of 100,000 Riel (approximately 25 USD).    “The rain has to be measured every morning at 6am. I have to update the provincial authorities without fail every day – rain or no rain.”    Ms Iet and her husband moved to Koki Chrum village from the southerly province of Kampong Cham around 11 years ago, where a pronounced drought had caused the family financial difficulties.  While the family does not experience drought in Koki Chrum, they have frequently experienced flash floods. Each year the river overflows.    “The weather in my area is not stable – it is changing, and it is becoming more unpredictable. Some weeks, it rains all week. Other weeks, no rain at all.”  Last month (in June 2018), with the family’s permission, an automatic weather station was installed by the Provincial Department in the family’s garden. The tower, and its various complicated-looking sensors, looms among banana plants, enclosed in a 10x10m pen, keeping out her toddler but not the family’s chickens which potter around its base.    Oak Iet says the more detailed and accurate information gathered from the automatic weather station – which automatically measures wind, air temperature and relative humidity, evaporation, solar radiation as well as soil moisture and soil temperature every 15 minutes (reflected online at the Department of Meteorology’s website) – will be very helpful to farming families who will be able to check the conditions real-time and know what is coming. She will be able to share the information with neighbours who frequently come to her. The AWS station is also equipped with cellular antenna and rain gauge.    “Most people in the area aren’t aware of weather information, but they know I am an official with knowledge and so they come to me to ask. I give them whatever information I can about our area and also other provinces (drought, flooding, lightning, wind).”    --    Story 2:    Father of three and motor mechanic Mr. Nop Khemara, 37, has been measuring and recording rainfall in his village for around seven years. His task – for which he receives some small compensation but carries out with a sense of community responsibility – is an important one. The data is recorded by the government to monitor and predict weather in the area. Technology is advancing and recently, an Automatic Weather Station was voluntarily installed by the provincial authorities in his family’s yard. The new station automates the measurement of wind, air temperature and relative humidity, evaporation, solar radiation, and soil moisture and soil temperature.    Three times a day, in the morning, at lunch and in the evening, Nop has diligently checked the simple rain gauge installed at the foot of his family’s garden, recording the results in a log book and phoning it in the provincial authorities. His task – for which he receives some small compensation but carries out with a sense of community responsibility – is an important one. The data is recorded by the government to monitor and predict weather in the area. Technology is advancing and recently, an Automatic Weather Station was voluntarily installed by the provincial authorities in his family’s yard. The new station automates the measurement of wind, air temperature and relative humidity, evaporation, solar radiation, and soil moisture and soil temperature. Readings are captured every 15 minutes and conditions reflected online at the Department of Meteorology’s website.    Forecasts are presented to the public after the assimilation of the real-time data by the Ministry of Water Resources and Meteorology. Having reliable information about the weather is critical for fishermen, farmers and communities in Cambodia, particularly with climate change. The monsoon rains are heavy and getting heavier in Koh Kong province. During the rainy season, it often floods in Nop’s village, the roads becoming unpassable, muddy water filling the holes in the road and turning the ground to boggy mud. Apart from inconvenience, the rain creates uncertainty for farmers and fishmermen. Like his neighbours, Nop watches the weather forecast on TV. Yet with the installation of an Automatic Weather Station under the UNDP-supported project ‘Strengthening Climate Information and Early Warning Systems in Cambodia’, they will now also be able to access real time information and 7-day forecasts online. |

**Knowledge Management, Project Links and Social Media**

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| **Please describe knowledge activities / products as outlined in knowledge management approved at CEO Endorsement /Approval.**    **Please also include: project's website, project page on the UNDP website, blogs, photos stories (e.g. Exposure), 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 lirbary' button in the top right of the PIR.** |
| EWS on Regional Adaptation platform:  https://www.adaptation-undp.org/projects/ldcf-ews-cambodia    EWS on UNDP Cambodia page: http://www.kh.undp.org/content/cambodia/en/home/operations/projects/build-resilience/early-warning-systems.html    - EWS Project Brief: https://www.adaptation-undp.org/resources/project-brief-fact-sheet/project-brief-strengthening-climate-information-and-early-warning  - EWS page on GEF webpage: https://www.thegef.org/project/strengthening-climate-information-and-early-warning-systems-cambodia-support-climate  - EWS Twitter Timeline (houses live tweet): https://twitter.com/i/moments/962517019592503297  - EWS online photo album: https://www.flickr.com/photos/undpclimatechangeadaptation/albums/72157698388535814    Impact stories:    - Completion / Handover of Automatic Weather and Hydrological Stations: https://www.adaptation-undp.org/node/5377- Technical Study on River Basin: https://www.adaptation-undp.org/new-report-provides-foundation-better-flood-management-cambodia%E2%80%99s-prek-thnot-river-basin    - Impact of drought training: https://www.adaptation-undp.org/%E2%80%9Cwe-never-give-now%E2%80%9D-drought-training-empowers-local-communities-cambodia    - Involvement of Agricultural Cooperative in the drought training: https://www.adaptation-undp.org/communities-helping-communities-role-agricultural-cooperatives    - Integrating early warning into the new DRR plan in Cambodia: https://www.adaptation-undp.org/integrating-early-warning-upcoming-national-action-plan-disaster-risk-reduction-priority-cambodia    - Monsoon Forum: https://www.adaptation-undp.org/node/5457    EWS Technical Cooperation    - EWS1294: https://www.adaptation-undp.org/node/5539  - EWS and gender: https://www.adaptation-undp.org/node/5509  - Cooperation with RIMES: https://www.adaptation-undp.org/node/5347  - Agreement with Dan Church Aid on Drought Info Hub: https://www.adaptation-undp.org/node/5284  - EWS1294 in Koh Kong and Sihanoukville Province: https://www.adaptation-undp.org/node/5007  - Community-level training on EWS: https://www.adaptation-undp.org/node/5149  - Cooperation with SERVIR-Mekong on application of Early Warning System on Agriculture Sector:  http://www.adaptation-undp.org/knowledge-everything-when-it-comes-early-warning    Climate Heroes:  https://www.adaptation-undp.org/resources/communications-products/cambodian-climate-hero-profile-mr-nop-khemara  https://www.adaptation-undp.org/resources/communications-products/cambodian-climate-hero-profile-ms-oak-iet  https://www.adaptation-undp.org/resources/communications-products/cambodian-climate-hero-profile-mr-oum-ryna  https://www.adaptation-undp.org/resources/communications-products/cambodian-climate-hero-profile-mr-seng-sopha    Photo Stories:  - EWS and drought risk management: https://undpcambodia.exposure.co/reducing-risk-reaping-resilience  - Faces of Climate Change: https://undpcambodia.exposure.co/faces-of-climate-change-adaptation  - Take Care: Unclear conditions ahead: https://undp-adaptation.exposure.co/take-care-unclear-conditions-ahead    Media Coverages on specific event.    1. Article on World Meteorological Day (March 2018): http://www.khmertimeskh.com/50115619/five-ways-to-build-a-climate-ready-cambodia/  2. Participation of EWS Project in Mekong River Commission Summit (April 2018): (p. 64)  https://www.mrcsummit.org/assets/Uploads/d0c3e0dc04/Conference-booklet-23318-29M18-final-Low-Res.pdf    EWS Video:    1. Early Warning initiative in upgrading manual weather stations: https://www.youtube.com/watch?v=my9kEdqizmU  2. How climate data is captured and broadcasted: https://www.youtube.com/watch?v=AWH7GJL1T2s  3. Advancing climate data in Cambodia through Automatic Weather Stations: https://www.youtube.com/watch?v=11oktsS1Axo  4. A look inside the Cambodia's meteorological operational room: https://www.youtube.com/watch?v=Y1MxWTWc6Hs  5. Climate Hero and the first meteorological stations in Cambodia: https://www.youtube.com/watch?v=YX5t3LMqTKA    Other media coverage (mostly re-posted from our official communications):    https://cambodgemag.com/2019/02/undp-danchurchaid-partenariat-pour-affronter-la-secheresse-au-cambodge.html    http://www.xinhuanet.com/english/2019-03/22/c\_137915849.htm    https://aecnewstoday.com/2019/undp-danchurchaid-helping-drought-proof-cambodia/    https://www.africandiasporaleaders.com/reducing-risk-reaping-resilience-furnishing-cambodias-farmers-with-the-knowledge-to-adapt-to-climate-change-cambodia/    https://ubuntu.news/raising-women-up-undp-and-action-aid-cambodia-partner-to-empower-women-in-climate-action-and-disaster-management-cambodia/    https://thmeythmey.com/event/?page=detail&id=74166  https://theworldnews.net/kh-news/kaargrpgrng-haanibhy-groohmhntraay-paep-chlaat-vai-qaacjuay-snggrooh-qaayujiivit  https://reliefweb.int/report/cambodia/dial-1294-undp-and-people-need-expand-early-warning-phone-service-cambodia  https://reliefweb.int/report/cambodia/reducing-risk-reaping-resilience-furnishing-cambodia-s-farmers-knowledge-adapt  https://reliefweb.int/report/cambodia/climate-ready-monsoon-forums-focus-elevating-seasonal-forecasting-and-preparedness  https://reliefweb.int/report/cambodia/raising-women-undp-and-action-aid-cambodia-partner-empower-women-climate-action-and  https://reliefweb.int/report/cambodia/linking-technology-and-community-early-warning-undp-and-people-need-extend-disaster  https://reliefweb.int/report/cambodia/knowledge-everything-when-it-comes-early-warning  https://reliefweb.int/report/cambodia/integrating-early-warning-upcoming-national-action-plan-disaster-risk-reduction  https://reliefweb.int/report/cambodia/cambodia-looking-horizon-prepares-drought  https://reliefweb.int/report/cambodia/undp-supported-project-hands-over-53-automatic-hydrological-and-meteorological |

# Partnerships

**Partnerships & Stakeholder Engagment**

Please select yes or no whether the project is working with any of the following partners. Please also provide an update on stakeholder engagement. This information is used by the GEF and UNDP for reporting and is therefore very important!  All sections must be completed by the Project Manager and reviewed by the CO and RTA.

|  |
| --- |
| **Does the project work with any Civil Society Organisations and/or NGOs?** |
| Yes |

|  |
| --- |
| **Does the project work with any Indigenous Peoples?** |
| No |

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| --- |
| **Does the project work with the Private Sector?** |
| No |

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| --- |
| **Does the project work with the GEF Small Grants Programme?** |
| No |

|  |
| --- |
| **Does the project work with UN Volunteers?** |
| No |

|  |
| --- |
| **Did the project support South-South Cooperation and/or Triangular Cooperation efforts in the reporting year?** |
| No |

|  |
| --- |
| **CEO Endorsement Request:** [RESUBMISSION PIMS 5235 EWS CEO Endorsement LDCF Cambodia 3Oct14.doc](https://undpgefpims.org/attachments/5235/213950/1685219/1685500/RESUBMISSION%20PIMS%205235%20EWS%20CEO%20Endorsement%20LDCF%20Cambodia%203Oct14.doc) |
| **Provide an update on progress, challenges and outcomes related to stakeholder engagement based on the description of the Stakeholder Engagement Plan as documented at CEO endorsement/approval (see document below). If any surveys have been conducted please upload all survey documents to the PIR file library.** |
| Various collaborations have been established throughout the project implementation with regional technical institutions and NGOs working in the field in Cambodia. Technical partnerships were targeted including government meteorologists, hydrologists, and other staff under the Ministry of Water Resources and Meteorology (MOWRAM) and the Ministry of Agriculture, Forestry and Fisheries (MAFF). This also includes capacity building for provincial staffs of MOWRAM and MAFF who work in the field on maintaining climate data. A collaboration was also established with a technical institution to demonstrate the real-time forecasting that integrates the data from AWS and AHS stations.  The challenges of the technical collaboration lie on the availability of historical data to be used as input for hydro-meteorological forecasting. The relatively new field of meteorology and hydrology in Cambodia makes the data hard to find. The second challenge is on the capacity of in-house meteorologists and hydrologists on the use of updated technology in forecasting. This is where the collaboration works well, as the government officials are linked to technical organizations that impart new skills and technologies to adopt in Cambodia.  Cooperation with NGOs are targeted to local communities as well as local farmers who are dealing with the changing climate in their daily life. Many of the community members are not aware on where to get the information for their planning. Collaboration on Drought Info Hub works well in tackling this challenge.  Another key stakeholder empowered through collaboration is National Committee for Disaster Management (NCDM) through collaboration on the adoption of EWS1294 in Cambodia. The use of early warning for the public is one of the mandates of NCDM and collaboration with an NGO establishing the system is an added value that the project contributes.  News on the collaboration are promoted on our websites, and social media channels (mostly twitter) of UNDP Cambodia, UNDP Asia Pacific and UNDP Climate:  - EWS1294: https://www.adaptation-undp.org/node/5539  - EWS and gender: https://www.adaptation-undp.org/node/5509  - Cooperation with RIMES: https://www.adaptation-undp.org/node/5347  - Agreement with Dan Church Aid on Drought Info Hub: https://www.adaptation-undp.org/node/5284  - EWS1294 in Koh Kong and Sihanoukville Province: https://www.adaptation-undp.org/node/5007  - Community-level training on EWS: https://www.adaptation-undp.org/node/5149  - Cooperation with SERVIR-Mekong on application of Early Warning System on Agriculture Sector:  http://www.adaptation-undp.org/knowledge-everything-when-it-comes-early-warning |

# 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.